DEPARTMENT OF CITY PLANNING

RECOMMENDATION REPORT

City Planning Commission

Date: August 14, 2025
Time: after 8:30 a.m.
Place: Los Angeles City Hall
Council Chambers
200 North Spring Street, Room 340
Los Angeles, CA 90012

This meeting may be available virtually, in a hybrid format. Please check the meeting agenda approximately 72 hours before the meeting for additional information at: https://planning.lacity.org/about/commissions-boards-hearings and/or by contacting cpc@lacity.org

Public Hearing: May 28, 2025

Appeal Status: General Plan Amendment is not appealable. Height District Change appealable by applicant if denied. Zoning Administrator's Determination, and Waiver of Dedication and Improvements are appealable to City Council.

Expiration Date: August 19, 2025

Multiple Approval: Yes

Case No.:	CPC-2022-6859-GPA-HD-ZAD-WDI[1]
CEQA No.:	ENV-2022-6860-ND
Incidental Cases:	N/A
Related Cases:	N/A
Council No.:	15 – McOsker
Plan Area:	Wilmington-Harbor City
Plan Overlay:	Clean Up Green Up
Certified NC:	Wilmington
GPLU:	Heavy Industrial, Light Industrial[2]
Previous Zone:	[Q]M3-1VL-CUGU, [Q]MR2-1VL-CUGU
Applicant/ Representative:	Konoike Pacific Calif Inc, John Parker, Pacific Crest Consultants

PROJECT LOCATION: **1420, 1500 North Coil Avenue; 1532, 1540, 1542 North Alameda Street** (legally described as Lots 1 (Arb 1); 3 (Arb 1); 60-70; VAC 94-2229585; PT MARIA DOLORES DOMINGUEZ DE WATSON 3365.9 (Arb 3), Block None, Tract Rancho San Pedro, 13038, TR 12257, TR 1513)

PROPOSED PROJECT: The project involves the improvement and expansion of an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, resulting in a two-story, 65-foot tall, 267,960 square foot facility, with a total 0.36:1 Floor Area Ratio ("FAR"). The expansion includes the demolition of 27,157 square feet of an existing cold dock for a new 71,331 square feet freezer, resulting in a net addition of 44,174 square feet of new floor area. The improvements include 2,290 square feet of a new engine/mechanical room, electrical room, and fire pump room. The project also involves a new automated racking system, other interior improvements, and

[1] The case was filed on September 22, 2022, prior to the effective date of the New Zoning Code (Chapter 1A - Process and Procedures).Therefore, the case is vested to and subject to the Original Zoning Code.
[2] The site is designated as Light Industrial and Heavy Industrial in the Wilmington – Harbor City Community Plan Map which was last updated in 1999. Although ZIMAS identifies the site as being within Light Manufacturing and Heavy Manufacturing, the City of Los Angeles Department of City Planning does not guarantee the accuracy or reliability of the information transmitted from this website. Therefore, the Community Plan Map land use designations shall prevail.

reducing the length of the existing double rail spur. The project will provide 114 parking spaces, with no (0) trees to be removed, and the grading of less than 500 cubic yards of soil and import of 7,000 cubic yards of soil.

REQUESTED ACTIONS:

1. Pursuant to CEQA Guidelines Section 15074(b), consideration of the whole of the administrative record, including the Negative Declaration, No. ENV-2022-6860-ND ("Negative Declaration"), and all comments received, that there is no substantial evidence that the project will have a significant effect on the environment. Find the Negative Declaration reflects the independent judgement and analysis of the City; Adopt Negative Declaration.

2. Pursuant to City Charter Section 555 and Los Angeles Municipal Code ("LAMC") Section 11.5.6, a General Plan Amendment to the Wilmington-Harbor City Community Plan to amend Footnote No. 10 of the Community Plan Map to allow a 65-foot height limit, in lieu of the 45 feet otherwise allowed.

3. Pursuant to LAMC Section 12.32, a Height District Change from Height District No. 1VL to 1LD.

4. Pursuant to LAMC Section 12.24.X.22, a Zoning Administrator Determination to allow Transitional Height of 65 feet within a distance of 100 to 199 feet from the R1 zone, in lieu of the Transitional Height of 61 feet otherwise allowed by LAMC 12.21.1.A.10.

5. Pursuant to LAMC Section 12.37, a Waiver of Dedication and Improvements from a 15-foot dedication and all improvement requirements a long Coil Avenue, and from a 10-foot dedication and all improvement requirements along Drumm Avenue, which adjoin the project site's frontages.

RECOMMENDED ACTIONS:

1. **Find**, pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including the Negative Declaration, No. ENV-2022-6860-ND ("Negative Declaration"), and all comments received, there is no substantial evidence that the project will have a significant effect on the environment; **Find** the Negative Declaration reflects the independent judgment and analysis of the City; **Adopt** the Negative Declaration;

2. **Approve** and **Recommend**, pursuant to City Charter Section 555 and Los Angeles Municipal Code ("LAMC") Section 11.5.6, adoption of a resolution for a **General Plan Amendment** to the Wilmington-Harbor City Community Plan to amend Footnote No. 10 of the Community Plan Map to allow a site-specific 65-foot height limit, in lieu of the 45 feet otherwise allowed;

3. **Approve** and **Recommend**, pursuant to LAMC Section 12.32, adoption of an ordinance for a **Height District Change** from Height District No. 1VL to 1L;

4. **Approve,** pursuant to LAMC Section 12.24.X.22, a Zoning Administrator Determination to allow Transitional Height of 65 feet within a distance of 100 to 199 feet from the R1 zone, in lieu of the Transitional Height of 61 feet otherwise allowed by LAMC 12.21.1.A.10;

5. **Approve,** pursuant to LAMC Section 12.37, a Waiver of Dedication and Improvements from a 10-foot dedication and some improvement requirements along Drumm Avenue;

6. **Deny** pursuant to LAMC Section 12.37, a Waiver of Dedication and Improvements from a 15-foot dedication and all improvement requirements along Coil Avenue.

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ADVICE TO PUBLIC: *The exact time this report will be considered during the meeting is uncertain since there may be several other items on the agenda. Written communications may be mailed to the *Commission Secretariat, Room 273, City Hall, 200 North Spring Street, Los Angeles, CA 90012* (Phone No. 213-978-1300). While all written communications are given to the Commission for consideration, the initial packets are sent to the week prior to the Commission's meeting date. If you challenge these agenda items in court, you may be limited to raising only those issues you or someone else raised at the public hearing agendized herein, or in written correspondence on these matters delivered to this agency at or prior to the public hearing. As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability, and upon request, will provide reasonable accommodation to ensure equal access to these programs, services and activities. Sign language interpreters, assistive listening devices, or other auxiliary aids and/or other services may be provided upon request. To ensure availability of services, please make your request not later than three working days (72 hours) prior to the meeting by calling the Commission Secretariat at (213) 978-1300.

TABLE OF CONTENTS

Project Analysis **A-1**

Project Summary
Background
Requested Actions
Issues
Conclusion

T Conditions **T-1**

Conditions of Approval **C-1**

Findings **F-1**

General Plan / Charter Findings
Entitlement Findings
CEQA Findings

Public Hearing and Communications **P-1**

Exhibits:

Exhibit A – Project Plans
Exhibit B – Maps, ZIMAS Parcel Profile Report, Site Photos
Exhibit C – Agency Correspondence
- C1 – Bureau of Engineering
- C2 – Bureau of Street Lighting
- C3 – Bureau of Sanitation
- C4 – Bureau of Street Services, Urban Forestry Division
- C5 – Fire Department

Exhibit D – Public Correspondence
Exhibit E – Environmental Documents: ENV-2022-6860-ND
Exhibit F – General Plan Amendment Initiation Request Form

PROJECT ANALYSIS

PROJECT SUMMARY

The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility and office space. The warehouse portion of the building is comprised of covered loading docks, air-conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

The proposed scope of work involves the improvement and expansion of the cold storage facility. Specifically, the scope of work includes the demolition of an existing 27,157 square foot cold dock located along the west side of the building closer to Drumm Avenue. The existing cold dock will be replaced with a new 71,331 square-foot freezer, resulting in a new addition of 44,174 square feet of new floor area. The improvements include 2,290 square feet of new engine/mechanical room, electrical room, and fire pump located along the south side along O Street. The project also involves the improvement of a new automated racking system, as well as other interior improvements.

The proposed project will result in a two-story, 65-foot tall, 267,960 square-foot facility, with a total FAR of 0.36:1. The number of trains unloading stations will decrease from 18 to 6 stations. The project proposes a total of 114 parking spaces. The project will maintain its operations of two 8-hour shifts Monday to Friday and proposes to add a new one 8 hour shift on Saturdays. The project proposes grading of less than 500 cubic yards of soil and import of 7,000 cubic yards of soil. The tree disclosure statement, signed by Rick Burke dated August 29, 2022, and tree letter dated August 26, 2022, stated that there are no street trees located on the public right-of-way abutting the project site. No (0) protected trees will be removed from the subject site, and no (0) street trees will be removed from the adjacent public right-of-way.

BACKGROUND

Subject Property

The project site is located in the Wilmington-Harbor City Community Plan at the northeastern corner of the intersection of Drumm Avenue and Pacific Coast Highway. The site is relatively flat, irregularly-shaped, and is comprised of 18 lots totaling approximately 747,302 square feet (17.16 acres). The property is bounded by Drumm Avenue on the west, and Pacific Coast Highway, Coil Avenue, O Street, and Alameda Street along the south and southeast side of the property. The site has approximately 1,994 feet of frontage along Drumm Avenue, 90 feet along Pacific Coast Highway, 751 feet along Coil Avenue, 636 feet along O Street, and 70 feet along Alameda Street.

The project site is located within 4.4 kilometers (2.7 miles) from the Palos Verdes Fault Zone and within a Methane zone. However, the site is not located within the Alquist-Priolo Fault Zone, Liquefaction Zone, Landslide Area, Very High Fire Severity Zone, or BOE Special Grading Area. The site is within a transit priority area.

Zoning and Land Use Designation

The project site is in the Wilmington-Harbor City Community Plan. The site is designated for Light Industrial, and Heavy Industrial land uses. The Light Industrial land use designation corresponds to the MR2, M2 and P zones, and the Heavy Industrial land use designation corresponds to the M3 and P zones. The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU which is consistent with the land use designations. Height District No. 1VL limits the Floor Area Ratio ("FAR") to 1.5:1 and building height to three (3) stories and 45 feet.

The site is subject to Footnotes Nos. 5, 10, 11, and 12 of the Community Plan. Footnote No. 5, prohibits new billboard signs within 300 feet of any lot zoned A or R. Footnote No. 10 of the Community Plan Map restricts the site's allowable height to three (3) stories and 45 feet from adjacent grade and a maximum FAR of 1.5:1. Footnote No. 11, limits height to three (3) stories and 45 feet from adjacent grade and maximum FAR of 3:1 within the Wilmington Industrial Park; which the site is not located within its boundary. Footnote No. 12, clarifies that areas proposed for MR1 and MR2 zoning classifications are specifically identified on the Plan Map, which the site is identified as MR2.The site is subject to Qualified "Q" Conditions established under Ordinance No. 177243 (Subareas 40, 50,60), which has certain limitations for open storage uses.

Furthermore, the site is subject to the provisions of LAMC Section 12.21.1.A.10 for Transitional Height. Transitional Height restricts height for portions of buildings on a C or M zoned lot when located within specified distances from the RW1 or more restrictive zone. In this instance, building portions 50 to 99 feet from the R1 zone are limited to a height of 33 feet, and building portions 100 to 199 feet from the R1 zone are limited to a maximum height of 61 feet.

The project site is in the Clean Up Green Up (CUGU) Supplemental Use District. The purpose of the CUGU District is to reduce cumulative health impacts from industrial land-uses and on-road vehicle travel corridors in close proximity to sensitive uses. Furthermore, the site is located in the State Enterprise Zone (ZI File No. 2130), Construction Site Review: Department of Conservation, Division of Oil, Gas, and Geothermal Resources (ZI File No. 1195),Transit Priority Area (ZI File No. 2452), Environmental Protection Measures for Housing Developments in proximity of oil wells (ZI File No. 2536) and is subject to the Trucking-Related Use Regulations Ordinance (ZI File No. 2514).

Surrounding Uses

The subject site is in an urbanized area surrounded primarily by industrial, manufacturing, and single-family residential uses. To the north and east, the subject property is directly adjacent to train tracks in the [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU zones. Properties further north are improved with open container storage and chemical processing plant in the [Q]M3-1-CUGU zone. Properties further east across Alameda Street are zoned M3-1VL and improved with parking lot and trucking storage uses. Adjacent buildings to the southeast are improved with manufacturing and parking uses in the [Q]MR2-1VL-CUGU zone. Properties further south across O Street are zoned [Q]MR2-1VL-CUGU and developed with automotive and open storage uses. Properties to the west across Drumm Avenue and to the north of Sandison Street are improved with open storage, parking, and trucking related uses in the [Q]MR2-1VL-CUGU, MR2-1VL-CUGU and [Q]M3-1VL-CUGU zones; south of Sandison Street are single family homes in the R1-1XL-O-CUGU zone; southwest along Pacific Coast Highway are properties developed with commercial retail uses in the [Q]C1-1VL-CUGU zone.

Streets and Circulation

Drumm Avenue, abutting the property to the West, is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet,

and is currently dedicated to right-of-way width of 40 feet and approximately 33-foot roadway width, with a curb and gutter. The west side of the street also has a sidewalk.

Coil Avenue, abutting the property to the southeast, is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to a varying right-of-way width ranging from 30 to 74 feet and approximately 25 to 60 feet of roadway width, with a curb and gutter. Sidewalks are provided only on some sections of the right-of-way.

O Street, abutting the property to south, is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to right-of-way width of 50 feet and approximately 39 foot roadway width, with a curb, gutter, and sidewalk.

Pacific Coast Highway, abutting the property to the south, is designated by the Mobility Plan as Boulevard II, with a designated right-of-way width of 110 feet and roadway width of 80 feet, and is currently dedicated to right-of-way width of 100 feet and approximately 82 foot roadway width, with a curb and sidewalk.

Alameda Street, abutting the property to the east, is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to right-of-way width of 40 feet and approximately 33 foot roadway width, with a curb, and gutter. The west side of the street also has a sidewalk.

Public Transit

The subject site is within a Transit Priority Area and is located in close proximity to the intersection of Pacific Coast Highway and Watson Avenue which is served by several bus stops including the Los Angeles Department of Transportation Wilmington bus line and Torrance Transit 3 and R3 bus lines, which qualifies as a Major Transit Stop.

Relevant Cases and Building Permits

Subject Site:

Building Permit No. 25014-10000-03041: On July 3, 2025, a Building Permit application was submitted for new 2-story office building attach to existing warehouse building. The permit application was withdrawn.

Building Permit No. 22016-10000-37040: On February 1, 2024, a Building Permit application was finalized for interior tenant improvements to existing office space.

Building Permit No. 22014-10000-06155: On December 20, 2024, a Building Permit application was submitted for the interior remodel and additions to existing cold storage facility. The permit application is pending, and the permit was not issued at the time of preparing this report.

Case No. CPC-2018-6402-CPU: On November 1, 2018, the City filed a case for the Wilmington-Harbor City Community Plan Update. The application is pending and has it is pending adoption at the time of preparing this report.

Surrounding Sites:

None

REQUESTED ACTIONS

The applicant has requested a General Plan Amendment to amend Footnote No. 10 of the Community Plan Map to allow a maximum building of 65 feet, a Height District Change to allow Height District 1L, and a Zoning Administrator Determination to allow transitional height of 65 feet within 100 to 199 feet of the R1 Zone, to allow the proposed project. The proposed General Plan Amendment, Height District Change, and Zoning Administrator Determination would allow a building height of 65-feet for the expansion of the cold storage facility. The additional building height is needed to accommodate recent automated racking freezer technology. The new automated system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs additional space to lift materials to the top of the stack.

General Plan Amendment

The applicant has requested a General Plan Amendment to amend Footnote No. 10 of the Community Plan Map to allow a site specific 65-foot height limit, in lieu of the 45 feet otherwise allowed.

Height District Change

In conjunction with the requested General Plan Amendment, the applicant has also requested a Height District Change from Height District No. 1VL to Height District No. 1L, with a site-specific limitation of a maximum 65-foot height.

Zoning Administrator Decision

The applicant has requested a Zoning Administrator Determination to allow Transitional Height of 65 feet within the distance of 100 to 199 feet from the R1 Zone, in lieu of the 61 feet for Transitional Height otherwise allowed by LAMC 12.21.1.A.10.

Waiver of Dedication and Improvements

The applicant has requested a Waiver of Dedication and Improvements for 15-foot dedication and all improvements along Coil Avenue, and from 10-foot dedication and all improvements requirements along Drumm Avenue.

CEQA

The City Planning Commission shall consider, pursuant to CEQA Guidelines Section 15074(b), the whole of the administrative record, including the Negative Declaration, No. ENV-2022-6860-ND ("Negative Declaration"), and all comments received. The Negative Declaration and associated environmental documents are provided in the case file and attached as Exhibit E.

ISSUES

Public Hearing

The public hearing was held on May 28, 2025 at approximately 10:30 a.m. Due to concerns over COVID-19, the Public Hearing was conducted in a virtual format. The public hearing was attended by the applicant team (John Parker, Christ Kirikian, Rick Hallenbeck) and approximately six (6)

speakers who provided comments in opposition. Comments in opposition cited concerns regarding truck traffic, a lack of community engagement and benefits, and requested local hiring and skilled trade opportunities. A representative from Council District 15 (Pamela Thornton) spoke in support at the hearing and recommended conditions from the Neighborhood Council.

Updated Scope of Work

Following the Public Hearing of May 28, 2025, the applicant submitted a request to remove the Site Plan Review entitlement as originally requested. The applicant had updated their scope of work to remove the 13,939 square feet of previously proposed office space. The change in scope reduces the total addition from 281,899 square feet to 267,960 square feet; reduces the FAR from 0.38:1 to 0.36:1; and reduces the parking requirement from 117 to 89 parking stalls, with the applicant providing a total of 114 parking stalls. As previously stated, the existing building floor area is 221,496 square feet and the updated total floor area is of 267,960 square feet. Per LAMC Section 16.05-C.1.a – the threshold for Site Plan Review is for the project to create a net increase of 50,000 gross square feet. The updated scope of work has a net increase of 46,464 square feet, which is below the threshold for Site Plan Review.

Land Use and Zoning
The site has been subject to and is being considered for various land use and zoning designations, as follows:

- The site is currently zoned [Q]MR2-1VL-CUGU and [Q]M3-1VL-CUGU. The site has land use designations of Light Industrial, and Heavy Industrial, as a result of the Wilmington-Harbor City Community Plan which was last updated in 1999.
- The applicant proposes a General Plan Amendment to amend Footnote No. 10 of the Community Plan, as well as a Height District Change from Height District No. 1VL to Height District No. 1LD, with a site-specific limitation of a maximum 65-foot height, with a zoning designation of [Q]MR2-1LD-CUGU.
- The site is part of the Community Plan Update initiated on November 1, 2018 under Case No. CPC-2018-6402-CPU. At the time of preparing this report, the site is planned for a land use designation of Light Industrial and [LB3-FX1-18][15-N] zone with unlimited height, however it is not yet adopted or effective.

The table below provides a summary of the various land use and zoning designations and their respective development potential:

	Current *(1999 Community Plan)*	***Proposed*** *(Subject Case)*	***Planned*** *(2018 Community Plan Update)*
GPLU	Light Industrial, Heavy Industrial	Light Industrial, Heavy Industrial	Light Industrial
Zone	[Q]MR2-1VL-CUGU, [Q]M3-1VL-CUGU	[Q]MR2-1LD-CUGU, [Q]M3-1LD-CUGU	[LB3-FX1-18][15-N]
Footnote	45 feet	65 feet	None
Transitional Height within 100-199 feet	61 feet	65 feet	None

Allowable Height	45 feet	65 feet	Unlimited

The Proposed General Plan Amendment and Height District Change to allow a 65-foot building height will be consistent with the Community Plan Update which will allow unlimited building height.

Height

The project consists of a two-story, 65-foot-tall cold storage facility. The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU. Height District No. 1VL limits the Floor Area Ratio ("FAR") to 1.5:1 and building height to three (3) stories and 45 feet. The site is also subject to Footnote No. 10 of the Community Plan Map which restricts the site height to three (3) stories and 45 feet from adjacent grade and a maximum FAR of 1.5:1. Furthermore, the site is subject to the provisions of LAMC Section 12.21.1.A.10 for Transitional Height. Transitional Height restricts heights height for portions of buildings on a C or M zoned lot when located within specified distances from the RW1 or more restrictive zone. In this instance, building portions 50 to 99 feet from the R1 zone are limited to a height of 33 feet, and building portions 100 to 199 feet from the R1 zone are limited to a height limit of 61 feet. The applicant is complying with the 33 feet height limitation within the area of 50-99 feet from residential lot line. However, the applicant is requesting a Zoning Administrator Determination to allow 65 feet within the area of 100 to 199 feet from a residential lot line.

The applicant is requesting a Height District Change from Height District No. 1VL to Height District No. 1LD, with a site-specific "D" limitation of a maximum 65-foot height. Planning Staff recommends the project to be conditioned to a maximum height of 65-feet, with no additional "D" limitation.

The proposed height is consistent with the Community Plan Update proposed height which will allow unlimited building height. Although the project's proposed height currently exceeds the general height of buildings in the surrounding vicinity, the affected portion of the building will not be directly overlooking residential neighbors. The project site is located across the street from the residential neighborhood. There is an existing 8-foot high masonry wall along Drumm Avenue which will be maintained. A proposed improvement includes the addition of a 15-foot depth landscape buffer all along the Drumm Avenue property line. Furthermore, the expansion is affecting only a portion of the building. From the building addition only approximately 313 feet of building frontage is subject to the transitional height limitations. The additional building height is needed to accommodate recent automated racking freezer technology. The automated system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs additional space to lift materials to the top of the stack.

Traffic

Properties to the west across Drumm Avenue and to the north of Sandison Street are improved with open storage, parking and trucking related uses in the [Q]MR2-1VL-CUGU, MR2-1VL-CUGU and [Q]M3-1VL-CUGU zones; south of Sandison Street are single family homes in the R1-1XL-O-CUGU zone. Residents from the single-family neighborhood have expressed concern regarding increased trucking traffic along Drumm Avenue the last couple of years. However, the primary vehicular access to the site is and will continue to be through Coil Avenue; no vehicular access will be along Drumm Avenue except for LAFD access which will remain gated when not in use. The primary entrance to the site is monitored with a guardhouse at the corner of Coil Avenue and O Street.

Oil Well

The property contains an abandoned oil well, which is located on the northern portion of the site. As identified in ZIMAS by ZI-1195, it requires a Construction Site Well Review (CSWR) to be completed by the California Department of Conservation. However, the plugged and abandoned oil well on the property requires no further action at this time as the planned construction activities for the proposed project will not directly affect the integrity of the abandoned well, as the project design avoids any substantial activities in its vicinity. The California Department of Conservation Division of Oil and Gas issued a Report of Well Abandonment dated March 12, 1990, confirming the oil well has been examined and requirements have been fulfilled. Furthermore, the California Department of Conservation Geologic Energy Management Division issued a CSWR letter dated July 5, 2023, evaluated the proposed scope of work and confirmed the well is over 200 feet from the proposed work area.

Dedications and Improvements

On March 1, 2023, Bureau of Engineering issued Interdepartmental Correspondence requiring the following dedications and improvements:

Dedication Required:

- **Pacific Coast Highway** (Boulevard II/State Highway) – A 5-foot wide strip of land along the property frontage to complete a 55-foot wide half right-of-way in accordance with Boulevard II standards.
- **Coil Avenue** (Local Street) – A 15-foot wide strip of land along the property frontage between Colon Street and O Street and dedicate a partial elbow at the intersection with O Street. Dedicate a 15-foot by 15-foot cut corner or 20-foot radius property line return at the intersection with Pacific Coast Highway.
- **O Street** (Local Street) – A 5-foot wide strip of land along the property frontage to complete a 30 foot wide half right-of-way in accordance with Local Street standards.
- **Drumm Avenue** (Local Street) – A 10-foot wide strip of land along the property frontage to complete a 30-foot wide half right-of-way in accordance with Local Street standards and dedicate a partial elbow at the intersection with Q Street. Dedicate a 20-foot radius property line return at the intersection with Pacific Coast Highway.

Improvements Required:

- **Pacific Coast Highway** – Construct a new 5-foot wide concrete sidewalk in the dedicated area. Obtain Caltrans encroachment permit to upgrade and reconstruct the ADA curb ramps at the northwest corner intersection of Coil Ave and PCH and at the northeast corner intersection of Drumm Ave and PCH. Under Caltrans encroachment permit, construct a 2% cross slope sidewalk at existing dirt. Remove any non-standard items. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
- **Coil Avenue** – Construct suitable surfacing to join the existing improvements to provide an 18-foot wide roadway, concrete curb, 2-foot gutter, a 12-foot sidewalk with tree wells, and a partial elbow section with O Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01- 1020. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
- **O Street** – Construct a 10-foot wide concrete sidewalk and repair any broken or off-grade concrete curb and gutter. Connecting or receiving curb ramps to be constructed on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per

Special Order 01-1020. Remove any landscaping within the Public Right-of-way that will obstruct the construction

- of the improvements. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
- **Drumm Avenue** – Construct suitable surfacing to join the existing improvements to provide a 20-foot wide half roadway, concrete curb, 2-foot gutter, a 10-foot wide concrete sidewalk with tree wells, and the partial elbow section with Q Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Upgrade all vaults within the Public Right of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated. Remove shrubs in public right-of-way that will obstruct the construction of the improvements. Close all unused driveways and upgrade any existing driveways to comply with BOE standards.

The applicant has requested a Waiver of Dedication and Improvements for all the dedication and improvements along Coil Avenue and Drumm Avenue. The applicant has not requested to deviate from the requirements for Pacific Coast Highway or "O" Street; therefore, the project will be required to dedicate and improve the public right-of-way to the satisfaction of the Bureau of Engineering for all streets where a request was not submitted or not approved.

Planning Staff recommends that the Waiver of Dedication and Improvements for Drumm Avenue is GRANTED.

The dedications and improvements required by BOE do not bear any relationship to project impacts, as there are no physical improvements or vehicular access points along Drumm Avenue. There are only two LAFD emergency fire access driveways along Drumm Avenue. The project will maintain an existing 8-foot-tall masonry wall. In addition, a 15-foot-deep landscape setback containing trees spaced 10 feet apart will be provided along the full length of the property's western boundary along Drumm Avenue.

However, Planning Staff recommends that the Waiver of Dedication and Improvements for Coil Avenue –is DENIED.

The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Coil Avenue has a varying roadway width at its narrowest point being approximately 25 feet, which serves as a pinch point. The expansion of a cold storage facility could increase capacity and traffic for the transportation of goods via trucks. Widening of Coil Street can help improve the circulation of trucks and vehicles that travel along Coil Street north of Pacific Coast Highway to the subject site and the other industrial business around the subject site.

Urban Design Studio

The proposed project was reviewed by the Department of City Planning's Urban Design Studio ("UDS").The resulting comments and suggestions focus primarily on the pedestrian experience, 360-degree design, and climate adaptive design.

Pedestrian First:

- Propose street trees for shade.
- Indicate which are the pedestrian and which are the vehicular points of access. Provide the driveway dimensions on the plans.
- Indicate a pedestrian path of travel from the sidewalk to the main office entrance.

The applicant responded that there is no pedestrian access to the site from the sidewalk. There is a pedestrian path of travel from the parking area to the main office building entrance which is identified in Exhibit A. The project is providing a landscape buffer along Drumm Avenue for the entire length of the property that will include approximately 130 24-inch box trees as required by the CUGU Supplemental Use District. The applicant responded no other fronting streets have sufficient pedestrian traffic since they abut industrial uses to warrant additional street trees.

360° Design:

- Provide elevations that indicate the building's materials per the City's Elevation Instructions.
- Provide additional information and indicate the main entrance and windows for the office building additions.
- Consider building materials, design elements and landscaping that add visual interest to the building's elevations especially where visible from the public right of way and adjacent to residential uses.
- Choose building colors and materials that help reduce the buildings' heat absorption and cooling energy.
- All outdoor lighting systems need to be directed away from the window of any residential uses and comply with the non-residential Light Pollution Reduction standards in the Green Building Code.
- Add and indicate on the plans a "No Idling" signage onsite at the back of the curb and adjacent to the entrance of at least one driveway where truck loading, staging or parking occurs.

The applicant has identified the exterior building materials as metal panel with off-white and slate colors to match the existing building. The building complies with the transitional height setback from 50 to 99 feet from the R1 zone which creates horizontal articulation for a portion of the building addition. As mentioned, there is a 15 feet depth landscape buffer along Drumm Avenue. The applicant responded that building material to reduce heat absorption have been built into the project. The applicant has agreed to include "No Idling" signage adjacent to driveway entrance, staging or parking area.

Climate-Adapted:

- Provide a landscape plan that indicates the location, number, size and species for trees, shrubs and groundcover for every floor that includes open space.
- Indicate the proposed number of trees on the plans.
- Add additional trees on the private property and adjacent to the public right of way to buffer the project from adjacent uses per CUGU and the City's Landscape Ordinance. CUGU requires a minimum of one tree for every 10 linear feet within the project's setback.
- Utilize landscape to screen and buffer the project from the adjacent residential uses.
- Consider additional opportunities to comply with Climate adapted Design with the use of landscaping, green architectural elements and by increasing the site's permeability.
- Select trees and hedges that are between 6 and 8 feet high, low in water use, low in biogenic emissions, high in carbon and particulate matter filtration qualities, and retain foliage for most months of the year. For shrubs and groundcover prefer natives that add year long habitat.
- Indicate the LID calculations.
- Indicate the solar areas and their square footage on the roofs.

In response to the UDS comments, the applicant submitted a landscape plan showing the project will maintain an existing 8-foot-tall masonry wall. As mentioned, a 15-foot-deep landscape setback containing trees 10 feet apart will be provided along the full length of the property's western boundary along Drumm Avenue. The roof plans show solar panel calculations.

Negative Declaration Comments:

A comment letter was received from Adams Broadwell Josheph & Cardozo, dated June 12, 2025 (Exhibit D). The letter on behalf of the Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA"), expresses disagreement over the Negative Declaration (ND) findings and supporting documents. The letter states the project may have significant air quality (cumulative impact, cancer risk, operational emissions, etc.), and noise (unsupported assumptions, construction standards, equipment usage, etc.) impacts that require mitigation and an Environmental Impact Report (EIR).

In a letter dated June 23, 2025, Meridian Consultants on behalf of the applicant team responded to the issues of concern (Exhibit E). The response includes clarification of methodology, thresholds, and analysis of the ND. It includes supplemental air quality modeling and supplemental noise modeling to address commentors concerns over lack of analysis on specific environmental features. It concludes the ND does demonstrates that the project's potential environmental impacts are less than significant.

CONCLUSION

Based on the information submitted to the record, and the surrounding uses and zones, Staff recommends that the City Planning Commission approve the requested General Plan Amendment, Height District Change, Zoning Administrator Determination and Waiver of Dedication and Improvements along Drumm Avenue, and deny the Waiver of Dedication and Improvements along Coil Avenue and O Street, subject to the Conditions of Approval, in conjunction with the expansion of a cold storage facility.

CONDITIONS FOR EFFECTUATING (T) TENTATIVE CLASSIFICATION REMOVAL

Pursuant to Section 12.32 G of the Municipal Code, the (T) Tentative Classification shall be removed by the recordation of a final parcel or tract map or by posting of guarantees through the B-permit process of the City Engineer to secure the following without expense to the City of Los Angeles, with copies of any approval or guarantees provided to the Department of City Planning for attachment to the subject planning case file.

1. Dedications and Improvements. Prior to the issuance of any building permits, public improvements and dedications for streets and other rights-of-way adjoining the subject property shall be guaranteed to the satisfaction of the Bureau of Engineering, Department of Transportation, Fire Department (and other responsible City, regional, and Federal government agencies as may be necessary).

   A. Responsibilities/Guarantees:

      1) As part of early consultation, plan review, and/or project permit review, the applicant/developer shall contact the responsible agencies to ensure that any necessary dedications and improvements are specifically acknowledged by the applicant/developer.

      2) Prior to the issuance of sign-offs for final site plan approval and/or project permits by the Department of City Planning, the applicant/developer shall provide written verification to the Department of City Planning from the responsible agency acknowledging the agency's consultation with the applicant/developer. The required dedications and improvements may necessitate redesign of the project. Any changes to the project design required by a public agency shall be documented in writing and submitted for review by the Department of City Planning.

   B. Dedication Required:

      1) **O Street** (Local Street) – A 5-foot wide strip of land along the property frontage to complete a 30 foot wide half right-of-way in accordance with Local Street standards.
      2) **Pacific Coast Highway** (Boulevard II/State Highway) – A 5-foot wide strip of land along the property frontage to complete a 55-foot wide half right-of-way in accordance with Boulevard II standards.
      3) **Coil Avenue** (Local Street) – A 15-foot wide strip of land along the property frontage between Colon Street and O Street and dedicate a partial elbow at the intersection with O Street. Dedicate a 15-foot by 15-foot cut corner or 20-foot radius property line return at the intersection with Pacific Coast Highway.
      4) **Drumm Avenue** (Local Street) – ~~*A 10-foot wide strip of land along the property frontage to complete a 30-foot wide half right-of-way in accordance with Local Street standards and dedicate a partial elbow at the intersection with Q Street. Dedicate a 20-foot radius property line return at the intersection with Pacific Coast Highway.*~~ **None required.**

   C. Improvement Required:

1) **O Street** – Construct a 10-foot wide concrete sidewalk and repair any broken or off-grade concrete curb and gutter. Connecting or receiving curb ramps to be constructed on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Remove any landscaping within the Public Right-of-way that will obstruct the construction of the improvements. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
2) **Pacific Coast Highway** – Construct a new 5-foot wide concrete sidewalk in the dedicated area. Obtain Caltrans encroachment permit to upgrade and reconstruct the ADA curb ramps at the northwest corner intersection of Coil Ave and PCH and at the northeast corner intersection of Drumm Ave and PCH. Under Caltrans encroachment permit, construct a 2% cross slope sidewalk at existing dirt. Remove any non-standard items. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
3) **Coil Avenue** – Construct suitable surfacing to join the existing improvements to provide an 18-foot wide roadway, concrete curb, 2-foot gutter, a 12-foot sidewalk with tree wells, and a partial elbow section with O Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01- 1020. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
4) **Drumm Avenue** – ***Repair and/or replace any broken, damaged, cracked, off-grade concrete curb, gutter, sidewalk and roadway pavement including any necessary removal and reconstruction of existing improvements satisfactory to the City Engineer.*** ~~Construct suitable surfacing to join the existing improvements to provide a 20-foot wide half roadway, concrete curb, 2-foot gutter, a 10-foot wide concrete sidewalk with tree wells, and the partial elbow section with Q Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Upgrade all vaults within the Public Right of- Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated. Remove shrubs in public right-of-way that will obstruct the construction of the improvements.~~ Close all unused driveways and upgrade any existing driveways to comply with BOE standards.

   Notes: Broken curb and/or gutter includes segments within existing score lines that are depressed or upraised by more than ¼ inch from the surrounding concrete work or are separated from the main body of the concrete piece by a crack through the entire vertical segment and greater than 1/8 inch at the surface of the section.

   Non- ADA compliant sidewalk shall include any sidewalk that has a cross slope that exceeds 2% and/or is depressed or upraised by more than ¼ inch from the surrounding concrete work or has full concrete depth cracks that have separations greater than 1/8 inch at the surface. The sidewalk also includes that portion of the pedestrian path of travel across a driveway.

   All new sidewalk curb and gutter shall conform to the Bureau of Engineering Standard Plans S410-2, S440-4, S442-5 and S444-0.

Install tree wells with root barriers and plant street trees satisfactory to the City Engineer and the Urban Forestry Division of the Bureau of Street Services. The applicant should contact the Urban Forestry Division for further information (213) 847-3077.

Street lighting improvements may be required satisfactory to the Bureau of Street Lighting (BSL). The applicant should contact BSL for further information (213) 847-1551.

The Department of Transportation (LADOT) may have additional requirements for dedication and improvements. The applicant should contact LADOT for further information regarding traffic signals, signs, and equipment at 213-485-1062.

Regarding any conflicts with any power poles, the applicant should contact the Department of Water and Power at 213-367-2715.

Regarding any conflicts with fire hydrants, the applicant should contact the Fire Department Hydrants and Access Unit at 213-482-6543.

D. Relocate catch basins per B-Permit plan check requirements. Provide proper site and street drainages for all streets being improved. Roof drainage and surface run-off from the property shall be collected and treated at the site and drained to the streets through drain pipes constructed under the sidewalk through curb drains or connection to the catch basins.

E. Provide hydraulic and hydrology report and calculations and determine if additional catch basins compliant to Standard Plans S-361-0 / S-362-0 are needed on Coil Avenue, and Drumm Avenue per B-Permit plan check requirements.

F. Sewer lines exist in O Street, and Coil Avenue. Extension of the house connection laterals to the new property line may be required. All Sewerage Facilities Charges and Bonded Sewer Fees are to be paid prior to obtaining a building permit.

G. Submit parking area and driveway plan to the Harbor District Office of the Bureau of engineering and the Department of Transportation for review and approval.

2. Street Lighting. No street lighting requirements.

3. Bureau of Sanitation. No hydraulic analysis required.

4. Urban Forestry – Street Trees.

A. Project shall preserve all healthy mature street trees whenever possible. All feasible alternatives in project design should be considered and implemented to retain healthy mature street trees. A permit is required for the removal of any street tree and shall be replaced 2:1 as approved by the Board of Public Works and Urban Forestry Division.

B. Plant street trees at all feasible planting locations within dedicated streets as directed and required by the Bureau of Street Services, Urban Forestry Division. All street tree plantings shall be installed to current tree planting standards when the City has previously been paid for tree plantings. The subdivider or contractor shall notify the Urban Forestry Division at: (213) 847-3077 upon completion of construction for tree planting direction and instructions.

Note: Removal of street trees requires approval of the Board of Public Works. All projects must have environmental (CEQA) documents that appropriately address any removal and replacement of street trees. Contact Urban Forestry Division at: (213) 847-3077 for tree removal permit information.

5. Fire Department. Prior to recordation of City Planning Case/zoning action, a plot plan shall be submitted to the Fire Department for approval.

Notice: If conditions dictate, connections to the public sewer system may be postponed until adequate capacity is available.

Notice: Certificates of Occupancy for the subject property will not be issued by the City until the construction of all the public improvements (streets, sewers, storm drains, etc.) as required herein, are completed to the satisfaction of the City Engineer.

CONDITIONS OF APPROVAL

1. **Site Development.** The project shall be in substantial conformance with the plans and materials submitted by the Applicant, including the proposed building design elements and materials, stamped Exhibit "A," with a date of April 25, 2025, attached to the subject case file. No change to the plans shall be made without prior review by the Department of City Planning, Project Planning Bureau, and written approval by the Director of Planning. Each change shall be identified and justified in writing. Minor deviations may be allowed in order to comply with the provisions of the LAMC or the project conditions.

2. **Use**. Approved herein is the construction, use, and operation of a cold storage facility.

3. **Height**. The project shall be limited to a maximum height of 65 feet per Exhibit "A".

4. **Floor Area Ratio (FAR)**. The project total Floor Area shall be limited to 267,960 square feet or 0.36:1 FAR per Exhibit "A".

5. **Parking per AB 2097.** The project shall be permitted to provide a minimum of zero parking space pursuant to California Government Code Section 65863.2 (AB 2097). 114 parking spaces are provided, as shown in Exhibit "A".

6. **Bicycle Parking.** Bicycle parking for additions that increase the floor area shall be provided consistent with LAMC 12.21 A.16.

7. **Lighting.** All outdoor and parking lighting shall be shielded and down-cast within the site in a manner that prevents the illumination of adjacent public rights-of-way, adjacent properties, and the night sky (unless otherwise required by the Federal Aviation Administration (FAA) or for other public safety purposes).

8. **Trucking Traffic:** No operational access to the site is provided along Drumm Avenue, only Los Angeles Fire Department emergency access as shown in Exhibit "A".

9. **Clean Up Green Up**. The project shall comply with the Clean Up Green Up Supplemental Use District requirements pursuant to Ordinance No. 184,246, including but not limited to:
    a. A Landscape Practitioner shall select trees or hedges that are between 6 and 8 feet high, low in water use, low in biogenic emissions, high in carbon and particulate matter filtration qualities, and retain foliage for most months of the year. Trees shall be limited to selections from the Department of Public Works Bureau of Street Services, Street Tree Selection Guide, except non-drought tolerant trees and Palms shall be prohibited. A minimum of one tree shall be planted and maintained every 10 linear feet within the landscape buffer. Landscape Plans shall be submitted to the Department of City Planning for approval.

10. **Landscape Buffer.** The project shall provide an extended landscape buffer with a minimum 15-foot depth along the full length of the property's western boundary along Drumm Avenue**.** The existing 8-foot-tall masonry wall will be maintained and landscape buffer shall be submitted for review and approval by the Director of Planning prior to building permit sign-off.

11. **Landscape Plan.** Revised landscape plans shall be submitted to show the size and location of all plants. The landscape plan shall indicate landscape points for the Project as required by LAMC 12.40 and Landscape Ordinance Guidelines "O". All open areas not used for buildings, driveways, parking areas, recreational facilities or walks shall be landscaped, including an

automatic irrigation system, and maintained in accordance with a final landscape plan prepared by a licensed landscape architect or licensed architect, and submitted for approval to the Department of City Planning. The final landscape plan shall be in substantial conformance with the submitted Landscape Plan, Exhibit "A," and shall incorporate any modifications required as a result of this grant.

12. **Soil Depths.** Shrubs, perennials, and groundcover shall require a minimum soil depth as follows:
    a. A minimum depth with a height ranging from 15 to 40 feet shall be 42 inches.
    b. A minimum depth with a height ranging from 1 to 15 feet shall be 24 to 36 inches.
    c. A minimum depth with a height of less than 1 foot shall be 18 inches.
    d. A minimum depth of an extensive green roof shall be 3 inches.

    Trees shall require a 42-inch minimum soil depth. Further, the minimum amount of soil volume for tree wells on the rooftop or any above grade open spaces shall be based on the size of the tree at maturity:
    e. 220 cubic feet for trees with a canopy diameter ranging from 15 to 19 feet.
    f. 400 cubic feet for trees with a canopy diameter ranging from 20 to 24 feet.
    g. 620 cubic feet for trees with a canopy diameter ranging from 25 to 29 feet.
    h. 900 cubic feet for trees with a canopy diameter ranging from 30 to 34 feet.

13. **Street Trees**. Street trees shall be provided to the satisfaction of the Urban Forestry Division.

14. **Stormwater/irrigation.** The project shall implement on-site stormwater infiltration as feasible based on the site soils conditions, the geotechnical recommendations, and the City of Los Angeles Department of Building and Safety Guidelines for Storm Water Infiltration. If on-site infiltration is deemed infeasible, the project shall analyze the potential for stormwater capture and reuse for irrigation purposes based on the City Low Impact Development (LID) guidelines.

15. **Solar-ready Buildings.** The Project shall comply with the Los Angeles Municipal Green Building Code, Section 99.05.211, to the satisfaction of the Department of Building and Safety.

Administrative Conditions

16. **Final Plans.** Prior to the issuance of any building permits for the project by the Department of Building and Safety, the applicant shall submit all final construction plans that are awaiting issuance of a building permit by the Department of Building and Safety for final review and approval by the Department of City Planning. All plans that are awaiting issuance of a building permit by the Department of Building and Safety shall be stamped by Department of City Planning staff "Plans Approved". A copy of the Plans Approved, supplied by the applicant, shall be retained in the subject case file.

17. **Notations on Plans.** Plans submitted to the Department of Building and Safety, for the purpose of processing a building permit application shall include all of the Conditions of Approval herein attached as a cover sheet and shall include any modifications or notations required herein.

18. **Approval, Verification and Submittals.** Copies of any approvals, guarantees or verification of consultations, review of approval, plans, etc., as may be required by the subject conditions, shall be provided to the Department of City Planning prior to clearance of any building permits, for placement in the subject file.

19. **Code Compliance.** Use, area, height, and yard regulations of the zone classification of the subject property shall be complied with, except where granted conditions differ herein.

20. **Department of Building and Safety**. The granting of this determination by the Director of Planning does not in any way indicate full compliance with applicable provisions of the Los Angeles Municipal Code Chapter IX (Building Code). Any corrections and/or modifications to plans made subsequent to this determination by a Department of Building and Safety Plan Check Engineer that affect any part of the exterior design or appearance of the project as approved by the Director, and which are deemed necessary by the Department of Building and Safety for Building Code compliance, shall require a referral of the revised plans back to the Department of City Planning for additional review and sign-off prior to the issuance of any permit in connection with those plans.

21. **Enforcement.** Compliance with these conditions and the intent of these conditions shall be to the satisfaction of the Department of City Planning.

22. **Covenant.** Prior to the issuance of any permits relative to this matter, an agreement concerning all the information contained in these conditions shall be recorded in the County Recorder's Office. The agreement shall run with the land and shall be binding on any subsequent property owners, heirs or assign. The agreement must be submitted to the Department of City Planning for approval before being recorded. After recordation, a copy bearing the Recorder's number and date shall be provided to the Department of City Planning for attachment to the file.

23. **Indemnification and Reimbursement of Litigation Costs.**

    Applicant shall do all of the following:

    (i) Defend, indemnify and hold harmless the City from any and all actions against the City relating to or arising out of, in whole or in part, the City's processing and approval of this entitlement, including but not limited to, an action to attack, challenge, set aside, void, or otherwise modify or annul the approval of the entitlement, the environmental review of the entitlement, or the approval of subsequent permit decisions, or to claim personal property damage, including from inverse condemnation or any other constitutional claim.

    (ii) Reimburse the City for any and all costs incurred in defense of an action related to or arising out of, in whole or in part, the City's processing and approval of the entitlement, including but not limited to payment of all court costs and attorney's fees, costs of any judgments or awards against the City (including an award of attorney's fees), damages, and/or settlement costs.

    (iii) Submit an initial deposit for the City's litigation costs to the City within 10 days' notice of the City tendering defense to the Applicant and requesting a deposit. The initial deposit shall be in an amount set by the City Attorney's Office, in its sole discretion, based on the nature and scope of action, but in no event shall the initial deposit be less than $50,000. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement in paragraph (ii).

    (iv) Submit supplemental deposits upon notice by the City. Supplemental deposits may be required in an increased amount from the initial deposit if found necessary by the City to protect the City's interests. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement in paragraph (ii).

    (v) If the City determines it necessary to protect the City's interest, execute an indemnity and reimbursement agreement with the City under terms consistent with the requirements of this condition.

The City shall notify the applicant within a reasonable period of time of its receipt of any action and the City shall cooperate in the defense. If the City fails to notify the applicant of any claim, action, or proceeding in a reasonable time, or if the City fails to reasonably cooperate in the defense, the applicant shall not thereafter be responsible to defend, indemnify or hold harmless the City.

The City shall have the sole right to choose its counsel, including the City Attorney's office or outside counsel. At its sole discretion, the City may participate at its own expense in the defense of any action, but such participation shall not relieve the applicant of any obligation imposed by this condition. In the event the Applicant fails to comply with this condition, in whole or in part, the City may withdraw its defense of the action, void its approval of the entitlement, or take any other action. The City retains the right to make all decisions with respect to its representations in any legal proceeding, including its inherent right to abandon or settle litigation.

For purposes of this condition, the following definitions apply:

"City" shall be defined to include the City, its agents, officers, boards, commissions, committees, employees, and volunteers.

"Action" shall be defined to include suits, proceedings (including those held under alternative dispute resolution procedures), claims, or lawsuits. Actions includes actions, as defined herein, alleging failure to comply with any federal, state or local law.

Nothing in the definitions included in this paragraph are intended to limit the rights of the City or the obligations of the Applicant otherwise created by this condition.

FINDINGS

General Plan/Charter Findings

1. **General Plan Land Use Designation**. The Project Site, 1420 North Coil Avenue, is located within the Wilmington-Harbor City Community Plan. The site is relatively flat and irregularly-shaped and is comprised of 18 lots totaling approximately 747,302 square feet. The site is designated for Light Industrial, and Heavy Industrial land uses[3]. The Light Industrial land use designation corresponds to the MR2, M2 and P zones, and the Heavy Industrial land use designation corresponds to the M3 and P zones. The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU which is consistent with the land use designations. Height District No. 1VL limits the Floor Area Ratio ("FAR") to 1.5:1 and building height to three (3) stories and 45 feet.

   As recommended, the General Plan Amendment would amend Footnote No. 10 of the Community Plan Map to allow 65 feet. The recommended Height District Change to Height District 1L would be consistent with the recommended Plan Amendment and would be in substantial conformance with the purpose, intent, and provisions of the General Plan as it is reflected within the Wilmington-Harbor City Community Plan, as further discussed in Finding Nos. 3, and 5 through 7. Furthermore, the request is consistent with the planned Community Plan Update which will allow unlimited building height.

2. **Charter Finding – City Charter Finding 555**. The General Plan may be amended in its entirety, by subject elements or parts of subject elements, or by geographic areas, provided that the part or area involved has significant social, economic, or physical identity.

   The project site is located in the Wilmington-Harbor City Community Plan at the northeastern corner of the intersection of Drumm Avenue and Pacific Coast Highway. The site is relatively flat and irregularly-shaped, and is comprised of 18 lots totaling approximately 747,302 square feet (17.16 acres). The subject site is in an urbanized area surrounded primarily by industrial, manufacturing, and single-family residential uses.

   The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, distribution of products and office space. The warehouse portion of the building is comprised of covered loading docks, air conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

[3] The site is designated as Light Industrial and Heavy Industrial in the Wilmington – Harbor City Community Plan Map which was last updated in 1999. Although ZIMAS identifies the site as being within Light Manufacturing and Heavy Manufacturing, the City of Los Angeles Department of City Planning does not guarantee the accuracy or reliability of the information transmitted from this website. Therefore, the Community Plan Map land use designations shall prevail.

The General Plan Amendment, Height District Change, Zoning Administrator Determination, and Waiver of Dedication and Improvements would allow development of the site with the expansion of the cold storage facility with 267,960 square feet and a total 0.36:1 FAR, as proposed. As described in Finding Nos. 1, 3, and 5 through 7, the amendment would allow the expansion of the cold storage facility, consistent with the objectives and policies of the 1999 Community Plan.

3. **Charter Finding – City Charter Finding 556**. When approving any matter listed in Section 558, the City Planning Commission and the Council shall make findings showing that the action is in substantial conformance with the purposes, intent and provisions of the General Plan. If the Council does not adopt the City Planning Commission's findings and recommendations, the Council shall make its own findings.

   The project site is in the Wilmington-Harbor City Community Plan. The site is designated for Light Industrial, and Heavy Industrial land uses. The Light Industrial land use designation corresponds to the MR2, M2 and P zones, and the Heavy Industrial land use designation corresponds to the M3 and P zones. The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU which is consistent with the land use designations. Height District No. 1VL limits the Floor Area Ratio ("FAR") to 1.5:1 and building height to three (3) stories and 45 feet.

   The site is subject to Footnotes Nos. 5, 10, 11, and 12 of the Community Plan. Footnote No. 5, prohibits new billboard signs within 300 feet of any lot zoned A or R. Footnote No. 10 of the Community Plan Map restricts the site height to three (3) stories and 45 feet from adjacent grade and a maximum FAR of 1.5:1. Footnote No. 11, limits height to three (3) stories and 45 feet from adjacent grade and maximum FAR of 3:1 within the Wilmington Industrial Park; which the site is not located within its boundary. Footnote No. 12, clarifies that areas proposed for MR1 and MR2 zoning classifications are specifically identified on the Plan Map, which the site is identified as MR2. The site is subject to Qualified "Q" Conditions established under Ordinance No. 177243 (Subareas 40, 50,60), which has certain limitations for open storage uses.

   Furthermore, the site is subject to the provisions of LAMC Section 12.21.1.A.10 for Transitional Height. Transitional Height restricts height for portions of buildings on a C or M zoned lot when located within specified distances from the RW1 or more restrictive zone. In this instance, building portions 50 to 99 feet from the R1 zone are limited to a height of 33 feet, and building portions 100 to 199 feet from the R1 zone are limited to a height limit of 61 feet.

   The project site is in the Clean Up Green Up (CUGU) Supplemental Use District. The purpose of the CUGU District is to reduce cumulative health impacts from industrial land-uses and on-road vehicle travel corridors in close proximity to sensitive uses. Furthermore, the site is located in the State Enterprise Zone (ZI File No. 2130), Transit Priority Area (ZI File No. 2452), Environmental Protection Measures for Housing Developments in proximity of oil wells (ZI File No. 2536) and is subject to the Trucking-Related Use Regulations Ordinance (ZI File No. 2514).

   The applicant has requested a General Plan Amendment to amend Footnote No. 10 of the Community Plan Map, as well as a Height District Change to allow the building height of 65-feet for the expansion of the cold storage facility. As recommended, the proposed building height would be consistent with the planned Wilmington-Harbor City Community Plan Update. As described in Finding Nos. 3, and 5 through 7, the amendment would allow the development of the site with the expansion of the cold storage facility, consistent with the objectives and policies of the 1999 Community Plan.

The subject site is in an urbanized area surrounded primarily by industrial, manufacturing, and single-family residential uses. To the north and east, the subject property is directly adjacent to train tracks in the [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU zones. Properties further north are improved with open container storage and chemical processing plant in the [Q]M3-1-CUGU zone. Properties further east across Alameda Street are zoned M3-1VL and improved with parking lot and trucking storage uses. Adjacent buildings to the southeast are improved with manufacturing and parking uses in the [Q]MR2-1VL-CUGU zone. Properties further south across O Street are zoned [Q]MR2-1VL-CUGU and developed with automotive and open storage uses. Properties to the west across Drumm Avenue and to the north of Sandison Street are improved with open storage, parking, and trucking related uses in the [Q]MR2-1VL-CUGU, MR2-1VL-CUGU and [Q]M3-1VL-CUGU zones; south of Sandison Street are single family homes in the R1-1XL-O-CUGU zone; southwest along Pacific Coast Highway are properties developed with commercial retail uses in the [Q]C1-1VL-CUGU zone.

The General Plan Amendment, Height District Change, Zoning Administrator Determination, and Waiver of Dedication and Improvements would allow the expansion of the cold storage facility with 267,960 square foot and a total 0.36:1 FAR, consistent with the objectives and policies of the 1999 Community Plan.

4. **Charter Finding – City Charter Finding 558**. The proposed Amendment to the 1999 Wilmington – Harbor City Community Plan will be in conformance with public necessity, convenience, general welfare and good zoning practice.

The recommended amendment to the 1999 Wilmington-Harbor City Community Plan would amend Footnote No. 10 which restricts the building height to 45 feet to allow a site specific building height of 65-feet. In conjunction with recommended Height District Change from 1VL to 1LD with site specific height limitation of 65-feet, the request would allow the expansion of the cold storage facility to have a building height of 65-feet.

Public Necessity, Convenience, and General Welfare

The project site is in the Wilmington-Harbor City Community Plan. The site is designated for Light Industrial, and Heavy Industrial land uses. The Light Industrial land use designation corresponds to the MR2, M2 and P zones, and the Heavy Industrial land use designation corresponds to the M3 and P zones. The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU which is consistent with the land use designations. Height District No. 1VL limits the Floor Area Ratio (“FAR”) to 1.5:1 and building height to three (3) stories and 45 feet. The site is also subject to Footnote No. 10. Footnote No. 10 of the Community Plan Map restricts the site height to (three) 3 stories and 45 feet from adjacent grade and maximum FAR of 1.5:1.

The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, distribution of products and office space. The warehouse portion of the building is comprised of covered loading docks, air-conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

The Project proposes the improvements and expansion of the existing cold storage facility. The applicant has requested a General Plan Amendment to amend Footnote No. 10 of the Community Plan Map, as well as a Height District Change, to allow the proposed project.

The Port of Los Angeles is undergoing expansions to improve cargo flow. The receipt and storage of food products from international trade is a significant industry at the Port of Los Angeles, and is significant for the City of Los Angeles as a whole. The proposed expansion will allow new automated freezer technology to be incorporated into the site. The additional building height is needed to accommodate automated robotic arms to lift and place products more efficiently. A focus of the expansion is to allow greater onsite storage capacity. Current working storage capacities necessitates higher earlier/immediate transloading of greater volume. The automated freezer technology along with the reduction of existing railroad spurs will allow for KPAC to improve and expand its operations and contribute to the goods movement industry. The Applicant faces western regional competition, where buildings of greater height have been approved. The project site lies immediately west of an oil refining/storage facility with no building height. The applicant's request for a 65-foot building height to include a new automated freezer technology is at par with industry standards.

Good Zoning Practice

The project site is in the Wilmington-Harbor City Community Plan. The site is designated for Light Industrial, and Heavy Industrial land uses. The Light Industrial land use designation corresponds to the MR2, M2 and P zones, and the Heavy Industrial land use designation corresponds to the M3 and P zones. The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU which is consistent with the land use designations. Height District No. 1VL limits the Floor Area Ratio ("FAR") to 1.5:1 and building height to three (3) stories and 45 feet.

The subject site is in an urbanized area surrounded primarily by industrial, manufacturing, and single-family residential uses. To the north and east, the subject property is directly adjacent to train tracks in the [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU zones. Properties further north are improved with open container storage and chemical processing plant in the [Q]M3-1-CUGU zone. Properties further east across Alameda Street are zoned M3-1VL and improved with parking lot and trucking storage uses. Adjacent buildings to the southeast are improved with manufacturing and parking uses in the [Q]MR2-1VL-CUGU zone. Properties further south across O Street are zoned [Q]MR2-1VL-CUGU and developed with automotive and open storage uses. Properties to the west across Drumm Avenue and to the north of Sandison Street are improved with open storage, parking, and trucking related uses in the [Q]MR2-1VL-CUGU, MR2-1VL-CUGU and [Q]M3-1VL-CUGU zones; south of Sandison Street are single family homes in the R1-1XL-O-CUGU zone; southwest along Pacific Coast Highway are properties developed with commercial retail uses in the [Q]C1-1VL-CUGU zone.

The subject site is within a Transit Priority Area and is located in close proximity to the intersection of Pacific Coast Highway and Watson Avenue which is served by several bus stops including the Los Angeles Department of Transportation Wilmington bus line and Torrance Transit 3 and R3 bus lines, which qualifies as a Major Transit Stop.

The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU which is consistent with the land use designations. Height District No. 1VL limits the Floor Area Ratio ("FAR") to 1.5:1 and building height to 45 feet and (3) stories. The site is also subject to Footnote No. 10. Footnote No. 10 of the Community Plan Map restricts the site height to three (3) stories and 45 feet from adjacent grade and maximum FAR of 1.5:1. The ability to expand the use on the existing site is limited because of the existing height restrictions. The additional building height is needed to accommodate recent automated racking freezer technology. The automated

system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs additional space to lift materials to the top of the stack.

The General Plan Amendment, Height District Change, and Zoning Administrator Determination would allow the building height of 65-feet for the expansion of the cold storage facility. As further discussed in Findings Nos. 1 and 5 through 7, the amendment of the Footnote and Height District would be consistent with the purpose, intent, and provisions of the General Plan.

5. **General Plan Text**. The 1999 Wilmington-Harbor City Community Plan text includes the following relevant objectives, policies, and programs:

Goal 3: *Provide Sufficient land for a variety of industrial uses with maximum employment opportunities which are safe for the environment and the work force, and which have minimal adverse impact on acjacent residential uses.*

Objective 3-1: *To provide locations for future industrial development and employment which are consistent to transportation facilities and compatible with surrounding use.*

Policy 3-1.1: *Designate lands for the continuation of existing industry and development of new industrial parks, research and development uses, light manufacturing, and similar uses which provide employment opportunities.*

Policy 3-1.3: *Require a transition of industrial uses, from intensive uses to less intensive uses, in those areas in proximity to residential neighborhoods.*

Objective 3-2: *To retain industrial lands for industrial use to maintain and expand the industrial employment base for the community residents.*

Policy 3-2.1: *Protect areas designated for Industry and proposed for the MR restricted zoning classifications on the Plan Map from unrelated commercial and other non-industrial uses, and upgrade such areas with high quality industrial development that is compatible with acjacent land use.*

Policy 3-2.2: *Large industrially planned parcels located in predominantly industrial area should be protected from development by other uses which do not support the industrial base of the City and community.*

Objective 3-3: *To improve the aesthetic quality and design of industrial areas, eliminate blight and detrimental visual impact on residential areas, and establish a stable environmental for quality industrial development.*

Policy 3-3.1: *Require urban design techniques, such as appropriate building orientation and scale landscaping, buffering and increased setbacks in the development of new industrial properties to improve land use compatibility with acjacent uses and to enhance the physical environment.*

The expansion of the cold storage facility and the request for additional height is consistent with the above-referenced objective and polies as it will accommodate the retention and expansion of existing industrial uses. The project will be subject to CUGU Supplemental Use

District requirements for site planning, trash enclosures, fencing, lighting, and mechanical equipment, to improve compatibility with adjacent uses and enhance the physical environment.

The recommended amendment to the 1999 Wilmington-Harbor City Community Plan would amend Footnote No. 10 of the Community Plan Map which restricts the building height to 45 feet to allow a site specific building height of 65-feet. In conjunction with recommended Height District Change from 1VL to 1L with site specific height limitation of 65-feet, would allow the expansion of the cold storage facility to have a building height of 65-feet. The additional building height is needed to accommodate recent automated racking freezer technology. The automated system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs to lift materials to the top of the stack. Furthermore, as recommended the updates also align with the planned Wilmington-Harbor City Community Plan Update, which would identify the site as Limited Industrial with an unlimited building height.

As recommended, the General Plan Amendment and Height District Change would be consistent with the above referenced objectives, policies, and programs of the 1999 Wilmington-Harbor City Community Plan.

6. **Framework Element**. The Framework Element for the General Plan (Framework Element) was adopted by the City of Los Angeles in December 1996 and re-adopted in August 2001. The Framework Element provides guidance regarding policy issues for the entire City of Los Angeles, including the project site. The Framework Element also sets forth a Citywide comprehensive long-range growth strategy and defines Citywide polices regarding such issues as land use, housing, urban form, neighborhood design, open space, economic development, transportation, infrastructure, and public services. The Framework Element includes the following provisions, objectives and policies relevant to the instant request:

   Goal 3J: *Industrial growth that provides job opportunities for the City's residents and maintains the City's fiscal viability.*

   Objective 3.14: *Provide land and supporting serves for the retention and attraction of new industries.*

   Policy 3.1.4: *Accommodate new development of industrial uses in areas designated as "Industrial-Light," "Industrial-Heavy," "Industrial-Transit" in accordance with Tables 3-1 and 3-9. The range and intensities of uses permitted in any area shall be determined by the community plans.*

   As stated in the General Plan Framework, lands designated for industrial use by the Community Plans continue to be designated for these purposes to support economic development and jobs generation. The project site is in the Wilmington-Harbor City Community Plan. The site is designated for Light Industrial, , and Heavy Industrial land uses. The site is zoned [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU which is consistent with the land use designations. Height Districts No. 1VL limits the Floor Area Ratio ("FAR") to 1.5:1 and building height to 45 feet and (3) stories.

   The applicant has requested a General Plan Amendment to amend Footnote No. 10 of the Community Plan Map to allow 65 feet, a Height District Change to allow Height District 1L, and a Zoning Administrator Determination to allow transitional height of 65 feet within 100 to 199 feet of the R1 Zone, to allow the proposed project. The proposed General Plan Amendment, Height District Change, and Zoning Administrator Determination would allow a

building height of 65-feet for the expansion of the cold storage facility. The additional building height is needed to accommodate recent automated racking freezer technology. The automated system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs additional space to lift materials to the top of the stack. The improvements and expansion of the cold storage facility are consistent with the above referenced goals, objectives and policies of the General Plan Framework.

7. **Mobility Element**. The Mobility Element of the General Plan is not likely to be affected by the recommended action herein. The proposed project, with the requested General Plan Amendment and Height District Change, proposes the improvement and expansion of an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, resulting in a two-story, 65-foot tall, 267,960 square feet facility, with a total 0.36:1 FAR.

The irregular shape site abuts multiple streets. The property is bounded by Drumm Avenue on the west, and Pacific Coast Highway, Coil Avenue O Street, and Alameda Street along the south and southeast side of the property.

Abutting the property to the West, is Drumm Avenue which is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to right-of-way width of 40 feet and approximately 33 foot roadway width, with a curb and gutter. The west side of the street also has a sidewalk.

Abutting the property to the southeast is Coil Avenue, which is designated by the Mobility Plan as a Local Street Standard. Coil Avenue designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to a varying right-of-way width ranging from of 34 to 74 feet and approximately 25 to 60 foot roadway width, with a curb and gutter. Sidewalks are provided only on some sections of the street.

O Street is abutting the property to south and is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to right-of-way width of 49 feet and approximately 39 foot roadway width, with a curb, gutter, and sidewalk.

Pacific Coast Highway is abutting the property to the south, and is designated by the Mobility Plan as Boulevard II, with a designated right-of-way width of 110 feet and roadway width of 80 feet and is currently dedicated to right-of-way width of 100 feet and approximately 82-foot roadway width, with a curb and sidewalk.

Abutting the property to the east is Alameda Street, and is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to right-of-way width of 40 feet and approximately 33 foot roadway width, with a curb, and gutter. The west side of the right-of-way also has a sidewalk.

The applicant has requested a Waiver of Dedication and Improvements for a 15-foot dedication and all improvements along Coil Avenue, and from a 10-foot dedication and all improvements requirements along Drumm Avenue. The project will be required to dedicate and improve the public right-of-way to the satisfaction of the Bureau of Engineering for all streets where a request was not submitted or not approved. In addition to providing dedications to meet the established Street Standards, the project is also consistent with the following policies of the Mobility Element:

Policy 1.8: Goods Movement Safety: Ensure that the goods movement sector is integrated with the rest of the transportation system in such a way that does not endanger the health and safety of residents and other roadway users.

Policy 2.8: Goods Movement: Implement projects that would provide regionally significant transportation improvements for goods movements.

Policy 3.1: Access for All: Recognize all modes of travel, including pedestrian, bicycle, transit, and vehicular modes - including goods movement – as integral components of the City's transportation system.

Policy 4.12: Goods Movement: Increase public awareness about the importance and economic value of goods movements in the Los Angeles region.

Furthermore, the subject site is within a Transit Priority Area and is located in close proximity to several bus stops served by the Los Angeles Department of Transportation Wilmington route and Torrance Transit 3, R3 bus lines, which qualifies as a Major Transit Stop.

Entitlement Findings

7. **Height District Change Findings**.

   a. **Pursuant to Section 12.32-C of the Municipal Code, and based on these findings, the recommended action is deemed consistent with public necessity, convenience, general welfare and good zoning practice.**

   As provided under Finding No. 1, the project is consistent with public necessity, convenience, and general welfare as the project will improve and expand an existing cold storage facility within an industrial zoned lot. The project is consistent with good zoning practice as it is consistent with the existing land use designation.

   b. **Pursuant to Section 12.32-G. of the Municipal Code "T" Classification Findings.**

   The current action, as recommended, has been made contingent upon compliance with new "T" conditions of approval imposed herein for the proposed project. As recommended, the Height District Change has been placed in temporary "T" Classification in order to ensure consistency with the amendment to Footnote No. 10 of the Community Plan Map to allow a 65-foot height limit. The "T" Conditions are necessary to ensure the identified dedications, improvements, and actions are undertaken to meet the public's needs, convenience, and general welfare served by the actions required. These actions and improvements will provide the necessary infrastructure to serve the surrounding community at this site.

8. **Zoning Administrator Determination Findings**.

   c. **The project will enhance the built environment in the surrounding neighborhood or will perform a function or provide a service that is essential or beneficial to the community, city, or region.**

   The project site is located in the Wilmington-Harbor City Community Plan at the northeastern corner of the intersection of Drumm Avenue and Pacific Coast Highway. The site is relatively flat, irregularly-shaped, and is comprised of 18 lots totaling approximately 747,302 square feet (17.16 acres). The property is bounded by Drumm Avenue on the west, and Pacific Coast Highway, Coil Avenue, O Street, and Alameda Street along the south and southeast side of the property. The site has approximately 1,994 feet of frontage

along Drumm Avenue, 90 feet along Pacific Coast Highway, 751 feet along Coil Avenue, 636 feet along O Street, and 70 feet along Alameda Street.

The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, distribution of products and office space. The warehouse portion of the building is comprised of covered loading docks, air-conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

The proposed project will result in a two-story, 65-foot tall, 267,960 square-foot facility, with a total FAR of 0.36:1. The number of trains unloading stations will decrease from 18 to 6 stations. The project proposes a total of 114 parking spaces. KPAC intends to maintain their operations of two 8-hour shifts Monday to Friday and one 8 hour shift on Saturdays. The project proposes grading of less than 500 cubic yards of soil and import of 7,000 cubic yards of soil. The tree disclosure statement, signed by Rick Burke dated August 29, 2022, and tree letter dated August 26, 2022, stated that there are no street trees located on the public right-of-way abutting the project site. No (0) protected trees will be removed from the subject site, and no (0) street trees will be removed from the adjacent public right-of-way.

The applicant has requested a Zoning Administrator Determination to allow Transitional Height of 65 feet within the distance of 100 to 199 feet from the R1 Zone, in lieu of the maximum 61 feet otherwise required. Neighboring properties to the west are single-family dwelling units and zoned R1. The additional building height is needed to accommodate recent automated racking freezer technology. The automated system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs additional space to lift materials to the top of the stack. A focus of the expansion is to allow greater onsite storage capacity. Current working storage capacities necessitates higher earlier/immediate transloading of greater volume. The Applicant faces western regional competition, where buildings of greater height have been approved. The project site lies immediately west of an oil refining/storage facility with no building height. The applicant's requests for building height to include a new automated freezer technology is at par with industry standards. The automated freezer technology along with the reduction of existing railroad spurs will allow for KPAC to improve and expand it's operations and contribute to the goods movement industry. The Port of Los Angeles is undergoing expansions to improve cargo flow. The receipt and storage of food products from international trade is a significant industry at the Port of Los Angeles, and is significant for the City of Los Angeles as a whole. The expansion of the cold storage facility will provide a service that is essential and beneficial to the community, city and region.

d. **The project's location, size, height, operations and other significant features will be compatible with and will not adversely affect or further degrade adjacent properties, the surrounding neighborhood, or the public health, welfare, and safety.**

The proposed scope of work involves the improvement and expansion of the cold storage facility. Specifically, the scope of work includes the demolition of an existing 27,157 square

foot cold dock located along the west side of the building closer to Drumm Avenue. The existing cold dock will be replaced with a new 71,331 square-foot freezer, resulting in a new addition of 44,174 square feet of new floor area. The improvements include 2,290 square feet of new engine/mechanical room, electrical room, and fire pump located along the south side along O Street. The project also involves the improvement of a new automated racking system, as well as other interior improvements.

The proposed project will result in a two-story, 65-foot tall, 267,960 square-foot facility, with a total FAR of 0.36:1. The number of trains unloading stations will decrease from 18 to 6 stations. The project proposes a total of 114 parking spaces. KPAC intends to maintain their operations of two 8-hour shifts Monday to Friday and one 8 hour shift on Saturdays. The project proposes grading of less than 500 cubic yards of soil and import of 7,000 cubic yards of soil. The tree disclosure statement, signed by Rick Burke dated August 29, 2022, and tree letter dated August 26, 2022, stated that there are no street trees located on the public right-of-way abutting the project site. No (0) protected trees will be removed from the subject site, and no (0) street trees will be removed from the adjacent public right-of-way.

The subject site is in an urbanized area surrounded primarily by industrial, manufacturing, and single-family residential uses. To the north and east, the subject property is directly adjacent to train tracks in the [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU zones. Properties further north are improved with open container storage and chemical processing plant in the [Q]M3-1-CUGU zone. Properties further east across Alameda Street are zoned M3-1VL and improved with parking lot and trucking storage uses. Adjacent buildings to the southeast are improved with manufacturing and parking uses in the [Q]MR2-1VL-CUGU zone. Properties further south across O Street are zoned [Q]MR2-1VL-CUGU and developed with automotive and open storage uses. Properties to the west across Drumm Avenue and to the north of Sandison Street are improved with open storage, parking, and trucking related uses in the [Q]MR2-1VL-CUGU, MR2-1VL-CUGU and [Q]M3-1VL-CUGU zones; south of Sandison Street are single family homes in the R1-1XL-O-CUGU zone; southwest along Pacific Coast Highway are properties developed with commercial retail uses in the [Q]C1-1VL-CUGU zone.

The subject site is within a Transit Priority Area and is located in close proximity to the intersection of Pacific Coast Highway and Watson Avenue which is served by several bus stops including the Los Angeles Department of Transportation Wilmington bus line and Torrance Transit 3 and R3 bus lines, which qualifies as a Major Transit Stop.

The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, distribution of products and office space. The warehouse portion of the building is comprised of covered loading docks, conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

The building is proposed with a stepback to comply with the transitional height requirements from 0 to 99 feet from the lot line of the R1 zone. Building portions 100 to 199 feet from the lot line of R1 zone is limited to a height limit of 61 feet. The applicant seeks deviation to allow a building height of 65 feet in lieu of the 61 feet allowance. The proposed building height of 65-feet for the expansion of the cold storage facility. The additional building height is needed to accommodate recent automated racking freezer technology. The automated system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs additional space to lift materials to the top of the stack.

The project will also be subject to CUGU Supplemental Use District requirements for site planning, trash enclosures, fencing, lighting, and mechanical equipment, to improve compatibility with adjacent uses and enhance the physical environment. The site is also subject to Qualified "Q" Conditions established under Ordinance No. 177243 which has certain requirements for open storage uses. The site will provide an extended landscape buffer with a minimum 15-foot depth along the full length of the property's western boundary along Drumm Avenue, to provide a transition to the single-family residential neighborhood to the west.

Therefore, as described above, the project's size, height, operations, amenities, and features will enhance the surrounding neighborhood rather than further degrade or adversely affect other properties.

e. **The project is in substantial conformance with the purposes, intent and provisions of the General Plan, applicable community plan, and any specific plan.**

As provided under Finding Nos. 1, 3, 5 through 7, and 11a, the project is in substantial conformance with the Framework Element, Community Plan, and Mobility Element.

f. **The project provides for an arrangement of uses, buildings, structures, open spaces and other improvements that are compatible with the scale and character of the adjacent properties and surrounding neighborhood.**

The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, distribution of products and office space. The warehouse portion of the building is comprised of covered loading docks, air-conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

The proposed scope of work involves the improvement and expansion of the cold storage facility. Specifically, the scope of work includes the demolition of an existing 27,157 square foot cold dock located along the west side of the building closer to Drumm Avenue. The existing cold dock will be replaced with a new 71,331 square-foot freezer, resulting in a new addition of 44,174 square feet of new floor area. The improvements include 2,290 square feet of new engine/mechanical room, electrical room, and fire pump located along

the south side along O Street. The project also involves the improvement of a new automated racking system, as well as other interior improvements.

The proposed project will result in a two-story, 65-foot tall, 267,960 square-foot facility, with a total FAR of 0.36:1. The number of trains unloading stations will decrease from 18 to 6 stations. The project proposes a total of 114 parking spaces. KPAC intends to maintain their operations of two 8-hour shifts Monday to Friday and one 8 hour shift on Saturdays. The project proposes grading of less than 500 cubic yards of soil and import of 7,000 cubic yards of soil. The tree disclosure statement, signed by Rick Burke dated August 29, 2022, and tree letter dated August 26, 2022, stated that there are no street trees located on the public right-of-way abutting the project site. No (0) protected trees will be removed from the subject site, and no (0) street trees will be removed from the adjacent public right-of-way.

The subject site is in an urbanized area surrounded primarily by industrial, manufacturing, and single-family residential uses. To the north and east, the subject property is directly adjacent to train tracks in the [Q]M3-1VL-CUGU and [Q]MR2-1VL-CUGU zones. Properties further north are improved with open container storage and chemical processing plant in the [Q]M3-1-CUGU zone. Properties further east across Alameda Street are zoned M3-1VL and improved with parking lot and trucking storage uses. Adjacent buildings to the southeast are improved with manufacturing and parking uses in the [Q]MR2-1VL-CUGU zone. Properties further south across O Street are zoned [Q]MR2-1VL-CUGU and developed with automotive and open storage uses. Properties to the west across Drumm Avenue and to the north of Sandison Street are improved with open storage, parking, and trucking related uses in the [Q]MR2-1VL-CUGU, MR2-1VL-CUGU and [Q]M3-1VL-CUGU zones; south of Sandison Street are single family homes in the R1-1XL-O-CUGU zone; southwest along Pacific Coast Highway are properties developed with commercial retail uses in the [Q]C1-1VL-CUGU zone.

The proposed height is consistent with the Community Plan Update which will allow unlimited building height. Although the proposed height currently exceeds the general height of buildings in the surrounding vicinity, the building will not be directly overlooking residential neighbors. The project site is located across the street from the residential area. There is an existing 8-foot high masonry wall along Drumm Avenue which will be maintained. A proposed improvement includes the addition of a 15-foot depth landscape buffer all along the Drumm Avenue property line. The expansion is affecting a portion of the building. From the building addition only approximately 313 feet of building frontage is subject to the transitional height limitations. Furthermore, the project site lies immediately west of an oil refining/storage facility with no building height. The additional building height is needed to accommodate recent automated racking freezer technology. The automated system uses computer-controlled, robotic arms to lift and place products more efficiently. The system needs additional space to lift materials to the top of the stack.

As such, the project's significant features will continue to be compatible with the scale and character of the adjacent properties and surrounding neighborhood.

WAIVER OF DEDICATION AND IMPROVEMENT FINDINGS

Pursuant to LAMC Section 12.37, the City Planning Commission may waive, reduce, or modify the required dedication(s) or improvement(s) as appropriate after making any of the following findings, based on substantial evidence in the record that:

i) the dedication or improvement requirement does not bear a reasonable relationship to any project impact;
ii) the dedication or improvement is not necessary to meet the City's mobility needs for the next 20 years based on the guidelines the Street Standards Committee has established; or
iii) the dedication or improvement requirement is physically impractical.

On March 1, 2023, Bureau of Engineering issued Interdepartmental Correspondence requiring the following dedications and improvements:

Dedication Required:

- **Pacific Coast Highway** (Boulevard II/State Highway) – A 5-foot wide strip of land along the property frontage to complete a 55-foot wide half right-of-way in accordance with Boulevard II standards.
- **Coil Avenue** (Local Street) – A 15-foot wide strip of land along the property frontage between Colon Street and O Street and dedicate a partial elbow at the intersection with O Street. Dedicate a 15-foot by 15-foot cut corner or 20-foot radius property line return at the intersection with Pacific Coast Highway.
- **O Street** (Local Street) – A 5-foot wide strip of land along the property frontage to complete a 30 foot wide half right-of-way in accordance with Local Street standards.
- **Drumm Avenue** (Local Street) – A 10-foot wide strip of land along the property frontage to complete a 30-foot wide half right-of-way in accordance with Local Street standards and dedicate a partial elbow at the intersection with Q Street. Dedicate a 20-foot radius property line return at the intersection with Pacific Coast Highway.

Improvements Required:

- **Pacific Coast Highway** – Construct a new 5-foot wide concrete sidewalk in the dedicated area. Obtain Caltrans encroachment permit to upgrade and reconstruct the ADA curb ramps at the northwest corner intersection of Coil Ave and PCH and at the northeast corner intersection of Drumm Ave and PCH. Under Caltrans encroachment permit, construct a 2% cross slope sidewalk at existing dirt. Remove any non-standard items. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
- **Coil Avenue** – Construct suitable surfacing to join the existing improvements to provide an 18-foot wide roadway, concrete curb, 2-foot gutter, a 12-foot sidewalk with tree wells, and a partial elbow section with O Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01- 1020. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
- **Street** – Construct a 10-foot wide concrete sidewalk and repair any broken or off-grade concrete curb and gutter. Connecting or receiving curb ramps to be constructed on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Remove any landscaping within the Public Right-of-way that will obstruct the construction of the improvements. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.
- **Drumm Avenue** – Construct suitable surfacing to join the existing improvements to provide a 20-foot wide half roadway, concrete curb, 2-foot gutter, a 10-foot wide concrete sidewalk with tree wells, and the partial elbow section with Q Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Upgrade all vaults within the

Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated. Remove shrubs in public right-of-way that will obstruct the construction of the improvements. Close all unused driveways and upgrade any existing driveways to comply with BOE standards.

The applicant has requested a Waiver of Dedication and Improvements for all the dedication and improvements along Coil Avenue, and Drumm Avenue. The applicant has not requested to deviate from the requirements for Pacific Coast Highway or "O" Street; therefore, the project will be required to dedicate and improve the public right-of-way to the satisfaction of the Bureau of Engineering for all streets where a request was not submitted or not approved.

The Zoning Administrator finds, based on substantial evidence in the record that:

Drumm Avenue – Waiver of Dedication and Improvements is GRANTED:

1. **The dedication or improvement requirement DOES NOT bear a reasonable relationship to any project impact.**

   The project site is located in the Wilmington-Harbor City Community Plan at the northeastern corner of the intersection of Drumm Avenue and Pacific Coast Highway. The site is relatively flat, irregularly-shaped, and is comprised of 18 lots totaling approximately 747,302 square feet (17.16 acres). The property is bounded by Drumm Avenue on the west, and Pacific Coast Highway, Coil Avenue, O Street, and Alameda Street along the south and southeast side of the property. The site has approximately 1,994 feet of frontage along Drumm Avenue, 90 feet along Pacific Coast Highway, 751 feet along Coil Avenue, 636 feet along O Street, and 70 feet along Alameda Street.

   The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, distribution of products and office space. The warehouse portion of the building is comprised of covered loading docks, air-conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

   The applicant requests to waive all the dedication and improvements from Drumm Avenue. The site has approximately 1,994 feet of frontage along Drumm Avenue. The dedications and improvements required by BOE do not bear any relationship to project impacts, as there are no physical improvements or vehicular access points along Drumm Avenue. There are only two LAFD emergency fire access driveways along Drumm Avenue. The project will maintain an existing 8-foot-tall masonry wall. In addition, a 15-foot-deep landscape setback containing trees spaced 10 feet apart will be provided along the full length of the property's western boundary along Drumm Avenue.

   The proposed scope of work is the improvement and expansion of an existing cold storage facility that will not result in new impacts along Drumm Avenue. Furthermore, providing a 10-foot street dedication along Drumm would result in a domino effect that would require the mandated CUGU landscape setback be pushed back, which would cause the existing

8-foot-tall masonry wall to be demolished and moved back, and for the 27-foot fire lane between the property line and the new addition to be pushed and the addition to be reduced by 10 feet. There is also an existing petroleum underground pipeline covered with aggregate surface within an easement that extends full length, south to north, of the subject property along Drumm Avenue. Any street dedication would place the pipeline within the street's public right of way and, if improved, beneath the roadway of the street.

While the dedication and improvements required by BOE for Drumm Avenue are intended to meet the City Street Standards plans, they could serve to widen the roadway which could intensify other truck traffic on the street. The operations of the applicant, both existing and proposed, are unrelated to the truck traffic issue on Drumm Avenue, since the applicant has no access to Drumm Avenue. In addition, the project has been conditioned to limit Drumm Avenue for LAFD emergency access only.

Coil Avenue – Waiver of Dedication and Improvements is DENIED:

1. **The dedication or improvement requirement DOES bear a reasonable relationship to any project impact.**

   The site is currently improved with an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, distribution of products and office space. The warehouse portion of the building is comprised of covered loading docks, air-conditioned docks, and freezer area totaling 212,249 square-feet. There are two stories of office space, totaling 9,247 square feet. The existing office building is located on the east side of the property off Alameda Street. The existing railroad spurs are located on the northwest side of the property. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

   The proposed scope of work involves the improvement and expansion of the cold storage facility. Specifically, the scope of work includes the demolition of an existing 27,157 square foot cold dock located along the west side of the building closer to Drumm Avenue. The existing cold dock will be replaced with a new 71,331 square-foot freezer, resulting in a new addition of 44,174 square feet of new floor area. The improvements include 2,290 square feet of new engine/mechanical room, electrical room, and fire pump located along the south side along O Street. The project also involves the improvement of a new automated racking system, as well as other interior improvements.

   The proposed project will result in a two-story, 65-foot tall, 267,960 square-foot facility, with a total FAR of 0.36:1. The number of trains unloading stations will decrease from 18 to 6 stations. The project proposes a total of 114 parking spaces. KPAC intends to maintain their operations of two 8-hour shifts Monday to Friday and one 8 hour shift on Saturdays. The project proposes grading of less than 500 cubic yards of soil and import of 7,000 cubic yards of soil. The tree disclosure statement, signed by Rick Burke dated August 29, 2022, and tree letter dated August 26, 2022, stated that there are no street trees located on the public right-of-way abutting the project site. No (0) protected trees will be removed from the subject site, and no (0) street trees will be removed from the adjacent public right-of-way.

Abutting the property to the southeast, is designated by the Mobility Plan as a Local Street Standard, with a designated right-of-way width of 60 feet and roadway width of 36 feet, and is currently dedicated to a varying right-of-way width ranging from of 30 to 74 feet and approximately 25 to 60 foot roadway width, with a curb and gutter. Sidewalks are provided only on some sections of the street.

The applicant requests to waive all the dedication and improvements from Coil Avenue. The site has approximately 751 feet of frontage along Coil Avenue. The applicant contends that the dedications and improvements required by BOE do not bear any relationship to the project impacts. However, considering Coil Avenue serves as the primary vehicular and pedestrian pathway to the site, BOE's requested dedications and improvements are reasonably related to the proposed project.

The above requirements are imposed by BOE to ensure adequate right of ways improvements to meet street standards for stormwater flow and to facilitate mobility and circulation per the goals and policies of the Mobility Plan. As mentioned, Coil Avenue has a varying roadway width at its narrowest point being approximately 25 feet, which serves as a pinch point. The expansion of a cold storage facility could increase capacity and traffic for the transportation of goods via trucks. Widening of Coil Street can help improve the circulation of trucks and vehicles that travel along Coil Street north of Pacific Coast Highway to the subject site and the other industrial business around the subject site. Therefore, the required dedication and improvements do bear a reasonable relationship to the project impact.

2. **The dedication or improvement IS necessary to meet the City's mobility needs for the next 20 years based on guidelines the Street Standards Committee has established**.

The Mobility Plan 2035 ("Mobility Plan") was adopted by City Council as an Element of the General Plan and last amended in September 2016. The purpose of the Mobility Plan is to "present a guide to the further development of a citywide transportation system which provides for the efficient movement of people and goods". Among the key policy initiatives of the Mobility Plan is to "lay the foundation for a network of complete streets and establish new complete street standards that will provide safe and efficient transportation for pedestrians". The Mobility Plan contains the following policies.

The Mobility Plan 2035:
Policy 1.1: Roadway User Vulnerability: Design, plan, and operate streets to prioritize the safety of the most vulnerable roadway user.
Policy 1.2: Complete Streets: Implement a balances transportation system on all streets, tunnels, and bridges using complete streets principles to ensure the safety and mobility of all users.
Policy 1.7: Regularly Maintained Streets: Enhance roadway safety by maintaining the street, alley, tunnel, and bridge system in good to excellent condition.
Policy 2.3: Pedestrian Infrastructure: Recognize walking as a component of every trip and ensure high-quality pedestrian access in all site planning and public right-of-way modifications to provide a safe and comfortable walking environment.
Policy 2.8: Implement prcjects that would provide regionally significant transportation improvements for goods movement.
Policy 3.1: Access for All: Recognize all modes of travel, including pedestrian, bicycle, transit, and vehicular modes - including goods movement - as integral components of the City's transportation system.
Policy 3.2: People with Disabilities: Accommodate the needs of people with disabilities when modifying or installing infrastructure in the public right-of-way.

The Mobility Plan is also administered by LAMC Section 12.37 (Highway and Collector Street Dedication and Improvement,) which requires the widening and improvement of streets to meet current street standards. Dedication and improvement requirements are administered by the Bureau of Engineering (BOE), with the consideration of waivers and appeals of those requirements by the Department of City Planning per LAMC Section 12.37-1.

The Mobility Plan designates Coil Avenue as a Local Street Standard, with designated right-of-way width of 60 feet and roadway width of 36 feet. Per S-470-1 street standard plans, this Local Street classification requires an 18-foot half-roadway. As stated above, BOE's Interdepartmental Correspondence dated March 1, 2023 requires dedication of 15-feet along Coil Avenue, for a 3-foot widening of the roadway and new 12-foot sidewalk and related improvements.

These are intended to ensure adequate street widths to meet street standards, facilitate mobility and circulation per the goals and policies of the Mobility Plan, and improve the existing street and better facilitate pedestrian activity. As stated above, the dedications and improvements would enhance safety, visibility, and overall circulation at the intersection, and better connect the configuration and improvements on the east side of Coil Avenue between Colon Street and O Street.

The site has 751-feet of frontage along Coil Avenue. The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. As mentioned, Coil Avenue has a varying roadway width at its narrowest point being approximately 25 feet, which serves as a pinch point. The expansion of a cold storage facility could increase capacity and traffic for the transportation of goods via trucks. Widening of Coil Street can help improve the circulation of trucks and vehicles that travel along Coil Street north of Pacific Coast Highway to the subject site and the other industrial business around the subject site. Coil Street has a 7-foot sidewalk from Pacific Coast to Colon Street, which terminates and does not extend to the site's entrance near "O" Street, which disrupts pedestrian access to the entrance of the site.

Therefore, the dedications and improvements required of the subject property are necessary to meet the City's mobility needs for the next 20 years based on guidelines the Street Standards Committee has established.

3. **The dedication or improvement requirement is NOT physically impractical.**

The project site is located in the Wilmington-Harbor City Community Plan at the northeastern corner of the intersection of Drumm Avenue and Pacific Coast Highway. The site is relatively flat, irregularly-shaped, and is comprised of 18 lots totaling approximately 747,302 square feet (17.16 acres). The property is bounded by Drumm Avenue on the west, and Pacific Coast Highway, Coil Avenue, O Street, and Alameda Street along the south and southeast side of the property. The site has approximately 1,994 feet of frontage along Drumm Avenue, 90 feet along Pacific Coast Highway, 751 feet along Coil Avenue, 636 feet along O Street, and 70 feet along Alameda Street.

The primary site entrance is at the end of Coil Street, intersecting O Street, where there is currently a guardhouse. Truck parking stalls are located all along the building perimeter. There is also truck parking along the tail end of the property, ending on Pacific Coast Highway. Car parking spaces are located all along the property line perimeter, concentrated along O Street and Alameda Street. There are two emergency fire access

driveways along Drumm Avenue, however, no other vehicular access is allowed from Drumm Avenue.

The proposed scope of work involves the improvement and expansion of the existing cold storage facility. The loading dock and freezer addition which is where of the expansion will take place is located on the west side of the existing building closer Drumm Avenue. The office expansion is located along the north side of the building, and the new mechanical rooms are located along O Street.

The above requirements are imposed by BOE to ensure adequate right of ways improvements to meet street standards for stormwater flow and to facilitate mobility and circulation per the goals and policies of the Mobility Plan. As mentioned, Coil Avenue has a varying roadway width at its narrowest point being approximately 25 feet, which serves as a pinch point. The expansion of a cold storage facility could increase capacity and traffic for the transportation of goods via trucks. Widening of Coil Street can help improve the circulation of trucks and vehicles that travel along Coil Street north of Pacific Coast Highway to the subject site and the other industrial business around the subject site.

The long southerly strip of the property abutting Coil Street is currently used for parking truck trailers; therefore, no buildings or required parking spaces will be impacted. Dedication and Improvements would not interfere with the operations of the existing use or the layout of the proposed expansion.

Therefore, the required dedication or improvements is not physically impractical.

Environmental Findings

11. **Negative Declaration**. A Negative Declaration (ENV-2022-6860-ND) was prepared for the proposed project. On the basis of the whole of the record before the lead agency including any comments received, that there is no substantial evidence that the proposed project will have a significant effect on the environment. The attached Negative Declaration reflects the lead agency's independent judgment and analysis. The records upon which this decision is based are with the Project Planning Division of the Planning Department in Room 721, 200 North Spring Street.

12. **Flood Insurance**. The National Flood Insurance Program rate maps, which are a part of the Flood Hazard Management Specific Plan adopted by the City Council by Ordinance No. 172,081, have been reviewed and it has been determined that this project is located in an area of minimal flood hazard.

PUBLIC HEARING AND COMMUNICATIONS

PUBLIC HEARING

The public hearing was held on May 28, 2025 at approximately 10:30 a.m. Due to concerns over COVID-19, the Public Hearing was conducted in a virtual format. The hearing was conducted by the Hearing Officer, Norali Martinez, on behalf of the City Planning Commission in taking testimony for Case No. CPC-2022-6859-GPA-HD-ZAD-WDI and ENV-2022-6860-ND. All interested parties were invited to attend the public hearing at which they could listen, ask questions, or present testimony regarding the project. The purpose of the hearing was to obtain testimony from affected and/or interested parties regarding this application. Interested parties are also invited to submit written comments regarding the request prior to the hearing. The environmental analysis was among the matters to be considered at the hearing. The hearing notice was mailed on April 25, 2025, published in the newspaper on May 2, 2025, and was posted on-site on May 2, 2025, in accordance with LAMC noticing requirements.

The public hearing was attended by the applicant team (John Parker, Christ Kirikian, Rick Hallenbeck) and approximately six (6) speakers who provided comments in opposition. A representative from Council District 15 (Pamela Thornton) also spoke at the hearing.

Applicant Presentation

- Project site is bounded by Alameda Street on east, rail line on the north, Drumm Avenue on west, O Street on south, and PCH on the south.
- Site is subject to CUGU SUD as a cold storage plant, and the project will comply with those regulations. There are no emissions on property. The site is subject to encroachment plane and landscape setback requirements.
- Site is subject to transitional height for a certain distance from the R1 zone. For the distance from 50-99 feet, the west side of the building depth would be affected by 16.6 feet but will comply. For the distance between 100-199 feet, they are requesting minor deviation to allow 65 feet.
- Site is subject to Ordinance 177243 enacted in January 2006 with restrictions affecting the property, and the project is in compliance with those restrictions. Open storage uses are subject to a 15 foot setback from adjacent residential zone, but no open storage uses existing or proposed. No cargo containers may be kept/stored, but does not prohibit truck parking and truck railers. There is an 8 foot masonry wall requirement from adjoining residential property line. There is no opening on any side of structure facing residential zone within 20 feet of structure.
- The project is in complete compliance with all restrictions in the ordinance and CUGU and Transitional Height, with exception of the 65 foot building height.
- Directly adjacent to the north are train tracks, container storage, chemical processing plant (heavy industrial land use in QM3 zone; to the east are train tracks running parallel along Alameda Street, trucking storage, substantial oil refinery in M3 heavy industrial; south of “O” Street is automotive and parking and storage; to the west, north of Sandison is an impound lot with open truck storage and vacant businesses, prior auto dismantling business; to the west, south of Sandison is single family zoned lots.
- A single train track is no longer in use and would be removed.
- A landscaped setback is being provided, adjacent to a 27 foot wide fire lane. Portions of the site would receive a new addition, other portions would be remodeled.
- The building includes a notch to comply with transitional height and CUGU requirements. The project also includes mechanical room expansion, added fire pump, added electric room, freezer expansion.

- Project involves an addition of approximately 44,000 square feet, conversion of 27,157 square feet; for a combined total of 71,331 sf; and will increase combined new total floor area of 281,899 sf.
- Applicant applied in January 2022 to the Director of Planning to file for GPA. The Director approved initiation of Glan Plan Amendment with additional direction that be provided extended landscape buffer along western boundary running from north end down to Pacific Coast Highway.
- The project will provide 119 parking spaces. The code requires 117 spaces for warehouse; however the project is subject to AB 2097 permitting 0 required parking
- Trees within landscaped setback will be 10 feet apart on center pursuant to landscape exhibits submitted with case (not 15 feet) – and will be constructed to west boundary from Pacific Coast Highway to the north terminus of the site.
- The project is consistent with the General Plan and Community Plan. Existing and proposed use is permitted within light industrial land use category.
- Additional height needed to accommodate new automated racking freezer technology. It requires additional space to lift to top to stack, and will be more efficient.
- Applicant is not seeking relief from Pacific Coast Highway or "O" Street, but requesting a Waiver of Dedication and Improvements for Drumm Avenue and Coil Street with exception to necessary repairs to existing curbs. LAMC requires only one finding for WDI
- Along Drumm Avenue, there are no physical connections, openings, activities, or truck docks; LAFD gates are not permitted for the applicant to use; they have never created truck traffic on Drumm Avenue. A 10-foot widening on Drumm Avenue would require that the landscaped setback would be pushed 10 feet further into property; affecting the 27 foot wide fire lane right next to it; require a redesign of the proposed dock level freezer addition; extensive redesign of both addition and existing connected building. If no 10 foot dedication is required, it will allow facility to remain operating; if dedication is required, the redesign will require operations to cease during remodeling for 10-12 month shutdown. The existing underground pipeline within easement extends north/south parallel along Drumm Avenue directly east of street curb. The dedication would place pipe line with street ROW; if improved, the pipe line would be under roadway of street.
- Coil justification - dedicating would be unrelated to primary impacts; required dedication of 15 ft would double row of coil; not reasonable relation to scope of project; not likely to occur for full local street width;
- The project is consistent with the General Plan Framework, Community Plan, CUGU, Transitional Height, and Ordinance requirements except for the 61 ft Transitional Height
- The applicant is meeting with Wilmington Neighborhood Council (WNC) to get their approval on June 21, 2025

Public Comments in Opposition:

- Applicant stated they had a strong commitment to economic growth, however they are growing the size of the facility but not growing the community. Do not recommend for approval.
- City posted notice that Initial Study comment period was extended to June 12th. They received documents that were not previously available, and will be reviewing reports and will submit comments later. The hearing should be continued to allow comments and questions on the ND to be made.
- Local hiring matters to land use and at a community level. The area has 4.5 times the national average in robbery and vehicle theft. There aren't good skills opportunities for the youth in the area. The applicant should do the right thing and engage in good faith building, community engagement, at regional and citywide level. The project has potential in community to have great impact, but requires community engagement.

- There is an opportunity to serve as beacon of support. The project could be a huge boost to local economy but not looking out for the members of the local community who deserve better. Do not recommend for approval.
- There is opportunity for skilled trade, but the applicant failed to make meaningful commitment to community.
- There are concerns of impacts to homes directly across Drumm Avenue. There has been an increase in trucking traffic. There should not be added development to a suffering community. There is currently violence, vandalism, and trash in the area. It will help the community to have a hotel built there.

The Council District 15 office commented that Council Member McCosker agrees with a path forward that honors community input and acknowledges KPAC proactive engagement with our office under the council member's leadership since he took over CD15. While KPAC reached out early to WNC, there was a communication delay resulting in CD15 just receiving WNC concerns this morning. So respect that information was received, their input, committed to ensuring the project includes meaningful community protections. Want to clarify that CD15 is in support of city planning staff working on Community Plan Update that is in draft form, we are not currently considering any amendments to that doc, but do appreciate/support the entitlement that has been requested in this project under LAMC chapter 1 and current Community Plan. Understand requested exemptions are consistent with draft Community Plan Update especially with height restriction. Would still like to support the project, provided there are some conditions that are supported based on the WNC letter. Also recommend designating stakeholder liaison with CN to continue engagement. Support street improvements on Coil Avenue and O Street, enhanced lighting for safety, signage that includes no welding to reduce emission near homes/schools, defined truck route that is communicated with community with direct path for ingress/egress to KPAC facility while avoiding adjacent residential to reduce truck trips/emissions, commitment to local hires with priority for Wilmington residents. They support the improvements along O Street and Pacific Coast Highway, including signs. A commitment to local hire and summer apprenticeship programs for youth, are from NC letter, support CUGU priorities and a balanced approach to community well being.

WRITTEN CORRESPONDENCE

The Wilmington Neighborhood Council submitted a letter dated May 27, 2025 unable to support the project, because as it stands the project holds no benefits for the community. The letter explains concerns over potential truck traffic increase. The neighborhood council calls for investment in the community and to be a community partner. The letter includes a list of suggestions for improving the community benefits, including 1. Repaving the streets 2. Improving lighting conditions in the surrounding facility 3. Implement a plan to address idling trucks 4. Installing purple air sensors to track pollution in the area 5. Provide free Wi-Fi to the immediate area 6. Hire private security for a 5-block radius 7. Weekly cleanups and power washing of streets, in 5 block radius 8. Regular tree trimming 9. Provide a Youth Employment program 10. Ensure 20% of their workforce is from the community.

EXHIBIT A

PROJECT PLANS

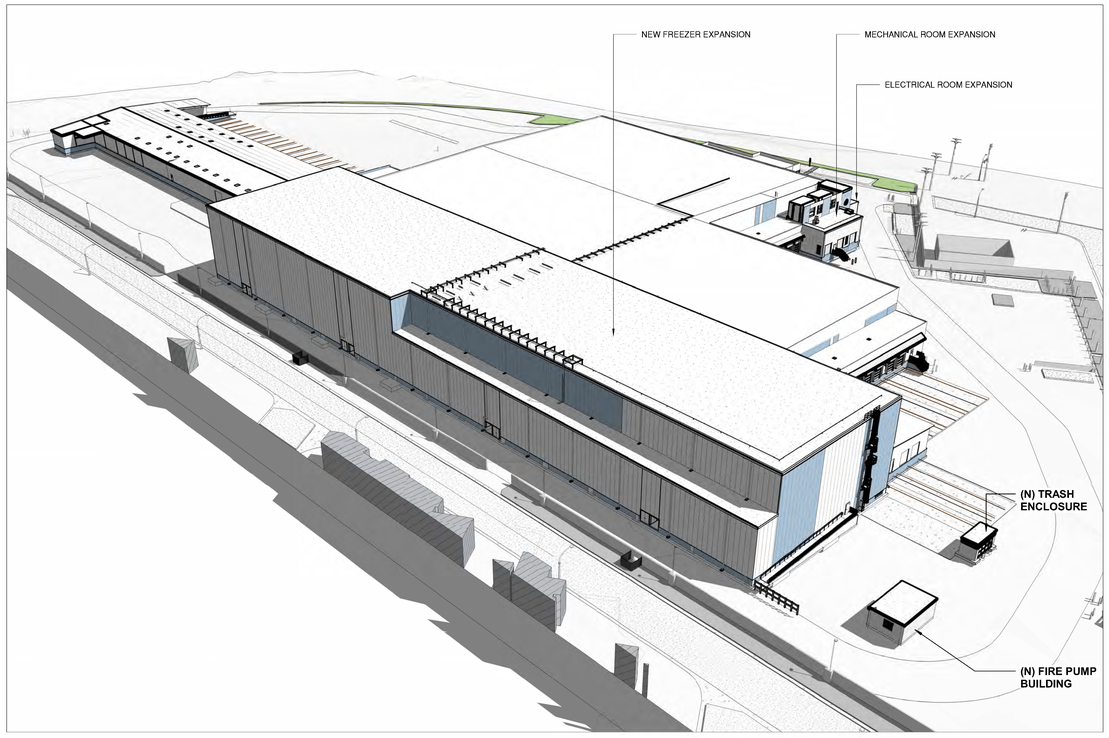
CPC-2022-6859-GPA-HD-ZAD-WDI

PROPOSED COLD STORAGE FREEZER ADDITION - REMODEL

FOR:

KONOIKE- MAUST COMPANY

1420 COIL AVENUE
WILMINGTON, CA 90744





0' 300' 600' 1200' 2400'

SCALE: 1" = 600'

TRUE NORTH

VM. VICINITY MAP - PLANNING - 2025.06.17

1" = 600'-0"

PROJECT TEAM

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SITE INFORMATION

ASSESSORS PARCEL NO: 7426-029-007

ZONE:
[Q]MR2-1VL-CUGU - LIGHT MANUFACTURING
[Q]MR2-1VL-CUGU - LIGHT INDUSTRIAL
[Q]MR3-1VL-CUGU - HEAVY MANUFACTURING

SITE AREA:.....7.16 ACRES = 747,302 S.F.

FLOOR / AREA RATIO: 0.36 = 267,960 SF / 747,302 SF

BUILDING FLOORS:.....1 STORY
HEIGHT OF NEW FREEZER:.....65'-0" MAX ABOVE GRADE FINISHED SURFACE

PROJECT INFORMATION

PROJECT DESCRIPTION
KPAC (OWNER) IS PROPOSING TO IMPROVE AND EXPAND THEIR EXISTING FACILITY **221,496 SF** OPERATIONS AT **1420 COIL AVE** FACILITY IN **WILMINGTON, CA., 90744.** THIS INCLUDES THE REMOVEL OF AN EXISTING COLD DOCK 27,157 SF, REPLACED WITH A NEW 65-FT HIGH FREEZER, COMBINED WITH 44,174 SF OF ADDITIONAL NEW FREEZER AREA, FOR A TOTAL OF 71,331 SF OF NEW FREEZER AREA. THE NEW FREEZER AREA INCLUDES A NOTCH FOR THE CUGU 33 FT HIGH BUILDING LIMITATION. BUILDING ADDITIONS ALSO INCLUDE: NEW MECHANICAL ADDITION 1,293 SF, NEW ELECTRICAL ADDITION 397 SF, NEW FIRE PUMP BLDG 600 SF.

PROJECT ADDRESS	JURISDICTION	LEGAL DESCRIPTION
1420 COIL AVENUE WILMINGTON, CA 90744	SOUTH DISTRICT OFFICE	TR=12257 POR OF LOTS 1 AND 3

SITE INFORMATION

ASSESSORS PARCEL NO:	7426-029-007
SITE AREA: 17.16 ACRES	747,302 SF
GENERAL PLAN DESIGNATION:	[Q]MR2-1VL-CUGU - LIGHT MANUFACTURING [Q]MR2-1VL-CUGU - LIGHT INDUSTRIAL [Q]MR3-1VL-CUGU - HEAVY MANUFACTURING
BUILDING FLOORS:	1-STORY: NEW FREEZER BLDG, FIRE PUMP, ENGINE ROOM ADDITION, ELECTRICAL ROOM ADDITION.
HEIGHT OF NEW FREEZER:	65' - 0" MAX ABOVE GRADE FINISHED SURFACE

SHEET LIST

T1.0	COVER SHEET
A1.0	CONCEPTUAL OVERALL SITE PLAN
A1.1	CONCEPTUAL SITE PLAN
A1.5	GROSS BUILDING AREA PLAN - 1ST FLOOR
A2.0	DEMOLITION FLOOR PLAN
A2.1	OVERALL 1ST FLOOR PLAN
A4.0	ROOF DEMOLITION PLAN
A4.1	ROOF PLAN
A5.0	PROPOSED EXTERIOR ELEVATIONS
A5.1-1	ENLARGED PROPOSED EXT. WEST ELEVATION
A5.1-2	ENLARGED PROPOSED EXT. WEST ELEVATION
A5.2-1	ENLARGED PROPOSED EXT. SOUTH ELEVATION
A5.3-1	ENLARGED PROPOSED EXT. EAST ELEVATION
A5.3-2	ENLARGED PROPOSED EXT. EAST ELEVATION
A5.4-1	ENLARGED PROPOSED EXT.NORTH ELEVATION
A6.1	BUILDING SECTIONS
A6.2	BUILDING SECTIONS

JRMA ARCHITECTS ENGINEERS

alston CONSTRUCTION Celebrating 35 Years

LEGAL DESCRIPTION

PARCEL 1:
That portion of "Q" Street as vacated by ordinance No. 87406 of the City of Los Angeles, included in the Lot 3 of Tract No. 13038,in the City of Los Angeles, In the County of Los Angeles, State of California, As per Map recorded in book 254, Page 20 of Maps, in the office of the County recorder of said County.

Parcel 2:
Lot 1 of Tract No. 12257, In the City of Los Angeles, In the County of Los Angeles, State of California, as per map recorded in book 229, page 29 and 30 of Maps, in the office of the County Recorder of said County.

Parcel 3:
Lots 60 to 70 inclusive of Tract No. 1513, in the City of Los Angeles, In the County of Los Angeles, State of California, As per map recorded in book 20, page 77 of maps, in the County of the County Recorder of said County.

COVER SHEET
KONOIKE- MAUST COMPANY
COLD STORAGE FREEZER ADDITION - REMODEL
1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
07.17.2025

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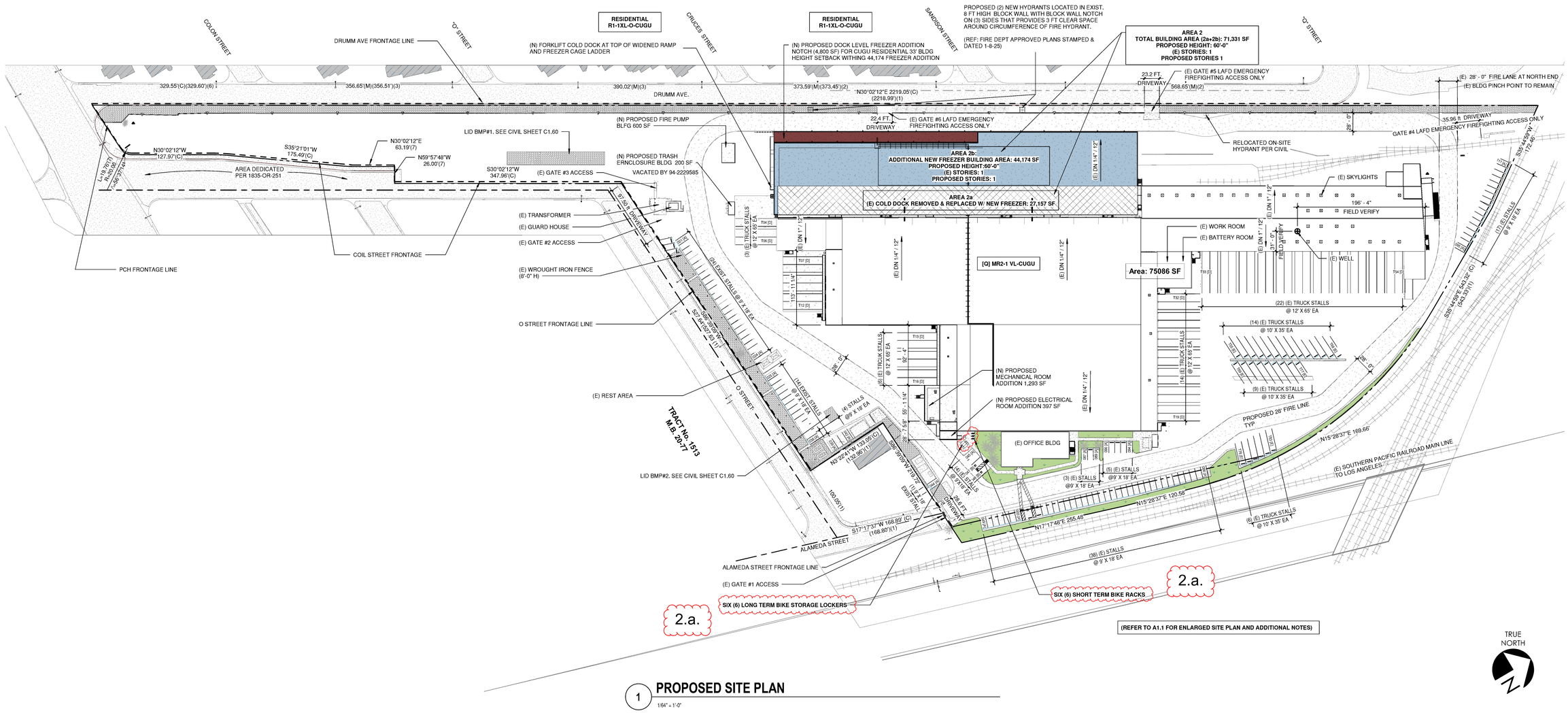
T1.0



1 **PROPOSED SITE PLAN**
1/64" = 1'-0"

(REFER TO A1.1 FOR ENLARGED SITE PLAN AND ADDITIONAL NOTES)

STREET FRONTAGE CALCS.

ALAMEDA STREET FRONTAGE	43 FT
GATE #1 (E) DRIVEWAY WIDTH	29 FT
O STREET FRONTAGE	527.64 FT
GATE #2 (E) DRIVEWAY WIDTH + GATE #3 (E) DRIVEWAY WIDTH	98 FT
COIL STREET FRONTAGE (NO DRIVEWAY)	778.36 FT
DRUMM AVE FRONTAGE	1,994 FT
GATE #5 (E) DRIVEWAY WIDTH	23 FT
GATE #6 (E) DRIVEWAY WIDTH	23 FT
TOTAL DRIVEWAY FRONTAGE	**3,442.76**
TOTAL (E) DRIVEWAY WIDTH	**173 FT**
TOTAL % DRIVEWAY / FRONTAGE	**5.0 %**

CUGU AND GREEN BUILDING NOTE:

ANY NEW LIGHTS THAT ARE PART OF THE NEW PROPOSED BUILDING AREAS AND DESIGN SHALL MEET THE OUTDOOR LIGHTING REQUIREMENTS ACCORDING TO CUGU REQUIREMENTS SECTION 13.18.F.2(a).

THE NEW PROPOSED BUILDING AREAS AND DESIGN SHALL COMPLY WITH THE GREEN BUILDING CODE. THIS IS NOW INDICATED ON PLANS.

PLANNING NOTES:

ALL OUTDOOR LIGHTING SHALL BE DIRECTED AWAY FROM THE WINDOWS OF ANY RESIDENTIAL USES.

SIGNAGE STATING "NO IDLING" SHALL BE SPECIFIED ON BUILDING PLANS AND SHALL BE INSTALLED AT THE BACK OF CURB AND ADJACENT TO THE NETRANCE OF AT LEAST ONE DRIVEWAY WHERE TRUCK LOADING, STAGING, OR PARKING OCCURS.

PARKING

PARKING CRITERIA:

WAREHOUSE FIRST 10,000 SF	= (2) SPACES PER 1,000 SF
WAREHOUSE REMAINING SF	= (1) SPACE PER 5,000 SF
OFFICE	= (2) SPACES PER 1,000 SF

PARKING REQUIRED:

(E) OFFICE	= (19) STALLS @ 9,247 SF	= (2) SPACES / 1,000 SF
(E) WAREHOUSE	= (20) STALLS @ FIRST 10,000 SF	= (2) SPACES / 1,000 SF
(E) WAREHOUSE	= (4) STALLS @ REMAINING 202,249 SF	= (1) SPACE PER 5,000 SF
(N) WAREHOUSE	= (9) STALLS @ 44,174 SF (AREA 2B)	= (1) SPACE PER 5,000 SF
(N) MECH ADDITION	= (0) STALLS / NO PARKING REQUIRED	= NON-HABITABLE (1,293 SF)
(N) ELECT. ADDITION	= (0) STALLS / NO PARKING REQUIRED	= NON-HABITABLE (397 SF)
(N) FIRE PUMP BLDG	= (0) STALLS / NO PARKING REQUIRED	= NON-HABITABLE (600 SF)
TOTAL PARKING	**= (89) STALLS REQUIRED**	

EXIST. PARKING

TYPE MARK	TYPE	DESCRIPTION	QTY
[A]	9' x 18' - Standard	9' x 18' STANDARD PARKING STALL	110
[B]	9' x 18' ADA COMPLIANT	9' X 18' ACCESSIBLE STALL	3
[C]	12' x 18' ADA COMPLIANT	12' X 18' ACCESSIBLE STALL	1
NEW TOTAL: 114			114

BICYCLE PARKING:

WAREHOUSE USE NEW AREA	= 46,464 SF
WAREHOUSE USE NEW AREA	= 44,174 SF
SHORT-TERM (1) PER 10,000 SF	= (5) REQUIRED, (6 PROVIDED) STALLS
LONG-TERM (1) PER 10,000 SF	= (5) REQUIRED, (6 PROVIDED) STALLS
TOTAL BICYCLE STALLS	**= (10) REQUIRED, (12 PROVIDED) STALLS**

NO PARKING STALLS REQUIRED FOR "NON-HABITABLE" FIRE PUMP BLDG & MECH / ELECT ADDITIONS & TRASH ENCLOSURE AMENDED BY ORD. NO 182,386, EFF 3/13/24.

PROJECT DESCRIPTION

KPAC (OWNER) IS PROPOSING TO IMPROVE AND EXPAND THEIR EXISTING FACILITY **221,496 SF** OPERATIONS AT **1420 COIL AVE** FACILITY IN **WILMINGTON, CA., 90744**. THIS INCLUDES THE REMOVEL OF AN EXISTING COLD DOCK 27,157 SF, REPLACED WITH A NEW 65 FT HIGH FREEZER, COMBINED WITH 44,174 SF OF ADDITIONAL NEW FREEZER AREA, FOR A TOTAL OF 71,331 SF OF NEW FREEZER AREA. THE NEW FREEZER AREA INCLUDES A NOTCH FOR THE CUGU 33 FT HIGH BUILDING LIMITATION. BUILDING ADDITIONS ALSO INCLUDE: NEW MECHANICAL ADDITION 1,293 SF, NEW ELECTRICAL ADDITION 397 SF, NEW FIRE PUMP BLDG 600 SF.

SITE INFORMATION

ASSESSORS PARCEL NO: 7426-029-007

ZONE:
[Q]MR2-1VL-CUGU - LIGHT MANUFACTURING
[Q]MR2-1VL-CUGU - LIGHT INDUSTRIAL
[Q]MR3-1VL-CUGU - HEAVY MANUFACTURING

SITE AREA:.....7.16 ACRES = 747,302 S.F.

FLOOR / AREA RATIO: 0.36 = 267,960 SF / 747,302 SF

BUILDING FLOORS:.....1 STORY
HEIGHT OF NEW FREEZER:.....65'-0" MAX ABOVE GRADE FINISHED SURFACE

PROJECT INFORMATION

PROJECT ADDRESS:

1420 COIL AVE, WILMINGTON, CA., 90744

JURISDICTION:

CITY OF LOS ANGELES, CA.

1.a.

BUILDING INFORMATION:

NEW BUILDING HEIGHT: NEW FREEZER HEIGHT 61 FT ABOVE FIN. FLR / 65 FT MAX. ABOVE GRADE FIN. SURFACE

NEW FREEZER CUGU SETBACK HEIGHT @ 33 FT MAX. ABOVE GRADE FIN. SURFACE.

EXIST. BUILDING HEIGHT: 46'-0" FEET ABOVE FINISH SURFACE (EXIST. BUILDING HEIGHT)
BUILDING FLOORS: 1-STORY
EXIST, BUILD. AREA TOTAL: 221,496 SF

NEW GROUND LEVEL .....44,174 SF NEW FREEZER BUILDING AREA (AREA 2B)

BUILDING AREAS:.....1,293 SF NEW MECHANICAL ADDITION "NON-HABITABLE" (AREA 5)
(REF: SHEET T1.50).....397 SF NEW ELECTRICAL ADDITION "NON-HABITABLE" (AREA 6)
600 SF NEW FIRE PUMP BUILDING "NON-HABITABLE" (AREA 7)
46,464 SF NEW GROUND LEVEL TOTAL AREA

TOTAL BLDG AREA NEW+EXIST: 267, 960 SF =46,664 SF (NEW) + 221,496 SF (EXIST.)

EXIST. BUILDING AREAS

EXIST. WAREHOUSE
74,168 SF EXIST. COVERED LOADING DOCK
28,935 SF EXIST. FREEZER #1
92,005 SF EXIST. FREEZER #2
2,910 SF EXIST. CONDITIONED DOCK #1
4,203 SF EXIST. CONDITIONED DOCK #2, EQUIP RM, ELECT RM
7,131 SF EXIST. CONDITIONED DOCK #3
2,500 SF EXIST. BATTERY CHARGING ROOM
400 SF EXIST. FIRE PUMP RM
212,249 SF EXIST . WAREHOUSE TOTAL

EXIST OFFICE
4,888 SF EXIST. OFFICE BUILDING 1ST FLOOR
4,359 SF EXIST. OFFICE BUILDING 2ND FLOOR
9,247 SF EXIST. OFFICE AREA TOTAL

TOTAL EXIST. WAREHOUSE + EXIST. OFFICE
221,496 SF TOTAL EXIST. BUILDING AREA

SITE PLAN LEGEND

- ### / Area — PARCEL NUMBER / PARCEL AREA (IF SHOWN)
- KEYNOTE TAG
- HYDRANT
- PROPERTY LINE
- ACCESSIBLE PATH OF TRAVEL (APOT)
- INTERNATIONAL SYMBOL OF ACCESSIBLE PARKING
- LANDSCAPE - GRASS
- LANDSCAPE - ROCKS
- (E) FIRE ACCESS RD.
- CONCRETE PAVEMENT

LEGAL DESCRIPTION

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JRMA ARCHITECTS ENGINEERS

alston CONSTRUCTION Celebrating 35 Years

CONCEPTUAL OVERALL SITE PLAN
KONOIKE- MAUST COMPANY
COLD STORAGE FREEZER ADDITION - REMODEL
1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
07.17.2025

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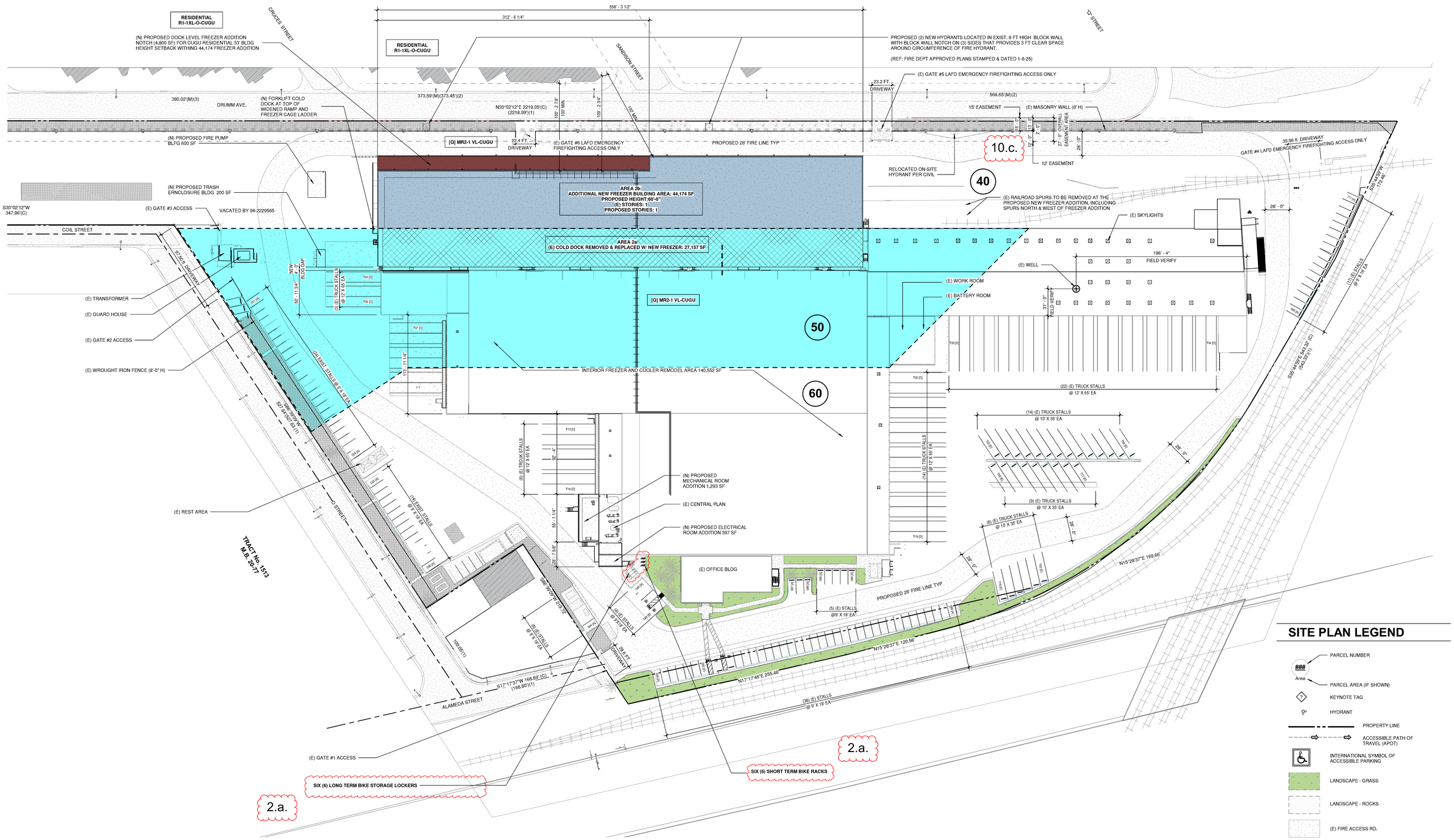

SITE PLAN LEGEND

- PARCEL NUMBER
- Area — PARCEL AREA (IF SHOWN)
- KEYNOTE TAG
- HYDRANT
- PROPERTY LINE
- ACCESSIBLE PATH OF TRAVEL (APOT)
- INTERNATIONAL SYMBOL OF ACCESSIBLE PARKING
- LANDSCAPE - GRASS
- LANDSCAPE - ROCKS
- (E) FIRE ACCESS RD.
- CONCRETE PAVEMENT

1 PROPOSED SITE PLAN

1" = 40'-0"

LEGAL DESCRIPTION

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CONCEPTUAL SITE PLAN

KONOIKE- MAUST COMPANY

COLD STORAGE FREEZER ADDITION - REMODEL

1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
07.17.2025

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AREA 7
NEW FIRE PUMP BUILDING: 600 SF
PROPOSED HEIGHT: 12' - 2 1/4" ABOVE FINISHED SURFACE
(E) STORIES:0
PROPOSED STORIES: 1

5.a.

AREA 2
TOTAL BUILDING AREA (2a+2b): 71,331 SF
PROPOSED HEIGHT: 61'-0" ABOVE FINISHED FLOOR
65'-0" ABOVE FINISHED SURFACE
(E) STORIES: 1
PROPOSED STORIES 1

AREA 2b
ADDITIONAL NEW FREEZER BUILDING AREA: 44, 174 SF
PROPOSED HEIGHT: 61'-0" ABOVE FINISHED FLOOR
65'-0" ABOVE FINISHED SURFACE
(E) STORIES: 1
PROPOSED STORIES 1

AREA 2a
(E) COLD DOCK REMOVED & REPLACED W/ NEW FREEZER: 27,157 SF

3.b.
OLD
AREA 12

3.b.
OLD
AREA 8

3.b.
OLD
AREA 15

AREA 3
EXISTING (E) COLD STORAGE TO REMAIN: 186,882 SF
(E) HEIGHT:46' - 0" ABOVE FINISHED SURFACE
(E) STORIES:1

1.a.

3.b.
OLD
AREA 14

5.a.

AREA 8
NEW TRASH ENCL.: 200 SF
PROPOSED HEIGHT: 9' - 10 1/4" ABOVE FINISHED SURFACE
(E) STORIES:0
PROPOSED STORIES: 1

3.a.

GROSS BLDG AREA LEGEND

- (E) TO REMAIN
- NEW ADDITION
- T.I.
- T.I. DEMO / NEW

AREA 5
NEW MECH. ADDITION: 1,293 SF
PROPOSED HEIGHT: 28' - 0" ABOVE FINISHED SURFACE
(E) STORIES:0
PROPOSED STORIES: 1

AREA 6
NEW ELECT. ADDITION: 397 SF
PROPOSED HEIGHT: 28' - 0" ABOVE FINISHED SURFACE
(E) STORIES:0
PROPOSED STORIES: 1

1.a.

AREA 4
(E) MECH. & ELECT. RM REMODEL: 1,870 SF
(E) HEIGHT:42' - 9" ABOVE FINISHED SURFACE
PROPOSED HEIGHT: 42' - 9"
(E) STORIES:2
PROPOSED STORIES: 2

AREA 1
EXISTING (E) MAIN OFFICE TO REMAIN:
4,888 SF 1ST FLOOR
4,359 SF 2ND FLOOR
9,247 SF TOTAL
(E) HEIGHT: 30'-6" ABOVE FINISHED SURFACE
(E) STORIES: 2

TRUE NORTH

0' 15' 30' 60' 120'
SCALE: 1" = 30'

LEGAL DESCRIPTION

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GROSS BUILDING AREA PLAN - 1ST FLOOR
KONOIKE- MAUST COMPANY
COLD STORAGE FREEZER ADDITION - REMODEL
1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
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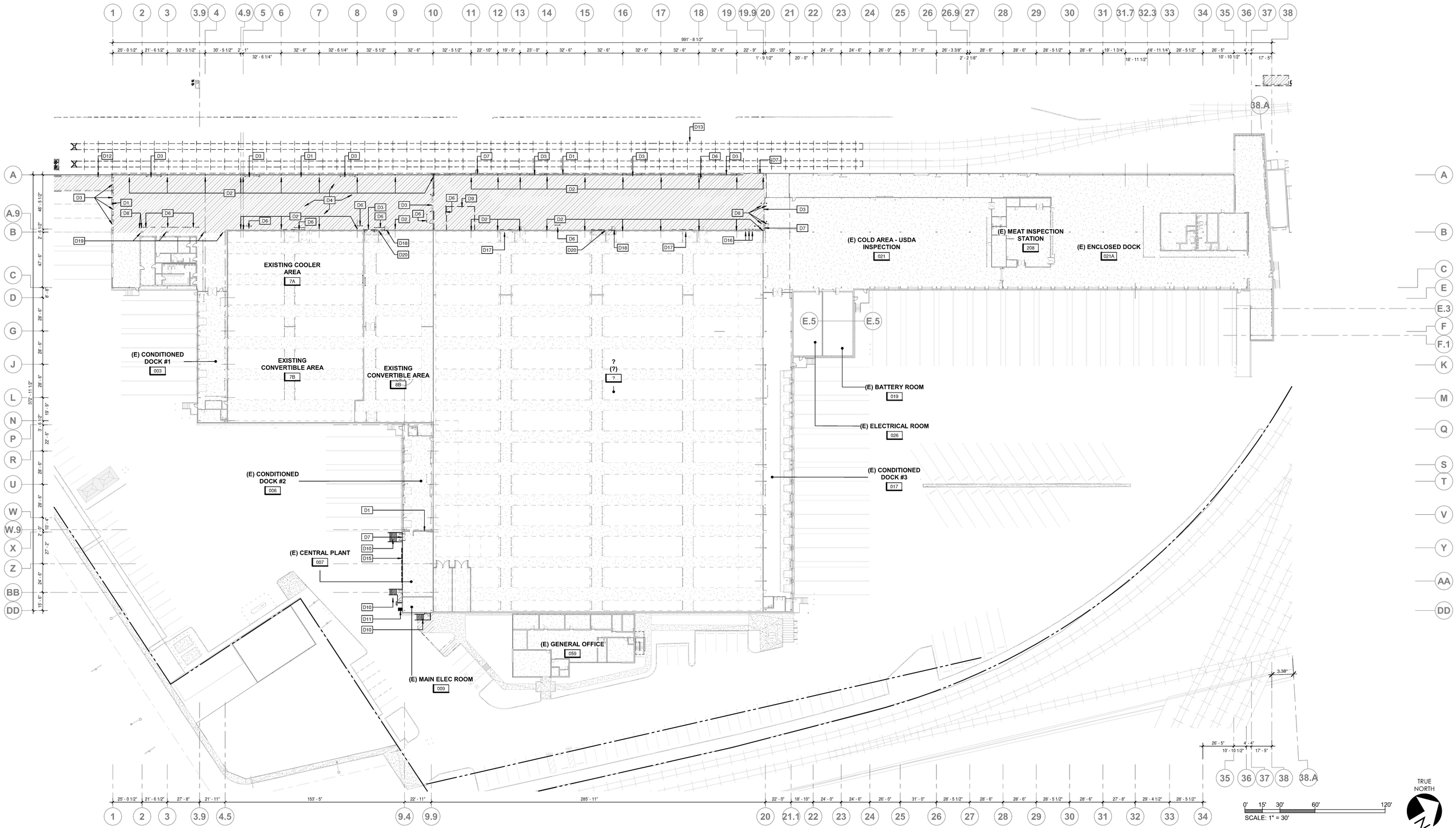

DEMO KEYNOTES

- D1 DEMOLISH WALL
- D2 REMOVE STRUCTURAL COLUMN
- D3 REMOVE OVERHEAD DOOR
- D4 DEMOLISH FLOOR
- D6 REMOVE GUARDRAIL
- D7 REMOVE DOOR
- D8 REMOVE BOLLARDS
- D9 REMOVE FENCE
- D10 REMOVE STAIR
- D11 REMOVE LADDER
- D12 REMOVE CONCRETE RAMP
- D13 REMOVE SPUR AS REQUIRED
- D15 REMOVE LOUVERS AND WALL AS REQ'D FOR OPENING THE SPACE TO THE MECHANICAL ROOM ADDITION.
- D16 REMOVE / RELOCATE VEHICLE CHARGING STATIONS
- D17 REMOVE COLD STORAGE SLIDING DOOR AND INFILL OPENING WITH IMP TO MATCH EXISTING
- D18 REMOVE COLD STORAGE PERSONNEL DOOR AND INFILL OPENING WITH IMP TO MATCH EXISTING
- D19 SAW CUT (E) SLAB AS REQUIRED AROUND (E) COLUMN FTG.
- D20 DEMOLISH WALL UP TO THE SLIDING DOOR HEADER IN THIS AREA

NOTES

1. ONLY BUILDING COMPONENTS TO BE DEMOLISHED, REMOVED OR RELOCATED ARE CALLED OUT.
2. FIELD VERIFY AND REPORT ANY FINDINDS, CONFLICTS OR INACCURATE INFORMATION.

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DEMOLITION FLOOR PLAN

KONOIKE- MAUST COMPANY

COLD STORAGE FREEZER ADDITION - REMODEL

1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
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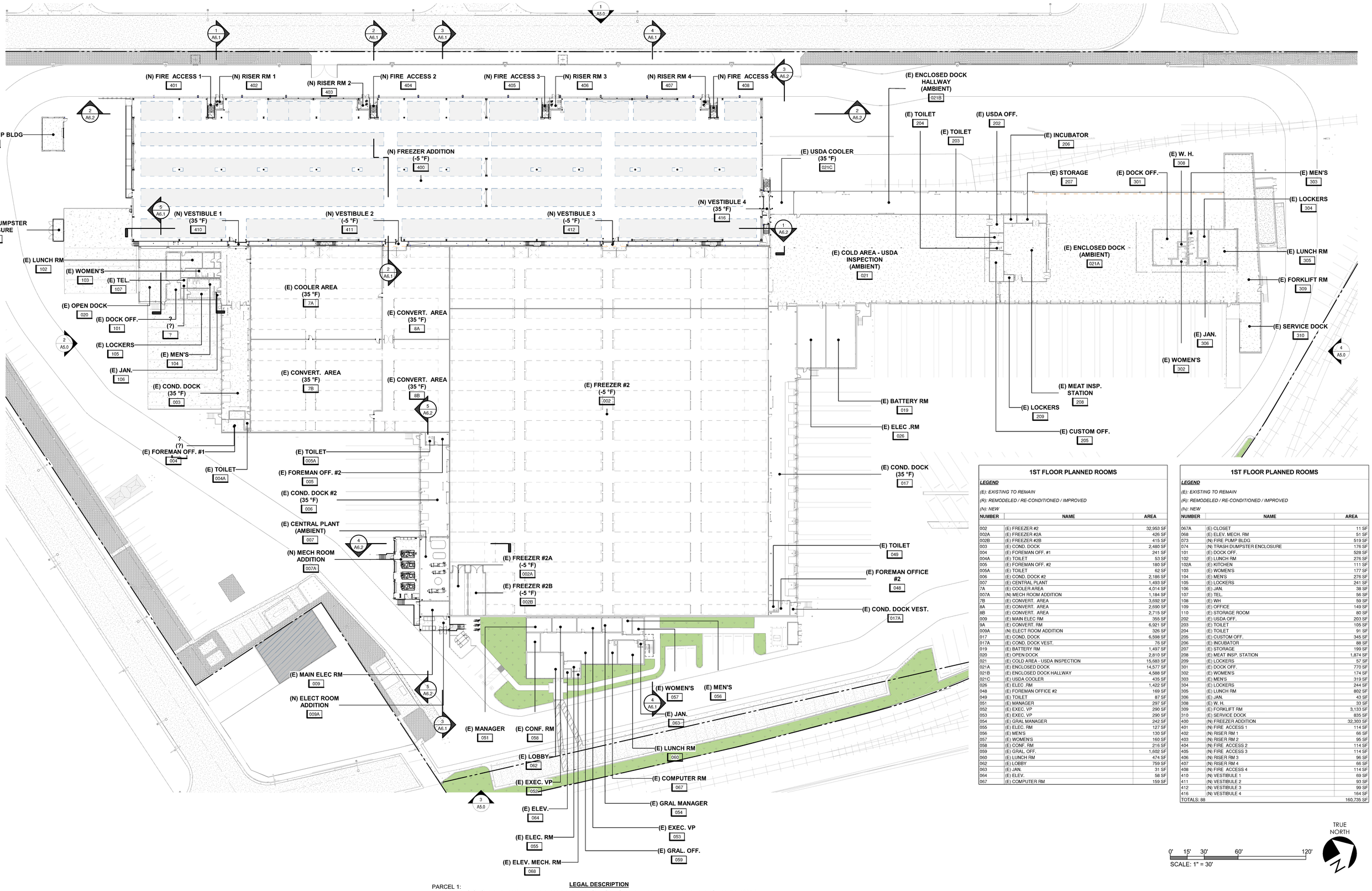

1ST FLOOR PLANNED ROOMS

LEGEND

(E): EXISTING TO REMAIN

(R): REMODELED / RE-CONDITIONED / IMPROVED

(N): NEW

NUMBER	NAME	AREA
002	(E) FREEZER #2	32,953 SF
002A	(E) FREEZER #2A	426 SF
002B	(E) FREEZER #2B	415 SF
003	(E) COND. DOCK	2,480 SF
004	(E) FOREMAN OFF. #1	241 SF
004A	(E) TOILET	53 SF
005	(E) FOREMAN OFF. #2	180 SF
005A	(E) TOILET	62 SF
006	(E) COND. DOCK #2	2,186 SF
007	(E) CENTRAL PLANT	1,493 SF
7A	(E) COOLER AREA	4,014 SF
007A	(N) MECH ROOM ADDITION	1,184 SF
7B	(E) CONVERT. AREA	3,692 SF
8A	(E) CONVERT. AREA	2,690 SF
8B	(E) CONVERT. AREA	2,715 SF
009	(E) MAIN ELEC RM	355 SF
9A	(E) CONVERT. RM	6,921 SF
009A	(N) ELECT ROOM ADDITION	326 SF
017	(E) COND. DOCK	6,598 SF
017A	(E) COND. DOCK VEST.	76 SF
019	(E) BATTERY RM	1,497 SF
020	(E) OPEN DOCK	2,810 SF
021	(E) COLD AREA - USDA INSPECTION	15,683 SF
021A	(E) ENCLOSED DOCK	14,577 SF
021B	(E) ENCLOSED DOCK HALLWAY	4,588 SF
021C	(E) USDA COOLER	435 SF
026	(E) ELEC .RM	1,422 SF
048	(E) FOREMAN OFFICE #2	169 SF
049	(E) TOILET	87 SF
051	(E) MANAGER	297 SF
052	(E) EXEC. VP	290 SF
053	(E) EXEC. VP	290 SF
054	(E) GRAL MANAGER	242 SF
055	(E) ELEC. RM	127 SF
056	(E) MEN'S	130 SF
057	(E) WOMEN'S	160 SF
058	(E) CONF. RM	216 SF
059	(E) GRAL. OFF.	1,602 SF
060	(E) LUNCH RM	474 SF
062	(E) LOBBY	759 SF
063	(E) JAN.	31 SF
064	(E) ELEV.	58 SF
067	(E) COMPUTER RM	159 SF

1ST FLOOR PLANNED ROOMS

LEGEND

(E): EXISTING TO REMAIN

(R): REMODELED / RE-CONDITIONED / IMPROVED

(N): NEW

NUMBER	NAME	AREA
067A	(E) CLOSET	11 SF
068	(E) ELEV. MECH. RM	51 SF
073	(N) FIRE PUMP BLDG	519 SF
074	(N) TRASH DUMPSTER ENCLOSURE	176 SF
101	(E) DOCK OFF.	528 SF
102	(E) LUNCH RM	276 SF
102A	(E) KITCHEN	111 SF
103	(E) WOMEN'S	177 SF
104	(E) MEN'S	276 SF
105	(E) LOCKERS	241 SF
106	(E) JAN.	38 SF
107	(E) TEL.	56 SF
108	(E) WH	59 SF
109	(E) OFFICE	149 SF
110	(E) STORAGE ROOM	80 SF
202	(E) USDA OFF.	203 SF
203	(E) TOILET	105 SF
204	(E) TOILET	91 SF
205	(E) CUSTOM OFF.	345 SF
206	(E) INCUBATOR	88 SF
207	(E) STORAGE	199 SF
208	(E) MEAT INSP. STATION	1,874 SF
209	(E) LOCKERS	57 SF
301	(E) DOCK OFF.	770 SF
302	(E) WOMEN'S	174 SF
303	(E) MEN'S	319 SF
304	(E) LOCKERS	244 SF
305	(E) LUNCH RM	802 SF
306	(E) JAN.	43 SF
308	(E) W. H.	33 SF
309	(E) FORKLIFT RM	3,133 SF
310	(E) SERVICE DOCK	835 SF
400	(N) FREEZER ADDITION	32,393 SF
401	(N) FIRE ACCESS 1	114 SF
402	(N) RISER RM 1	66 SF
403	(N) RISER RM 2	95 SF
404	(N) FIRE ACCESS 2	114 SF
405	(N) FIRE ACCESS 3	114 SF
406	(N) RISER RM 3	95 SF
407	(N) RISER RM 4	66 SF
408	(N) FIRE ACCESS 4	114 SF
410	(N) VESTIBULE 1	69 SF
411	(N) VESTIBULE 2	93 SF
412	(N) VESTIBULE 3	99 SF
416	(N) VESTIBULE 4	164 SF
TOTALS: 88		160,735 SF

TRUE NORTH

0' 15' 30' 60' 120'

SCALE: 1" = 30'

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JRMA ARCHITECTS ENGINEERS

alston CONSTRUCTION Celebrating 35 Years

OVERALL 1ST FLOOR PLAN

KONOIKE- MAUST COMPANY

COLD STORAGE FREEZER ADDITION - REMODEL

1420 COIL AVENUE
WILMINGTON, CA 90744

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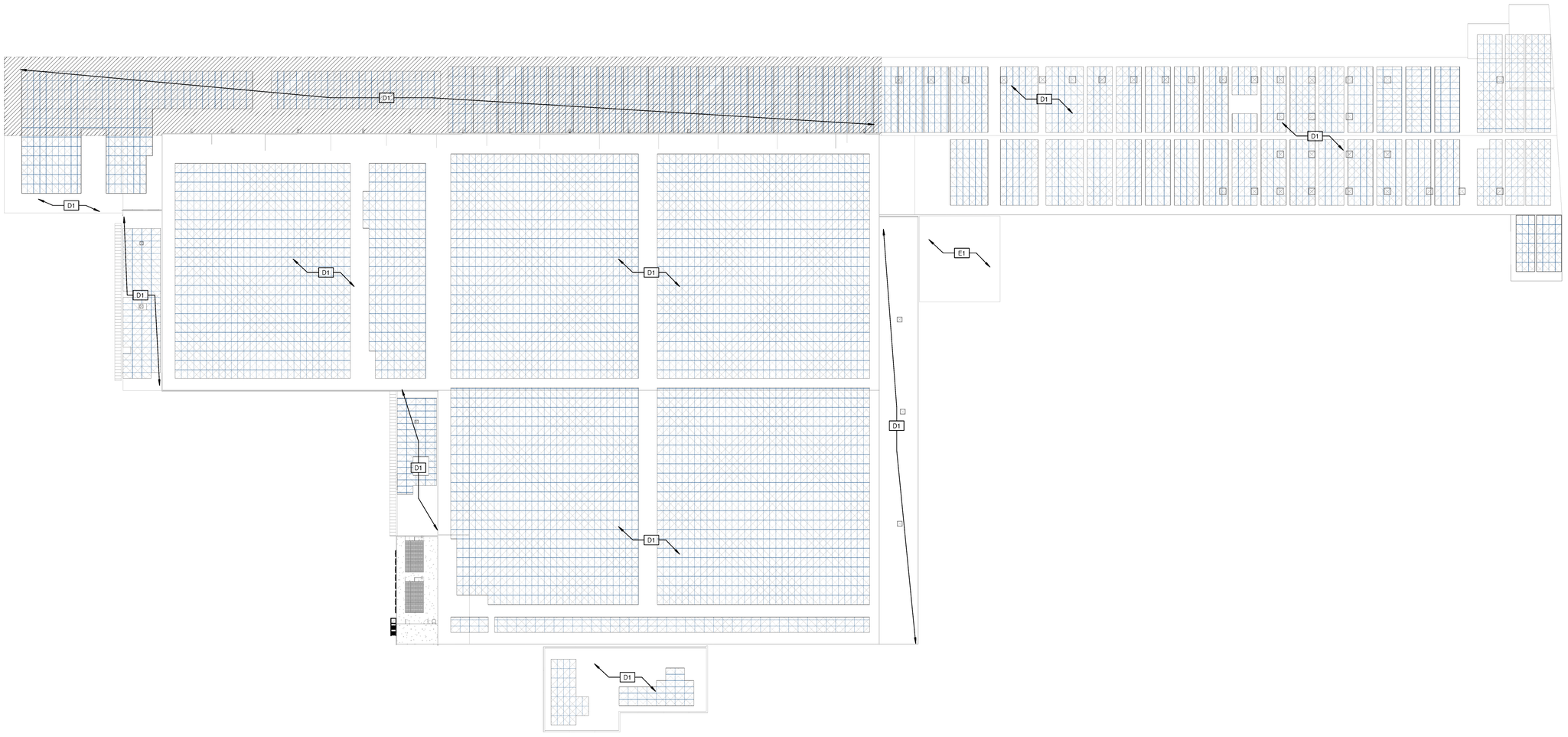

1 **ROOF DEMOLITION PLAN - PLANNING**
1" = 30'-0"

0' 15' 30' 60' 120'
SCALE: 1" = 30'

TRUE NORTH

DEMO KEYNOTES

D1 ALL EXISTING (E) SOLAR PANELS TO BE REMOVED.

EXISTING KEYNOTES

E1 EXISTING ROOF & ROOFTOP EQUIPMENT TO REMAIN

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alston CONSTRUCTION Celebrating 35 Years

ROOF DEMOLITION PLAN
KONOIKE- MAUST COMPANY
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NEW FIRE PUMP BLDG ROOF PROJECTED AREA = 600 SF

312' - 6 1/4" LOWER ROOF

558' - 3 1/2"

245' - 9 1/4" UPPER ROOF

EVAPORATOR UNDER ROOF WT: 1,709 # EA. TYP.

(N) INSULATED FLAT ROOF

T.O. ROOF (LOW EAVE) 32' - 10 7/8"

T.O. ROOF (EAVE) 58' - 8 1/4"

NEW FREEZER ROOF AREA = 71,331 SF

NEW REFRIGERATION PIPES.

EVAPORATOR UNDER ROOF WT: 3,600 # EA. TYP.

4.a.

MINIMUM REQUIRED SOLAR READY ROOF AREAS @ ROOF AREA X 15%
10,700 SF = NEW FREEZER ROOF
194 SF = MECH ADDITION
60 SF = ELECT ADDITION
90 SF = FIRE PUMP BLDG
11,044 SF = TOTAL SOLAR READY ROOF AREA

(2020 LAGBC, SECTION 5.211.1)

NEW FREEZER VESTIBULE 4 ROOF PROJECTED AREA #1f = 178 SF

NEW FREEZER VESTIBULE 1 ROOF PROJECTED AREA #1c = 75 SF

NEW FREEZER VESTIBULE 2 ROOF PROJECTED AREA #1d = 92 SF

NEW FREEZER VESTIBULE 3 ROOF PROJECTED AREA #1e = 98 SF

NEW TRASH ENCLOSURE ROOF PROJECTED AREA = 200 SF

NEW MECH. ROOM ADDITION ROOF PROJECTED AREA #5= 1,293 SF

ROOF AREA #6 = 397 SF

LOWER ROOF 16' - 4"

UPPER ROOF 110' - 11 1/8"

127' - 3 1/8"

1' - 4"

(E) DN 1/4" / 12"

DN 1/4" / 12"

E1

4 - 1 3/8"

KEYNOTES

EXISTING KEYNOTES

E1 EXISTING ROOF TO REMAIN

2 A5.3-2

TRUE NORTH

0' 15' 30' 60' 120'

SCALE: 1" = 30'

1 OVERALL ROOF PLAN

1" = 30'-0"

LEGAL DESCRIPTION

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ROOF PLAN
KONOIKE- MAUST COMPANY
COLD STORAGE FREEZER ADDITION - REMODEL
1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
07.17.2025

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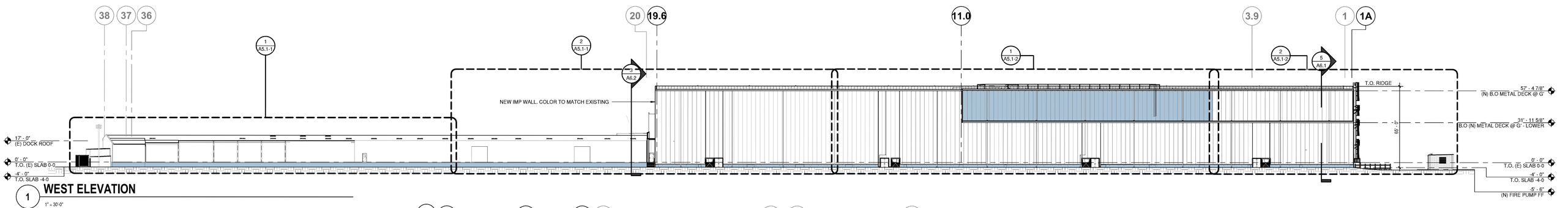
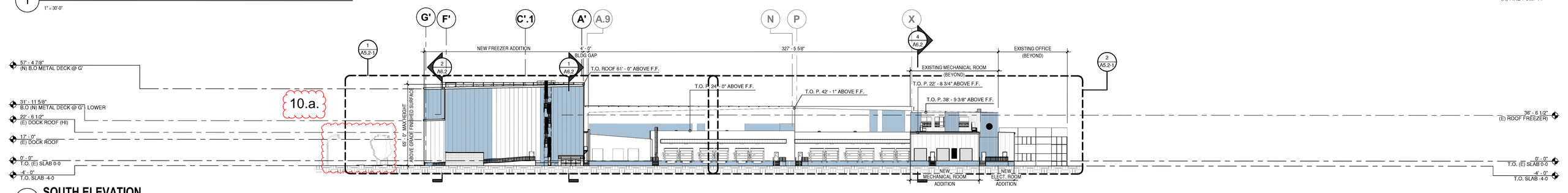
A4.1



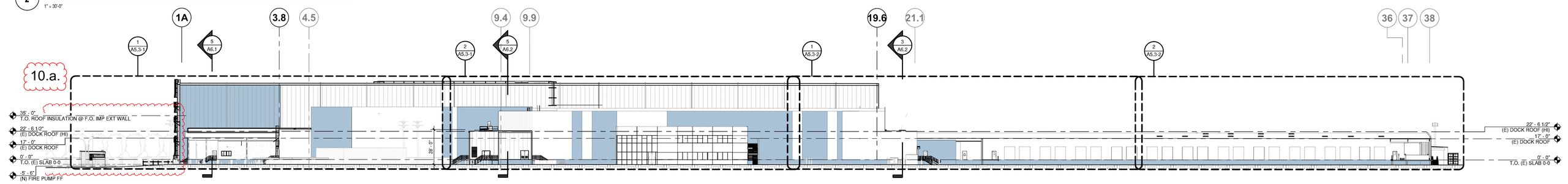
1 WEST ELEVATION

1" = 30'-0"



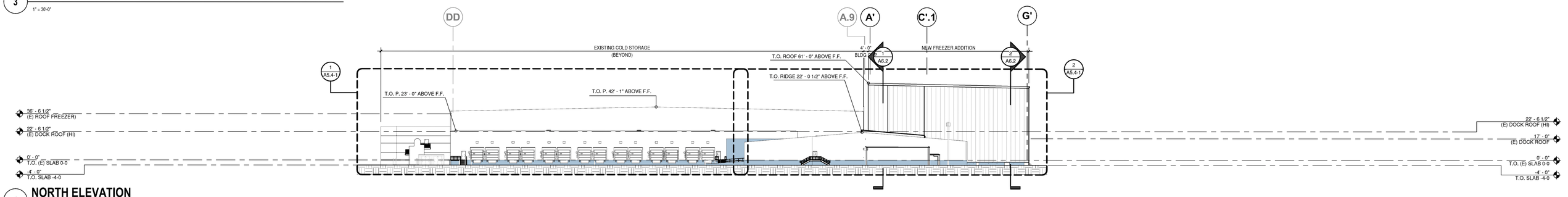
2 SOUTH ELEVATION

1" = 30'-0"



3 EAST ELEVATION

1" = 30'-0"



4 NORTH ELEVATION

1" = 30'-0"

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PROPOSED EXTERIOR ELEVATIONS
KONOIKE- MAUST COMPANY
COLD STORAGE FREEZER ADDITION - REMODEL
1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
07.17.2025

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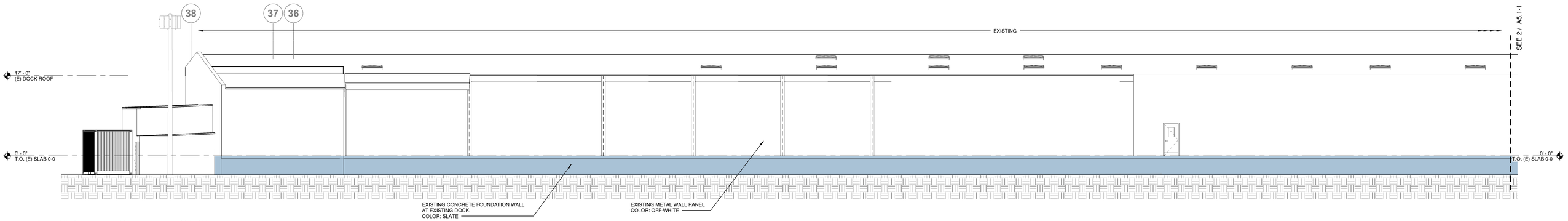
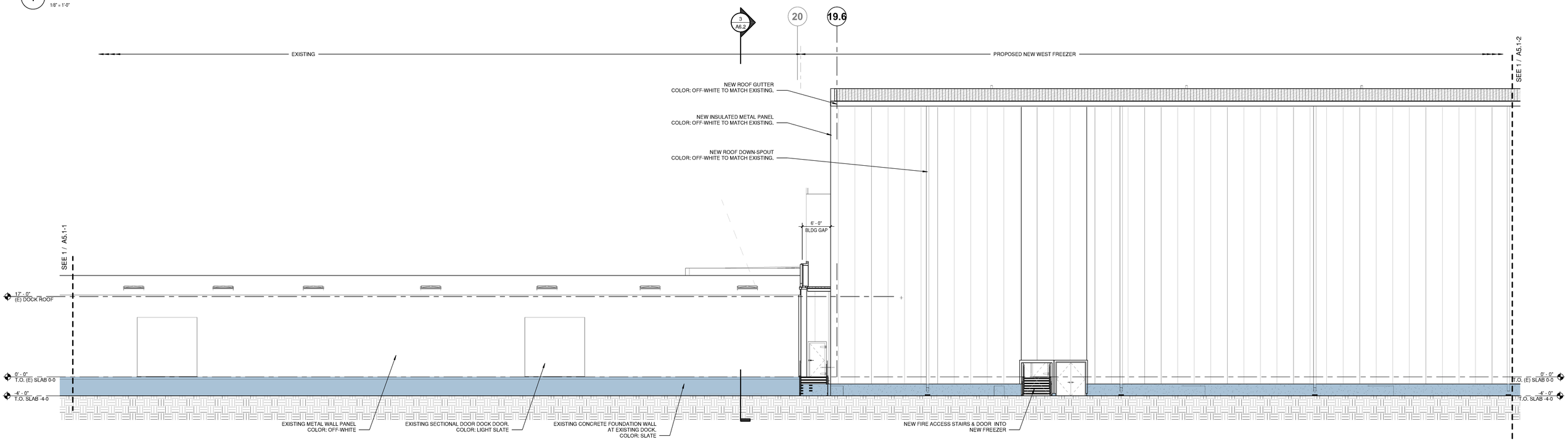


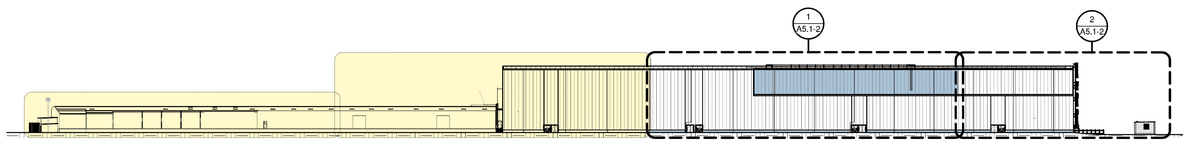
1 PARTIAL WEST ELEVATION 01

1/8" = 1'-0"



2 PARTIAL WEST ELEVATION 02

1/8" = 1'-0"



0 WEST KEY ELEVATION

1" = 60'-0"

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ENLARGED PROPOSED EXT. WEST ELEVATION

KONOIKE- MAUST COMPANY

COLD STORAGE FREEZER ADDITION - REMODEL

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07.17.2025

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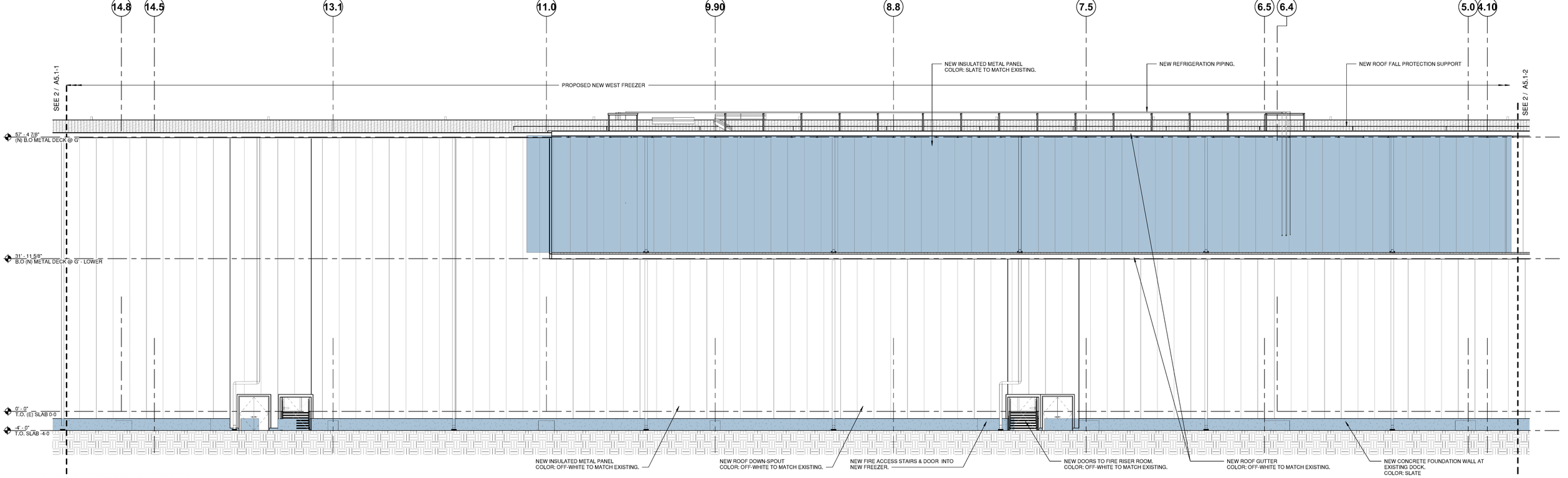
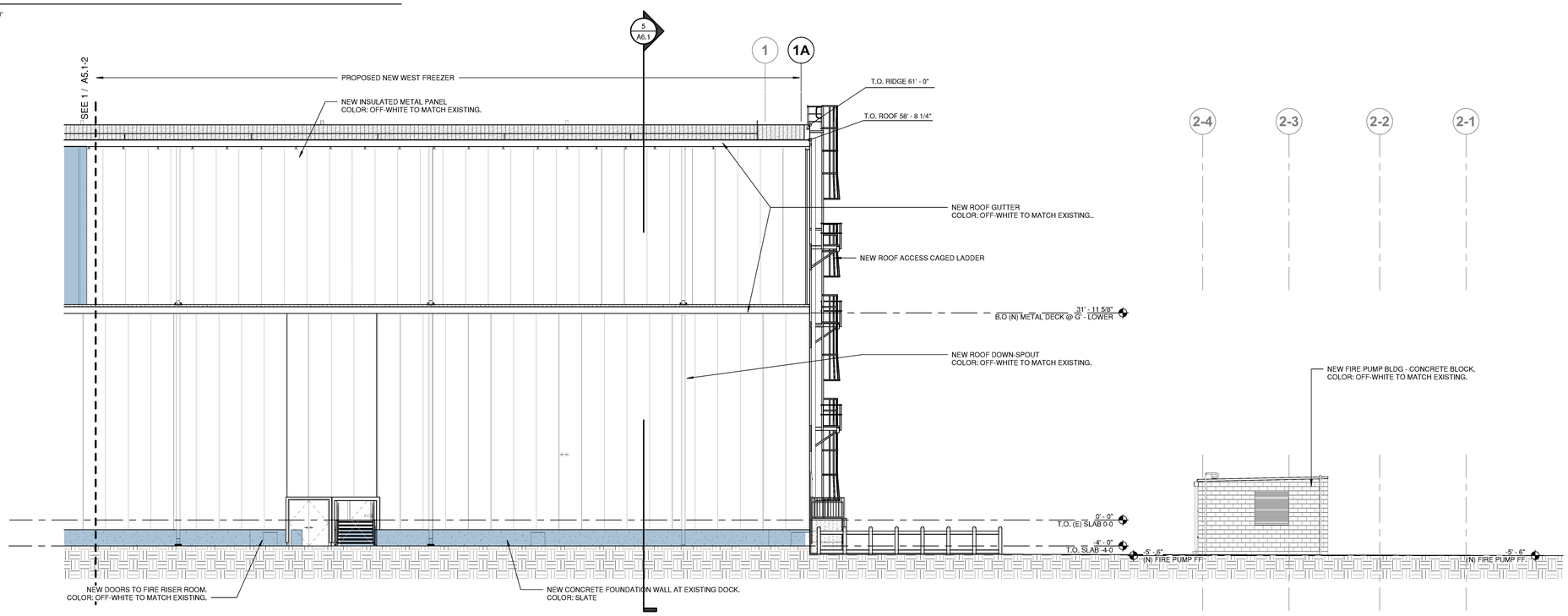


1 PARTIAL WEST ELEVATION 03

1/8" = 1'-0"



2 PARTIAL WEST ELEVATION 04

1/8" = 1'-0"

LEGAL DESCRIPTION

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ENLARGED PROPOSED EXT. WEST ELEVATION

KONOIKE- MAUST COMPANY

COLD STORAGE FREEZER ADDITION - REMODEL

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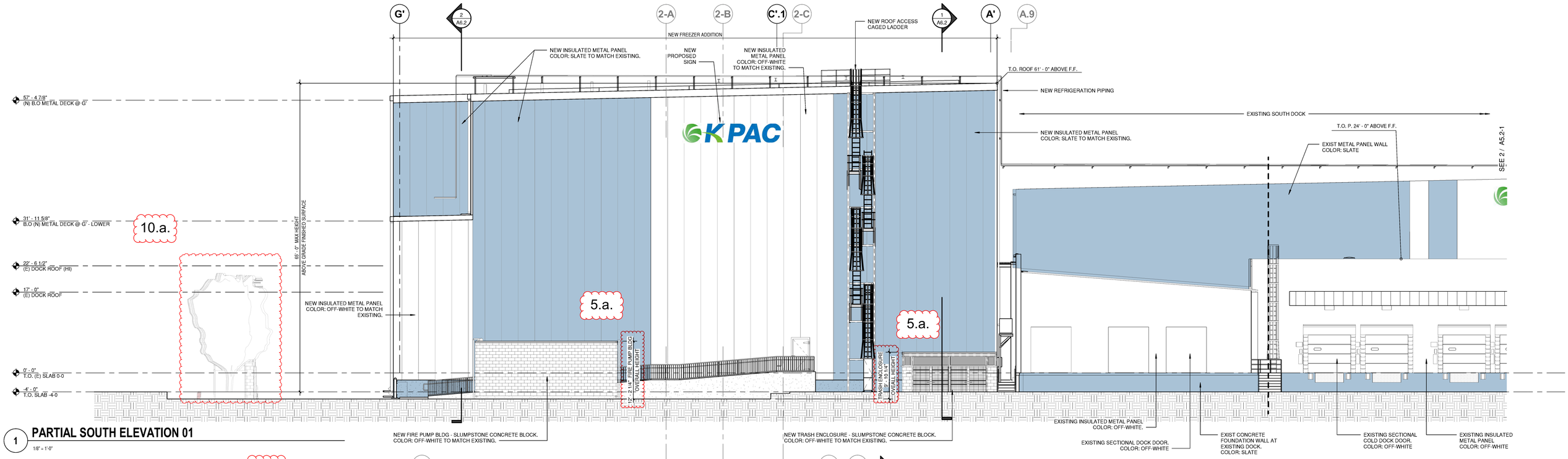
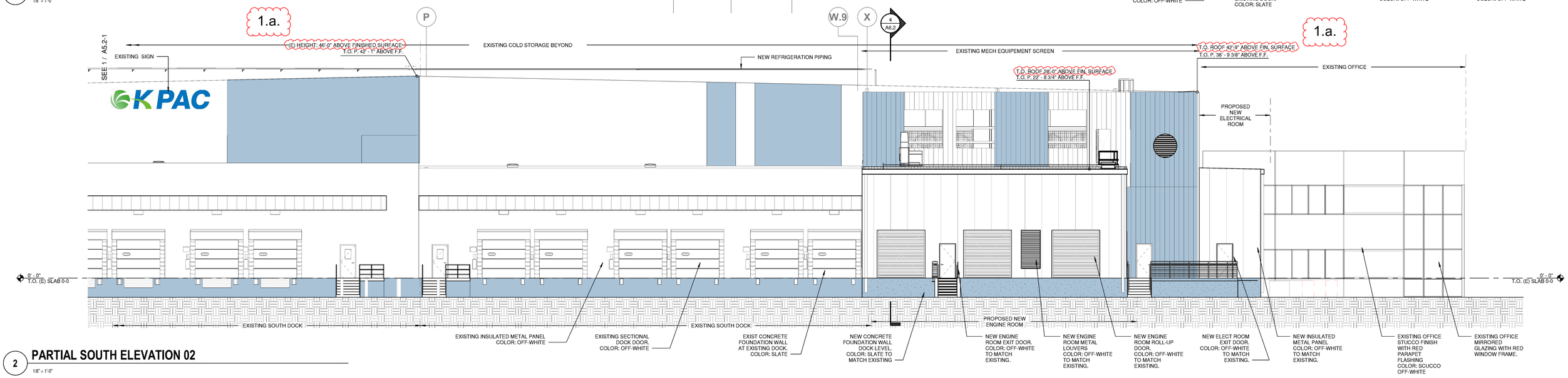


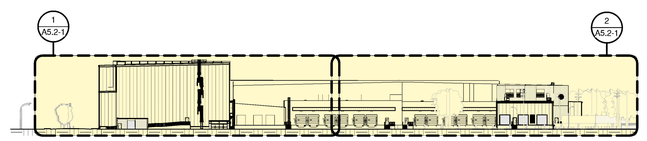
1 **PARTIAL SOUTH ELEVATION 01**

1/8" = 1'-0"



2 **PARTIAL SOUTH ELEVATION 02**

1/8" = 1'-0"



0 **SOUTH KEY ELEVATION**

1" = 60'-0"

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LEGAL DESCRIPTION

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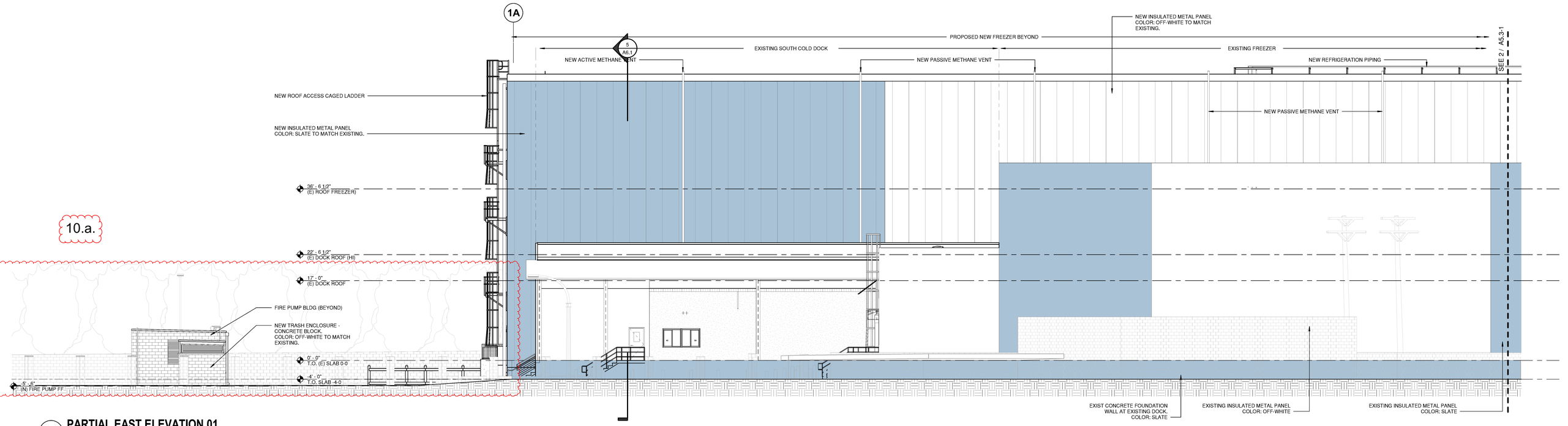
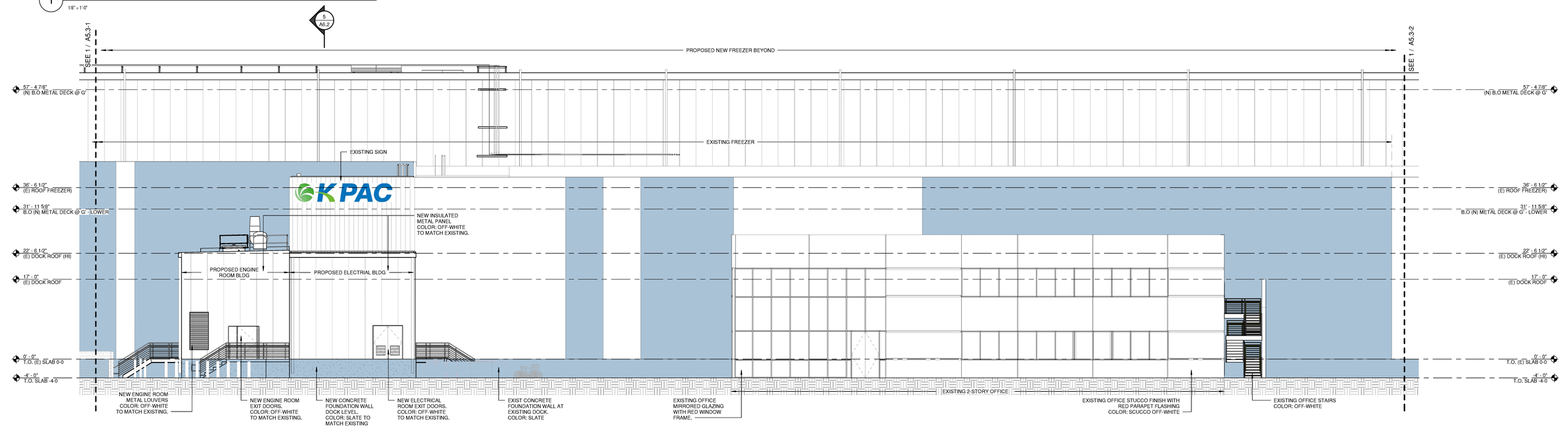


10.a.

1 PARTIAL EAST ELEVATION 01

1/8" = 1'-0"



2 PARTIAL EAST ELEVATION 02

1/8" = 1'-0"

10.a.



0 EAST KEY ELEVATION

1" = 60'-0"

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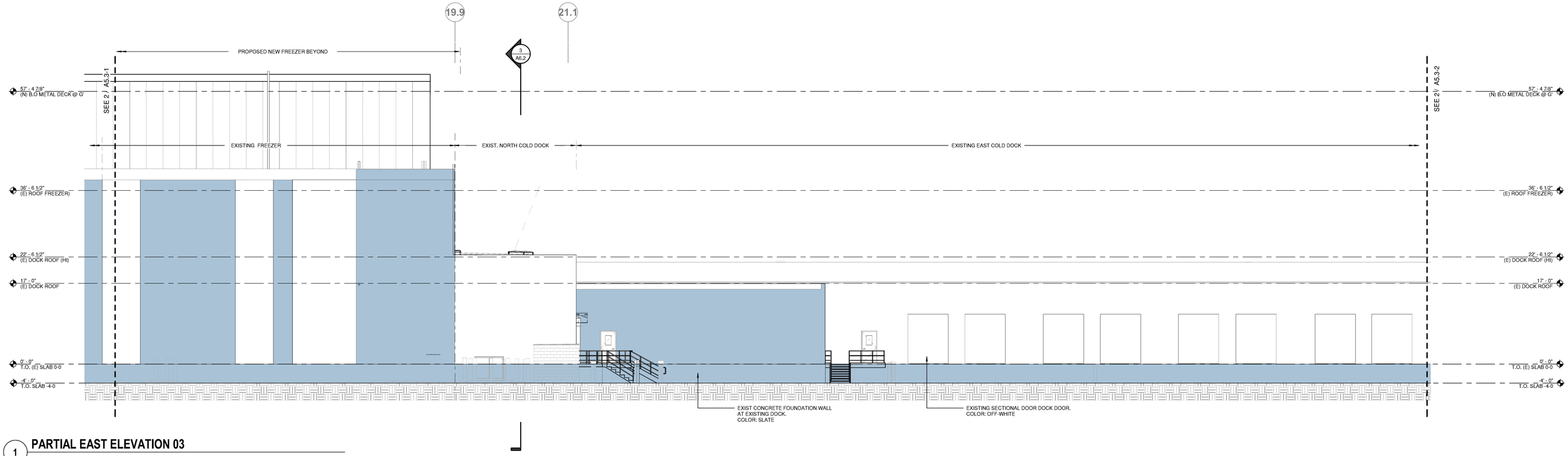
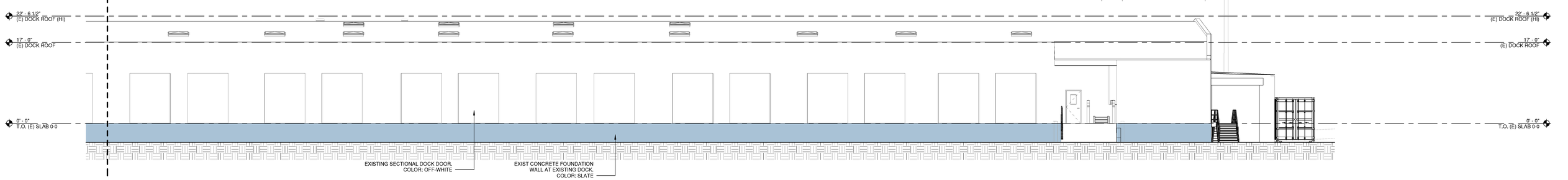


1 PARTIAL EAST ELEVATION 03

1/8" = 1'-0"



2 PARTIAL EAST ELEVATION 04

1/8" = 1'-0"



3 EAST KEY ELEVATION

1" = 60'-0"

LEGAL DESCRIPTION

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ENLARGED PROPOSED EXT. EAST ELEVATION

KONOIKE- MAUST COMPANY

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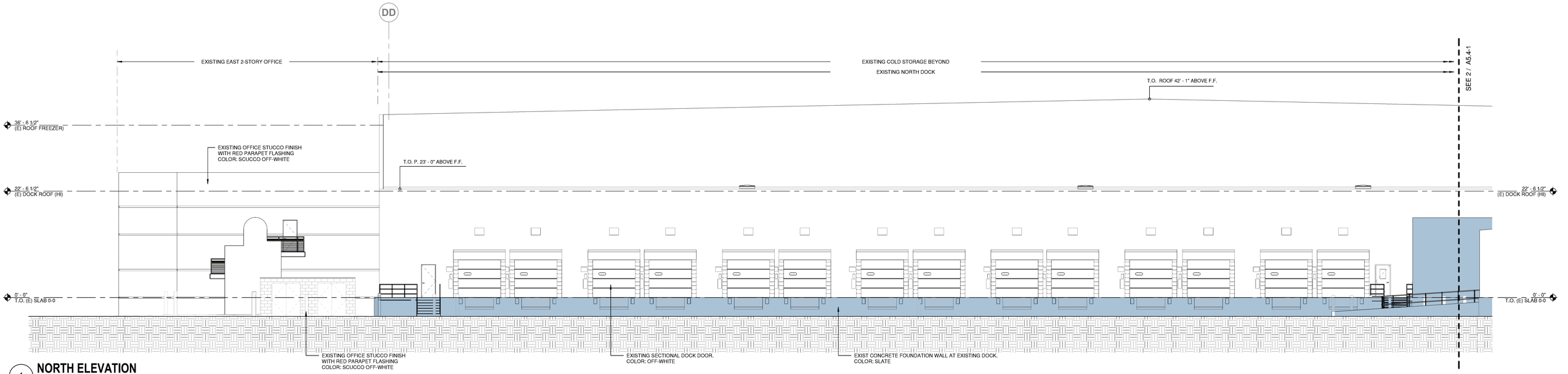
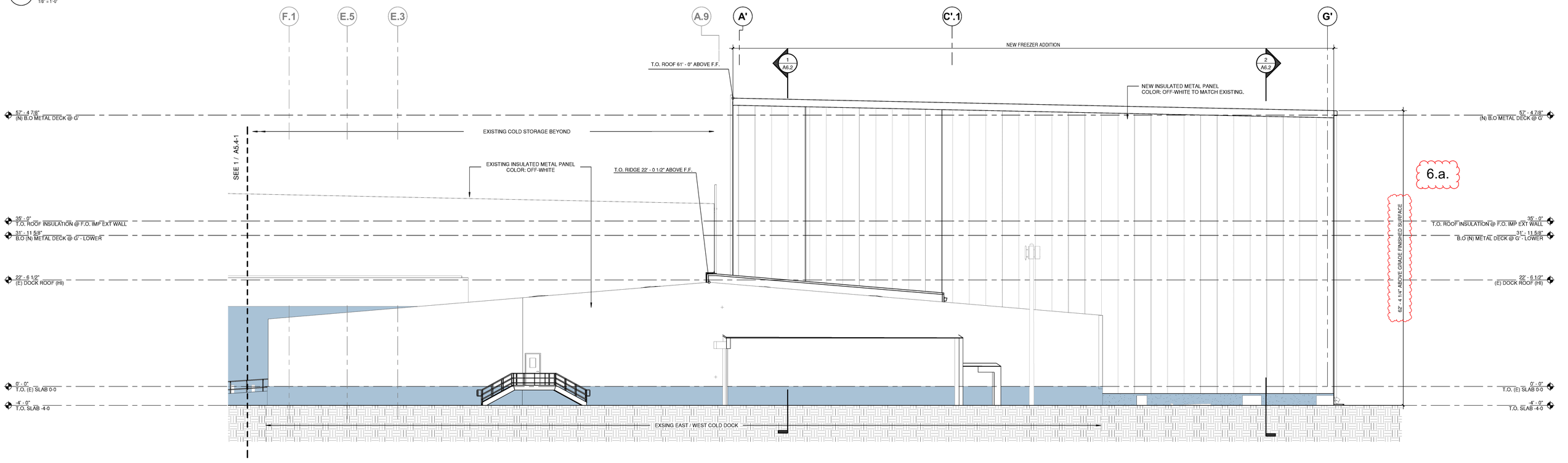


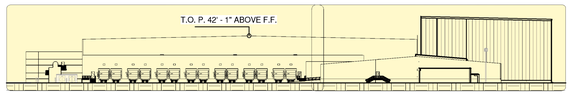
1 NORTH ELEVATION

1/8" = 1'-0"



2 NORTH ELEVATION

1/8" = 1'-0"



0 NORTH KEY ELEVATION

1" = 60'-0"

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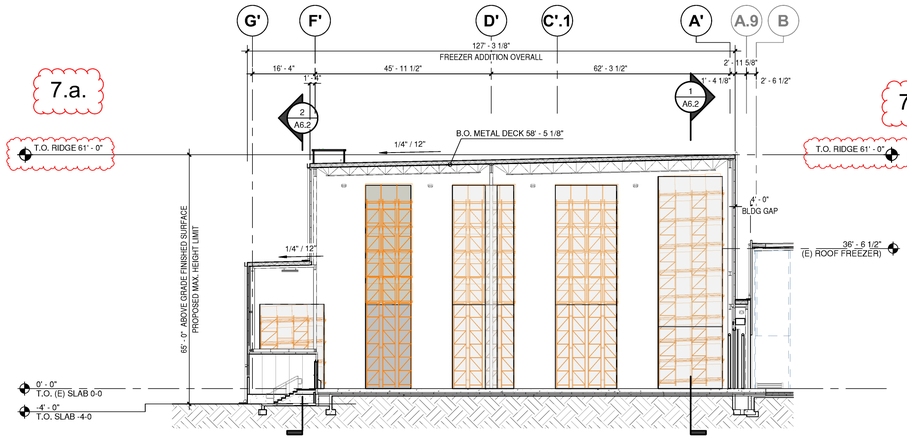
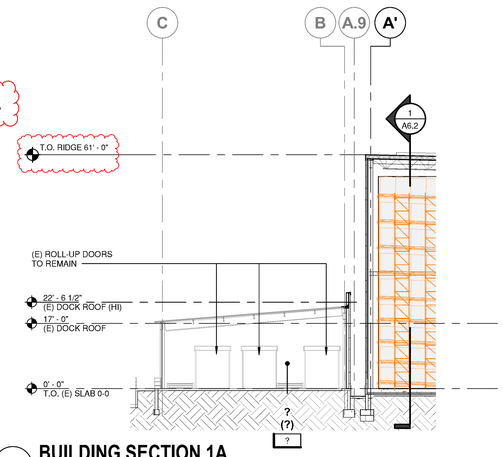


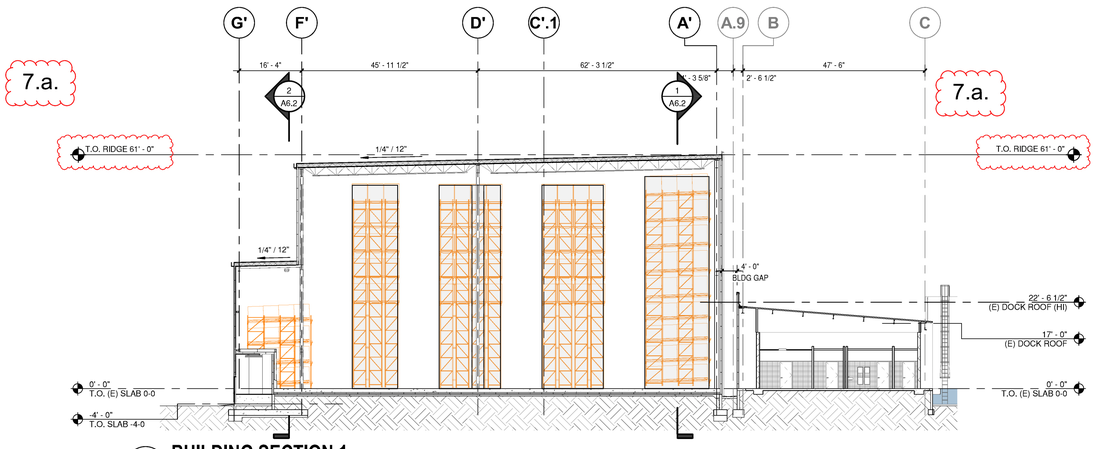
2 BUILDING SECTION 2

1/16" = 1'-0"



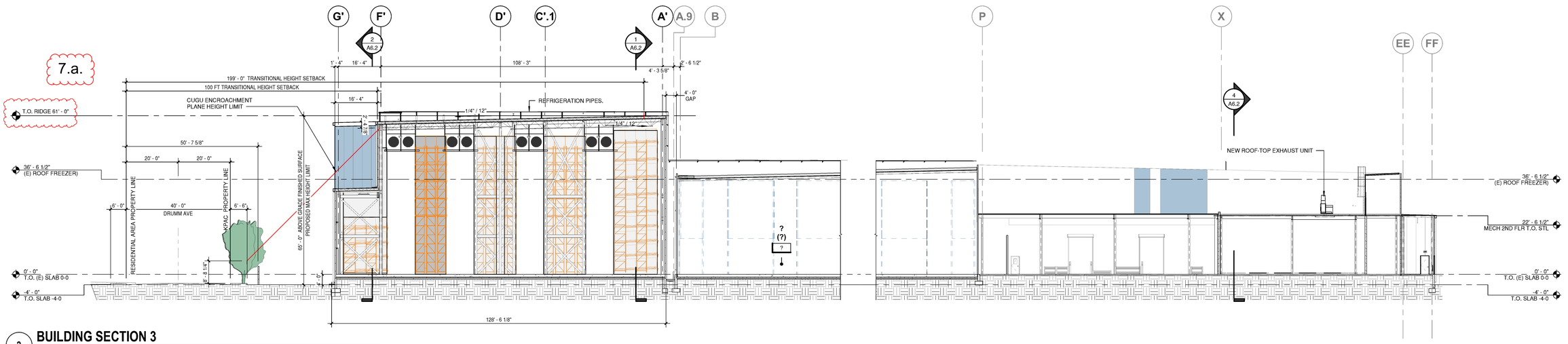
5 BUILDING SECTION 1A

1/16" = 1'-0"



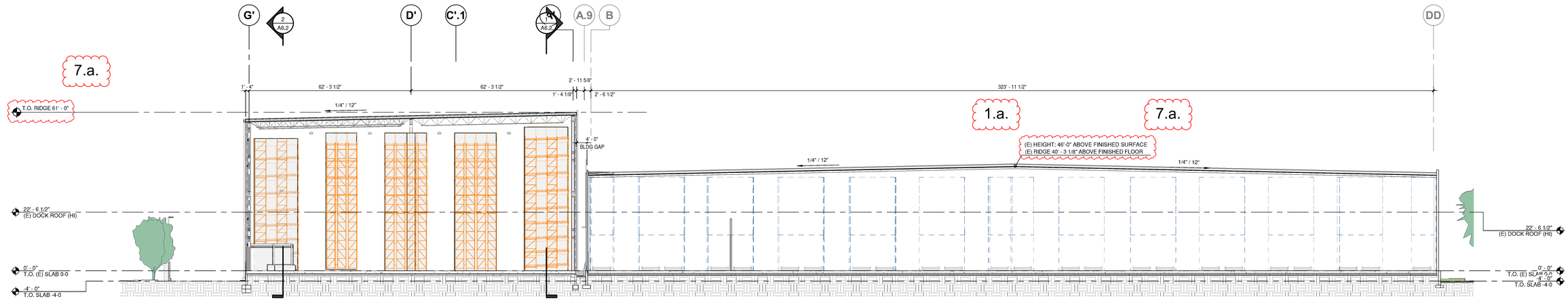
1 BUILDING SECTION 1

1/16" = 1'-0"



3 BUILDING SECTION 3

1/16" = 1'-0"



4 BUILDING SECTION 4

1/16" = 1'-0"

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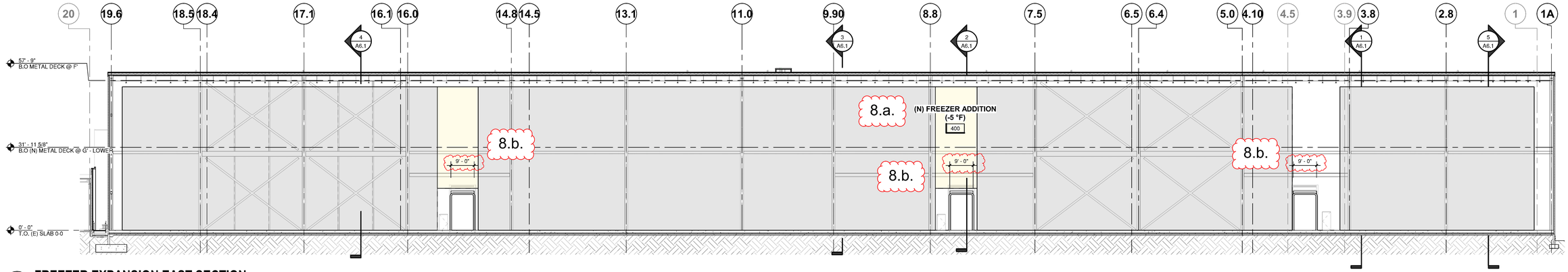
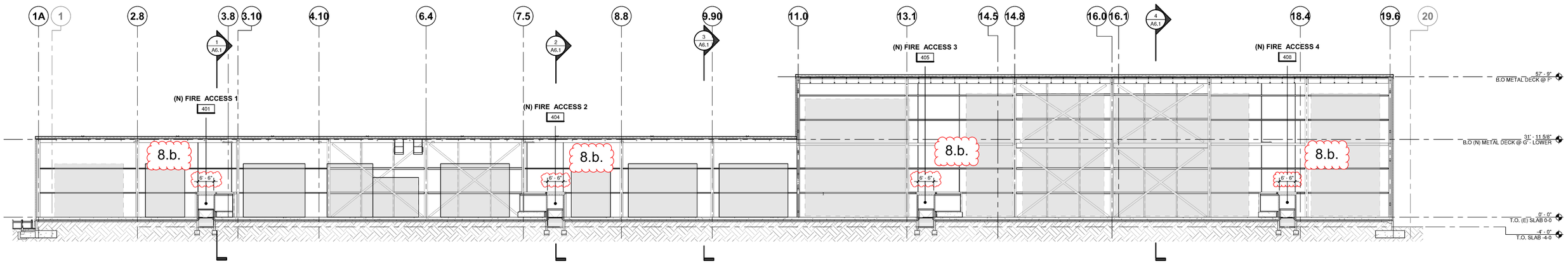


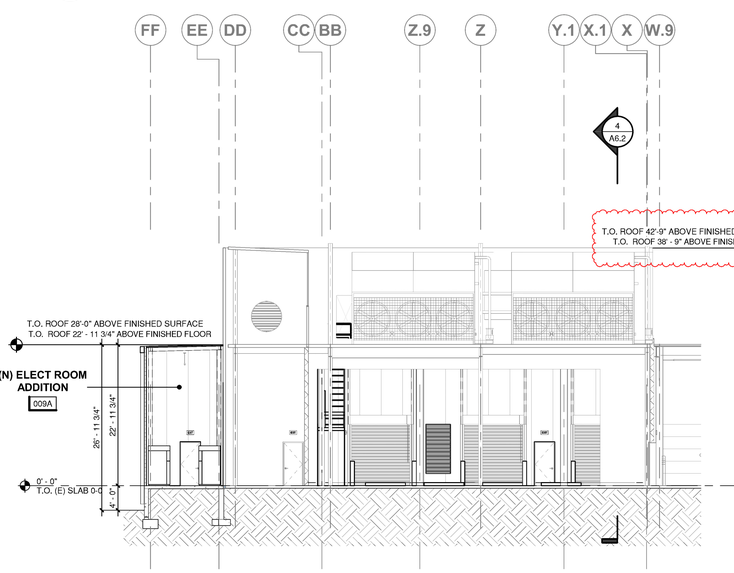
1 FREEZER EXPANSION EAST SECTION

1/16" = 1'-0"



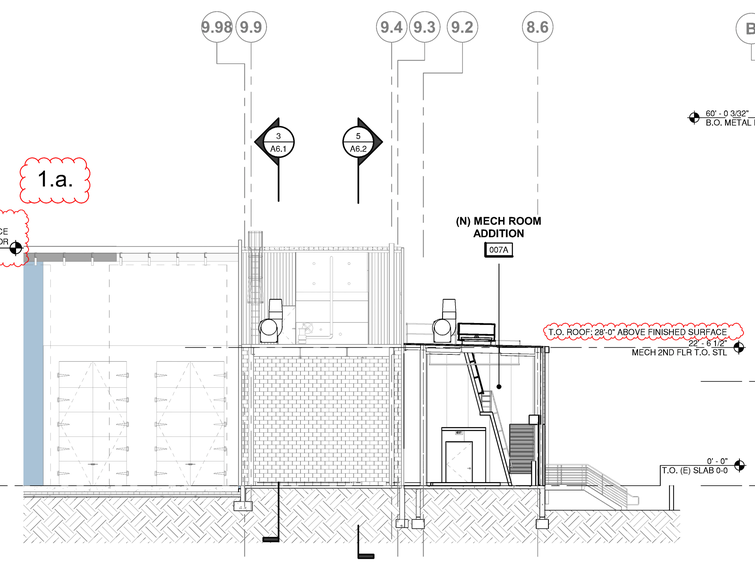
2 FREEZER EXPANSION WEST SECTION

1/16" = 1'-0"



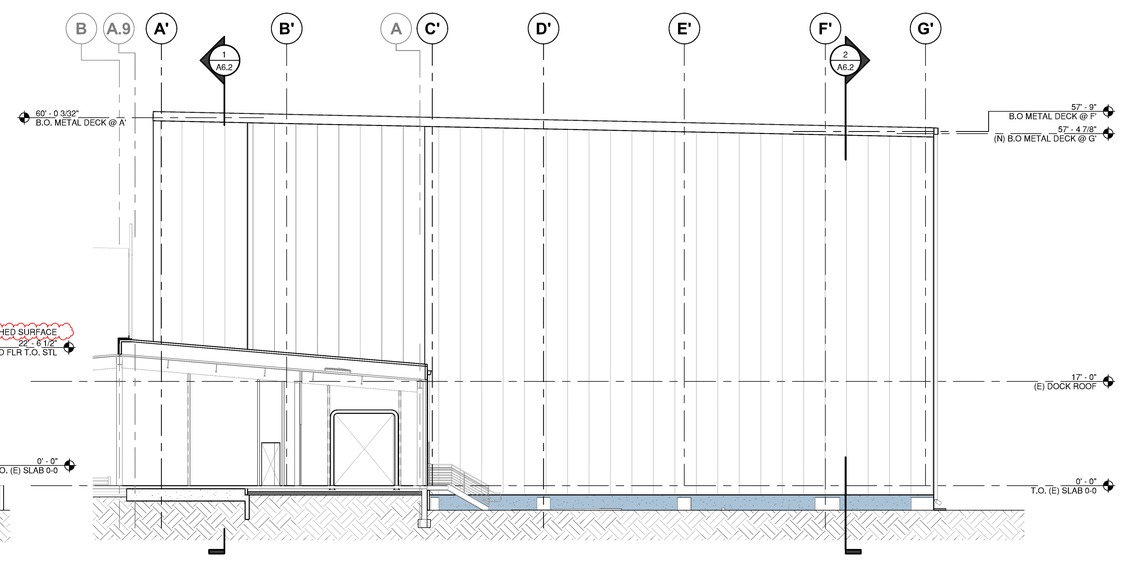
5 SOUTHEAST DOCK BUILDING SECTION

1" = 10'-0"



4 SOUTHEAST DOCK BUILDING SECTION 05

1" = 10'-0"



3 BUILDING SECTION THRU ENCLOSED DOCK

1" = 10'-0"

LEGAL DESCRIPTION

PARCEL 1:
That portion of "Q" Street as vacated by ordinance No. 87406 of the City of Los Angeles, included in the Lot 3 of Tract No. 13038,in the City of Los Angeles, In the County of Los Angeles, State of California, As per Map recorded in book 254, Page 20 of Maps, in the office of the County recorder of said County.

Parcel 2:
Lot 1 of Tract No. 12257, In the City of Los Angeles, In the County of Los Angeles, State of California, as per map recorded in book 229, page 29 and 30 of Maps, in the office of the County Recorder of said County.

Parcel 3:
Lots 60 to 70 inclusive of Tract No. 1513, in the City of Los Angeles, In the County of Los Angeles, State of California, As per map recorded in book 20, page 77 of maps, in the County of the County Recorder of said County.

JRMA ARCHITECTS ENGINEERS

alston CONSTRUCTION Celebrating 35 Years

BUILDING SECTIONS

KONOIKE- MAUST COMPANY

COLD STORAGE FREEZER ADDITION - REMODEL

1420 COIL AVENUE
WILMINGTON, CA 90744

Job No. 5830
11.25.2024
06.24.2025
07.17.2025

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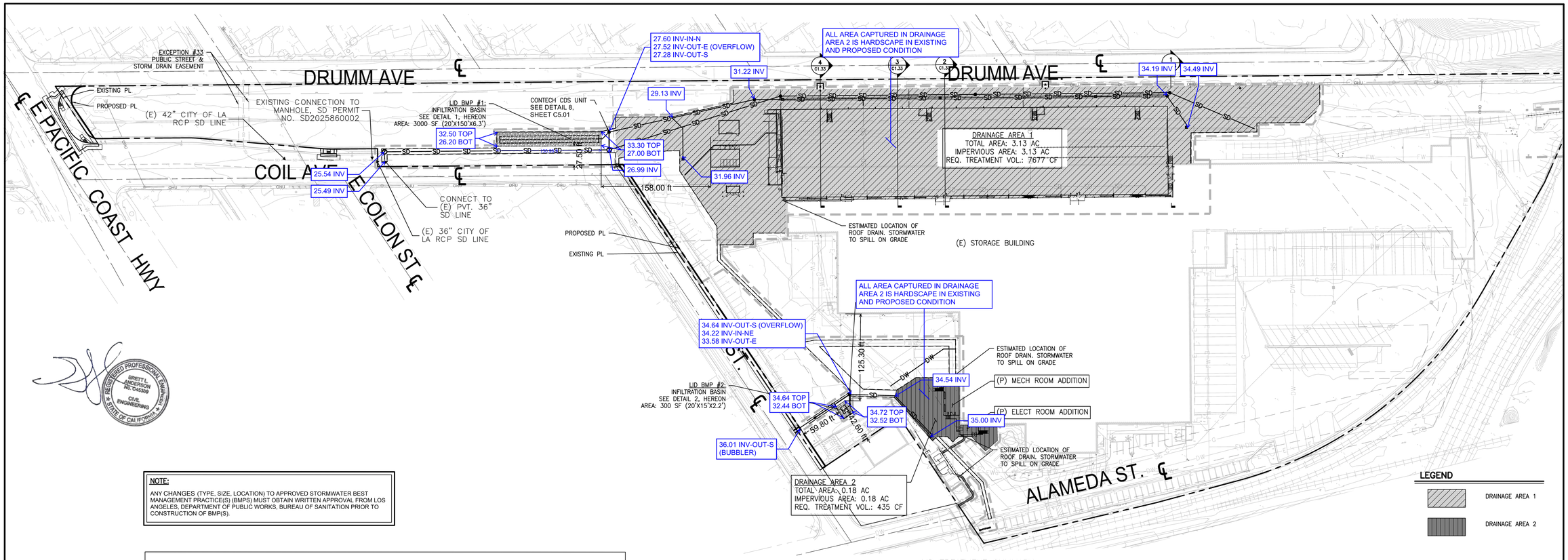
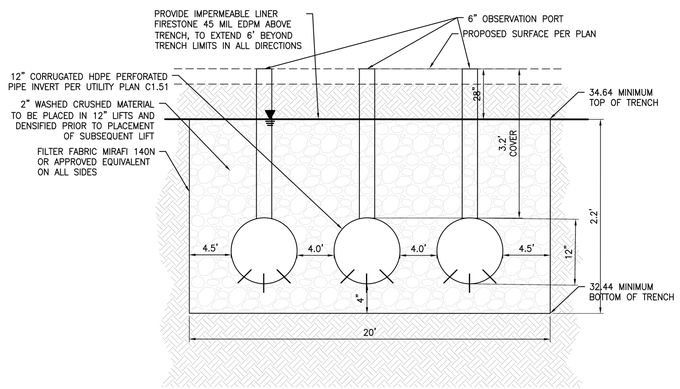
A6.2

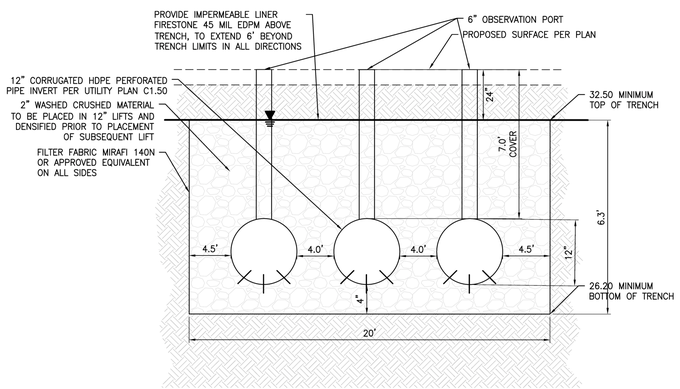


NOTE:

ANY CHANGES (TYPE, SIZE, LOCATION) TO APPROVED STORMWATER BEST MANAGEMENT PRACTICE(S) (BMPS) MUST OBTAIN WRITTEN APPROVAL FROM LOS ANGELES, DEPARTMENT OF PUBLIC WORKS, BUREAU OF SANITATION PRIOR TO CONSTRUCTION OF BMP(S).



2 LID BMP #2 – INFILTRATION BASIN N.T.S.



1 LID BMP #1 – INFILTRATION BASIN N.T.S.

LID TREATMENT SUMMARY

DRAINAGE AREA	TOTAL AREA (AC)	IMPERVIOUS (AC)	REQUIRED TREATMENT VOLUME (CF)	TOTAL TREATMENT VOLUME (CF)	BMP STRATEGY
1	3.13	3.13	7677	10639	INFILTRATION
2	0.18	0.18	435	463	INFILTRATION
TOTAL	3.31	3.31	8112	11102	

Low Impact Development (LID)
Post Construction Stormwater Mitigation
Best Management Practices (BMPs)

STORMWATER BMP(s) VERIFICATION

Upon LADBS Inspector Verification that approved stormwater BMPs are in place, a Stormwater Observation Report (SOR) Form shall be submitted to Department of Public Works, Bureau of Sanitation. 201 N. Figueroa, 3rd floor, station 18.

Project Address: 1420 COIL AVENUE, WILMINGTON, CA 90744

RESIDENTIAL (4 UNITS OR LESS, <10,000 SF, <2,500 SF within a ESA)

Item #	Stormwater BMP	Description (Units, total)	Reference Sheet(s)* (Sheet #)
1	Rain Tank(s) – 50 to 129 gal each		
2	Rain Tank(s) – > 130 gal min		
3	Shade Tree - min 15 gal		
4	Flow thru Planter(s)		
5	Permeable pavers / Porous concrete (min 10% open space)	☐ Incidental; _____ total SF ☐ Infiltration; _____ total SF	
6	Rain Garden	☐ #____ - Lined; _____ total SF ☐ #____ - Unlined; _____ total SF	
7	Dry Well		
8	SUMP Pump (modification was not required)		

ALL OTHER DEVELOPMENT
(Residential: 5 ≥ units, 10,000 ≥ SF, within a ESA and ≥2,500SF)

	Item #	Stormwater BMP	Description (Units, total)	Reference Sheet(s)* (Sheet #)
Infiltration	1	Infiltration Basin / Trench	2 - 11,102 Cu. Ft.	
	2	Dry Well		
	3	Permeable pavers / Porous concrete (min 10% open space)	☐ Incidental; _____ total SF ☐ Infiltration; _____ total SF	
Capture & Use	4	Rain Tank(s) – 530 gal min		
	5	Cistern	☐ Above Grade ☐ Below Grade	
Treat & Discharge	6	Flow thru Planter(s)		
	7	Biofiltration	☐ #____ - Lined; _____ total SF ☐ #____ - Unlined; _____ total SF	
	8	Vegetative Swale / Filter Strip		
	9	Catch Basin Filter(s)		
	10	Trench Drain Filter(s)		
	11	Down Spout Filter(s)		
	12	CDS	2	

* At a minimum: Site Plan, Architectural Elevations, Roof Plan, Civil Sheets and Detail

STORMWATER OBSERVATION REPORT FORM

(Residential ≥ 5 units & All other Development)

LOW IMPACT DEVELOPMENT

IN THE EVENT THAT THE APPROVED STORMWATER BMP CANNOT BE BUILT PER PLANS (OR ANY MODIFICATION), CONSULT WITH BUREAU OF SANITATION STAFF PRIOR TO ANY PLAN MODIFICATIONS. FAILURE TO DO SO MAY DELAY OBTAINING A FINAL APPROVAL AND CERTIFICATE OF OCCUPANCY (C OF O).

STORMWATER OBSERVATION *means the visual observation of the stormwater related Best Management Practices (BMPs) for conformance with the approved LID Plan at significant construction stages and at completion of the project. Stormwater observation does not include or waive the responsibility for the inspections required by Section 108 or other sections of the City of Los Angeles Building Code.*

STORMWATER OBSERVATION *must be performed by the engineer or architect responsible for the approved LID Plan or designated staff in their employment.* ***As part of the observation, provide photos of the BMPs taken during various construction phases.***

STORMWATER OBSERVATION REPORT *must be signed and stamped (see below) by the engineer or architect responsible for the approved LID Plan and submitted to the city prior to the issuance to the certificate of occupancy.* ***PRIOR TO CERTIFICATE OF OCCUPANCY (C of O), SOR FORM, PRINTED PHOTOS OF THE BMPS TAKEN DURING VARIOUS CONSTRUCTION PHASES AND APPROVED STAMPED PLANS BY THE BUREAU OF SANITATION MUST BE SUBMITTED TO THE PUBLIC COUNTER FOR STAFF APPROVAL.***

Project Address:	Building Permit No.:
1420 COIL AVENUE, WILMINGTON, CA 90744	22014–10000–06155
Name of Engineer/Architect responsible for the approved LID Plan: KPFF CONSULTING ENGINEERS	Phone Number: (213)–418–0201

List all BMPs installed as part of the project: Coordinates of the most significant (or typical) BMPs:

BMP Type: INFILTRATION BASIN # of units: 2 Lat: 33.79300 ; Long: –118.24286 ***Ex: Lat: 34.04152; Long: -118.25962 (5 sig digits)***	BMP Type: CDS # of units: 2 Lat: _____ ; Long: _____
BMP Type: _____ # of units: ____ Lat: _____ ; Long: _____	BMP Type: _____ # of units: ____ Lat: _____ ; Long: _____

I DECLARE THAT THE FOLLOWING STATEMENTS ARE TRUE TO THE BEST OF MY KNOWLEDGE:

1. I am the engineer or architect responsible for the approved LID Plan, and;
2. I, or designated staff under my responsible charge, has preformed the required site visits at each significant construction stage and at the completion to verify that the Best Management Practices (BMPs) as shown on approved plans have been constructed and installed in accordance with the approved LID Plan.

Signature Date

Wet Stamp of Engineer or Architect

0 30' 60'
SCALE: 1"=60'

Project Revision

A	BLDG PC-1 ISSUE	12.19.2022
B	BLDG PC-2 ISSUE	12.15.2023
C	BID SET	03.01.2024
D	PLAN CHECK	07.02.2024

kpff
700 South Flower Street
Suite 2100
Los Angeles, CA 90017
O: 213.418.0201
www.kpff.com

alston CONSTRUCTION

PROPOSED COLD STORAGE FREEZER ADDITION - REMODEL FOR:

KONOIKE-MAUST COMPANY

1420 COIL AVENUE WILMINGTON, CA 90744

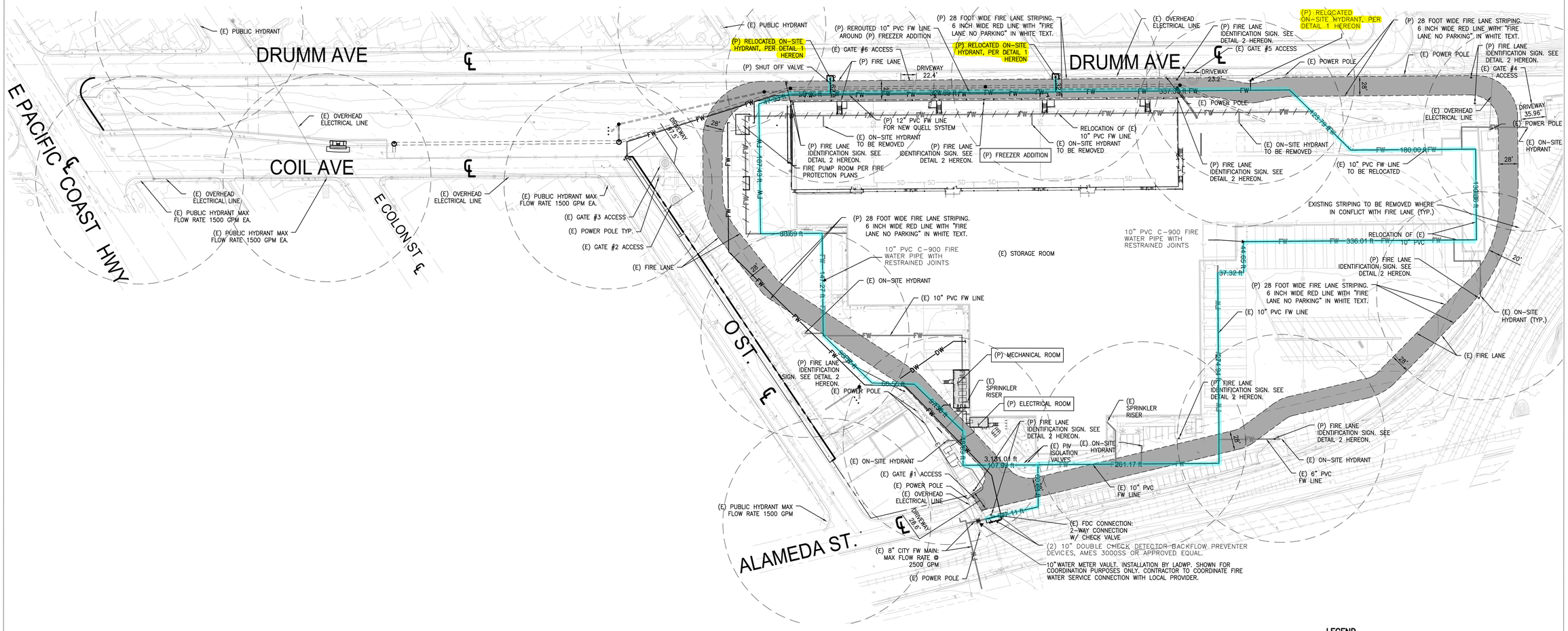
REGISTERED PROFESSIONAL ENGINEER JEFFREY B. MAZZA No. 29894 Exp. 03/31/25 CIVIL STATE OF CALIFORNIA

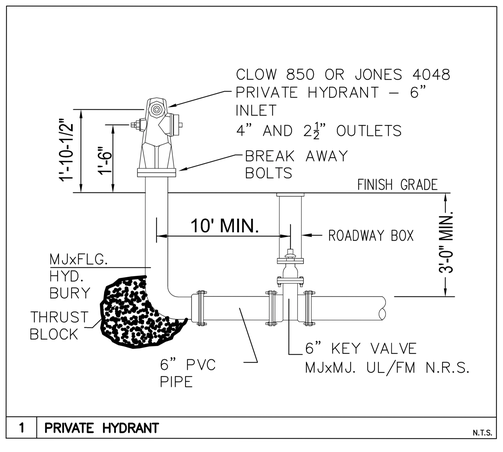
LID PLAN

DATE
DWN
AS NOTED
SCALE
CHK

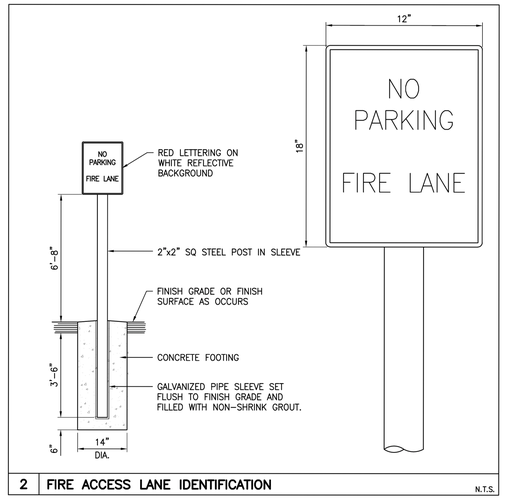
C1.60

P:\2022\2200311 KPAC Cold Storage Los Angeles\5 CAD\Sheets\2200311-C1.60LID.dwg, Nov 01, 2024 - 1:17pm





1 PRIVATE HYDRANT N.T.S.



2 FIRE ACCESS LANE IDENTIFICATION N.T.S.

NOTES:

TOTAL ON-SITE FIRE FLOW DEMAND IS 3000 GPM @ 20 PSI, FLOWING 1500 GPM FROM EACH OF (2) FIRE HYDRANTS. PER LA FIRE DEPARTMENT HYDRANT DIVISION (07-22-1992)

ALL KEY GATE VALVES CONTROLLING HYDRANTS MUST BE LOCATED NOT CLOSER THAN 4'-0" AND NOT FURTHER THAN 10'-0" FROM THE HYDRANT.

LEGEND

- PROPERTY LINE
- EXISTING FIRE WATER LINE
- PROPOSED FIRE WATER LINE
- DEMOLITION OF (E) FIRE WATER
- THRUST BLOCK
- POINT OF CONNECTION
- (E) AND (P) FIRE LANE
- GATE ACCESS FOR STAFF, VISITORS, & FIRE; (E) KNOX BOX IN PLACE
- GATE ACCESS FOR FIRE ONLY; (E) KNOX BOX IN PLACE

City of Los Angeles, Department of Building & Safety
APPROVED PLANS

- This set of plans are not approval for construction until the required permit fees are paid and the permit is issued.
- No inspection can be scheduled until the permit fees have been paid.

By: **TIMOTHY SMITH** Date: **01/08/2025**

Application No./Permit No.: **24043-10001-00665**

- This set of plans **MUST** be at the job site during construction.
- It is unlawful to alter, change, or deviate from these plans.
- The stamping of this plan **SHALL NOT** constitute approval of violation of any provisions of any Ordinance or Law.
- **SEPARATE** permits are required for BUILDING, ELECTRICAL, PLUMBING, FIRE SPRINKLERS, ELEVATOR, HVAC, unless this permit was issued as a combination permit for a One or Two Family Dwelling pursuant to LAMC Section 91.0107.2.2 and the work by that trade does not require Plan Check. This approval is only for the items indicated on the permit work description. Other items shown on the plans are NOT included in this approval.

PLAN CHECK ONLY. PERMIT UNDER 24043-10001-00665.

0 30' 60'
SCALE: 1"=60'

Project Revision

A	BLDG PC-1 ISSUE	12.19.2022
B	BLDG PC-2 ISSUE	12.15.2023
C	BID SET	03.01.2024
D	PLAN CHECK	07.02.2024

kpff
700 South Flower Street
Suite 2100
Los Angeles, CA 90017
O: 213.418.0201
www.kpff.com

alston CONSTRUCTION

PROPOSED COLD STORAGE FREEZER ADDITION - REMODEL FOR:

KONOIKE-MAUST COMPANY

1420 COIL AVENUE WILMINGTON, CA 90744

REGISTERED PROFESSIONAL ENGINEER JEFFREY B. PLAZA No. 69894 Exp. 12/31/25 CIVIL STATE OF CALIFORNIA

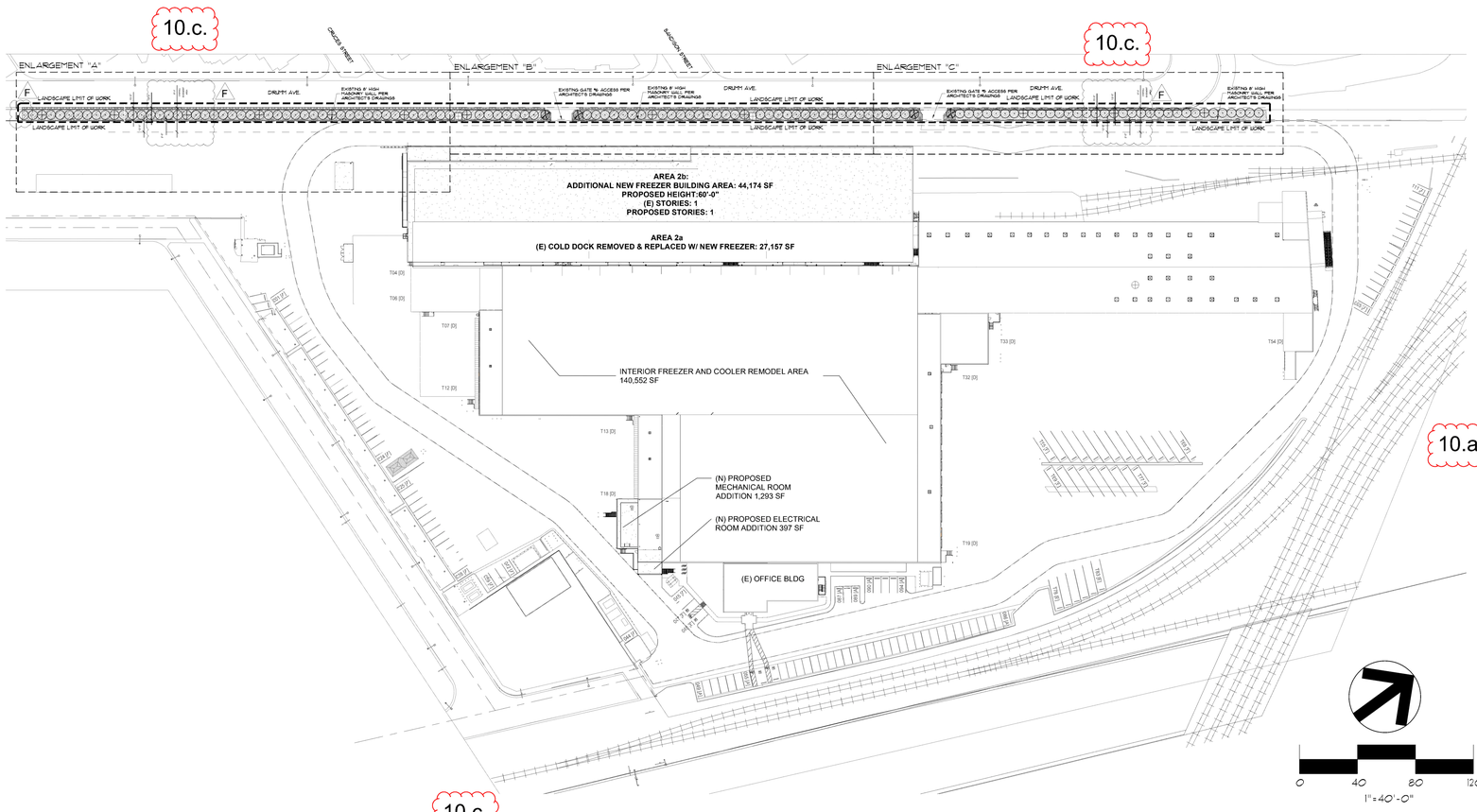
DATE
DWN
AS NOTED
SCALE
CHK

FIRE ACCESS PLAN

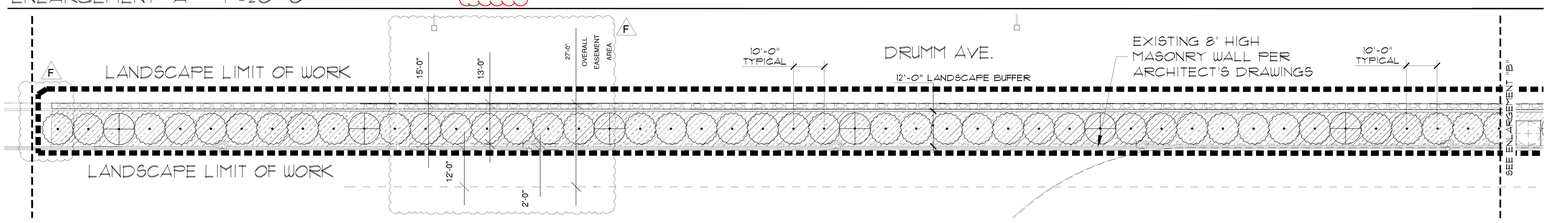
C1.70

P:\2022\2200311 KPAC Cold Storage Los Angeles\5 CAD\Sheets\2200311-C1.70FA.dwg, Nov 05, 2024 - 3:45pm
P:\2022\2200311 KPAC Cold Storage Los Angeles\5 CAD\Sheets\2200311-C1.70FA.dwg, Nov 05, 2024 - 3:45pm

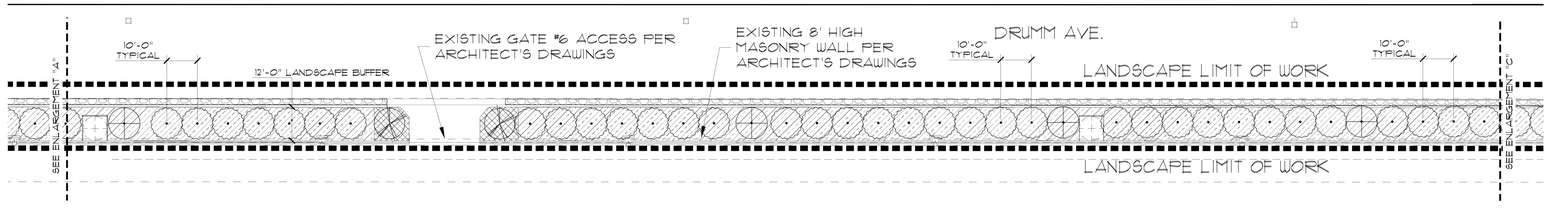
OVERALL LANDSCAPE PLAN - 1"=40'-0"



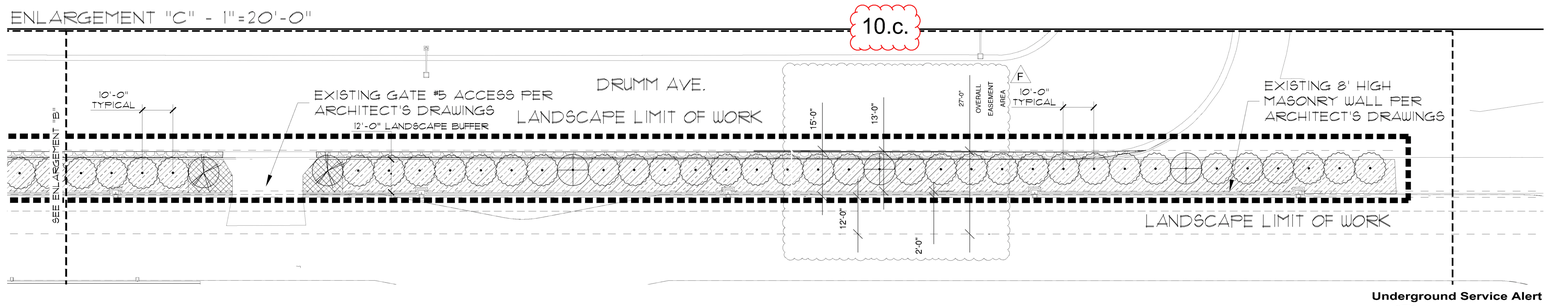
ENLARGEMENT "A" - 1"=20'-0"



ENLARGEMENT "B" - 1"=20'-0"



ENLARGEMENT "C" - 1"=20'-0"



Underground Service Alert

Call: TOLL FREE
1-800
227-2600

TWO WORKING DAYS BEFORE YOU DIG

HEDGE AND ACCENT TREE LEGEND

SYMBOL	BOTANICAL/COMMON NAME	SIZE	SPACING/COMMENTS	WUCOLS WATER USE	QUANTITY
	ARBUTUS MENZIESII MADRONE	24" BOX	MULTI CA NATIVE	LOW	13
	CASSIA LEPTOPHYLLA GOLD MEDALLION TREE	24" BOX	STANDARD D.S. ACCENT TREE	LOW	4
	UMBELLULARIA CALIFORNICA CALIFORNIA LAUREL	24" BOX	MAINTAIN AT 6'-8' HEDGE CA NATIVE	LOW	113

10.b.

GROUNDCOVER LEGEND

SYMBOL	BOTANICAL/COMMON NAME	SIZE	SPACING/COMMENTS	WUCOLS WATER USE	QUANTITY
	CAREX PRAEGRACILIS CALIFORNIA FIELD SEDGE	1 GAL	24" O.C. PLANT 18" AWAY FROM WALKS OR CURB EDGE CA NATIVE	LOW	84
	BACCHARIS 'PIGEON POINT' DWARF COYOTE BUSH	1 GAL	60" O.C. PLANT 30" AWAY FROM WALKS OR CURB EDGE CA NATIVE	LOW	422
	APPLY 3" DEEP ROCK MULCH ONLY (NO PLANTING) WHERE SHOWN. USE 3/4" SCREENED ROCK COLOR TO BE TAN.				

ORGANIC MULCH

ALL PLANTING AREAS SHALL HAVE A 3" DEEP LAYER OF ORGANIC MULCH UNLESS NOTED. SUBMIT SAMPLES FOR APPROVAL PRIOR TO INSTALLATION. SEE SPECIFICATIONS.

PLANTING NOTES

1. USE ROOT BARRIERS FOR ALL TREES WITHIN 5'-0" OF CONCRETE CURBS OR PAVING.
2. ALL TREES ARE SELECTED FROM THE DEPARTMENT OF PUBLIC WORKS BUREAU OF STREET SERVICES, STREET TREE SELECTION GUIDE, EXCEPT NON-DROUGHT TOLERANT TREES AND PALMS SHALL BE PROHIBITED.
3. AS PER CUGU SECTION 13.18.F.2.I.IOB, A MINIMUM OF ONE TREE SHALL BE PLANTED AND MAINTAINED EVERY 10 LINEAR FEET WITHIN THE SETBACK ALONG DRUMM AVE. THESE TREES SHALL BE MAINTAINED AT A 6'-8' TALL HEDGE.
4. ALL EXISTING LANDSCAPE ALONG DRUMM AVE. TO BE REMOVED. ALL EXISTING ONSITE PLANTING AREAS ARE NOT IN SCOPE OF WORK, ONLY THE PLANTING AREA ALONG DRUMM AVE. IS IN SCOPE OF WORK. ALL EXISTING PLANTING ALONG DRUMM AVE. THAT IS BEING REMOVED IS NOT PROTECTED.
5. THE CUGU ORD. REQUIRES THAT TREES BE PLANTED EVERY 10 LINEAR FEET IN THE SETBACK. (13.18-F.2(1X2)). THE CALCULATION WOULD BE THE FULL LENGTH OF THE PLANTED SETBACK DIVIDED BY 10 WITH DEDUCTIONS FOR GATES AND OTHER BREAKS.

CUGU STREET TREE CALCULATIONS

LENGTH OF DRUMM AVE WITHIN PLANTED SETBACK:	1300 L.F.
TOTAL TREES REQUIRED (1 TREE PER 10 LF OF PLANTED SETBACK): TOTAL TREES PROVIDED:	130 TREES 130 TREES

IRRIGAITON NOTES

1. SITE LANDSCAPE TO HAVE A DRIP IRRIGATION SYSTEM WITH AUTOMATIC CONTROLLER & RAIN SENSOR AS WATER CONSERVING FEATURES.
2. DESIGN AND INSTALL IRRIGATION SYSTEMS PURSUANT TO GUIDELINES BB - IRRIGATION SPECIFICATION, PROMULGATED PURSUANT TO SECTION 12.41 B.2, OF THIS CODE. ALL PERMANENT IRRIGATION SYSTEMS REQUIRED UNDER THE PROVISIONS OF THIS CODE THAT USE POTABLE WATER SHALL MEET THE MINIMUM SPECIFICATIONS FOR FEATURES AND TECHNIQUES ESTABLISHED BY THE CITY PLANNING COMMISSION
3. STATE ASSEMBLY BILL1881, MAWA/EAWU, PLANT HYDROZONES & WATER CALCULATIONS TO BE FOLLOWED

CONCEPTUAL PLANT IMAGES



CASSIA LEPTOPHYLLA
GOLD MEDALLION TREE



ARBUTUS MENZIESII
MADRONE

MAINTAIN 6'-8' TALL HEDGE



UMBELLULARIA CALIFORNICA
CALIFORNIA LAUREL

MAINTAIN 6'-8' TALL HEDGE



CAREX PRAEGRACILIS
CALIFORNIA FIELD SEDGE



BACCHARIS 'PIGEON POINT'
DWARF COYOTE BUSH

JRMA
ARCHITECTS ENGINEERS
2700 SATURN ST I BREA, CA 92821
T. 714.524.1870 I F. 714.524.1875
WWW.JRMA.COM

Project Revision

A	BLDG PC-1 ISSUE	12.19.2022
B	BLDG PC-2 ISSUE	12.15.2023
C	BID ISSUE REV-C	03.01.2024
C.1	BID ISSUE CLARIF.	03.22.2024
E	REVISIONS FOR RE-SUBMITTAL TO CITY PLANNING	06.18.2025
F	REVISIONS FOR RE-SUBMITTAL TO CITY PLANNING	07.17.2025

LICENSED LANDSCAPE ARCHITECT
AUSTIN PRICE 6528
Signature
11-30-24
Renewal Date
04-30-24
Date
STATE OF CALIFORNIA

R.P.A.L.A. GROUP
LANDSCAPE ARCHITECTURE PLANNING
CALIFORNIA
120 Avenida del Mar, #210
San Clemente, CA 92672
949.218.2000
www.rpala.com
Arizona
4742 North 24th Street, #300
Phoenix, AZ 85016
602.957.1155

alston CONSTRUCTION

PROPOSED COLD STORAGE FREEZER ADDITION - REMODEL FOR:

KONOIKE-MAUST COMPANY

1420 COIL AVENUE
WILMINGTON, CA 90744

J.R.MILLER & ASSOCIATES SHALL RETAIN ALL COMMON LAW STATUTORY AND OTHER RESERVED RIGHTS, INCLUDING THE COPYRIGHT FOR THIS DOCUMENT INCLUDING REPRESENTED DESIGNS AND SPECIFICATIONS.

PLANTING PLAN

DATE	06.18.2025
SCALE	AS NOTED
DWN	AP
CHK	RP

RPALA Project No.
23150

L-1.01

EXHIBIT B

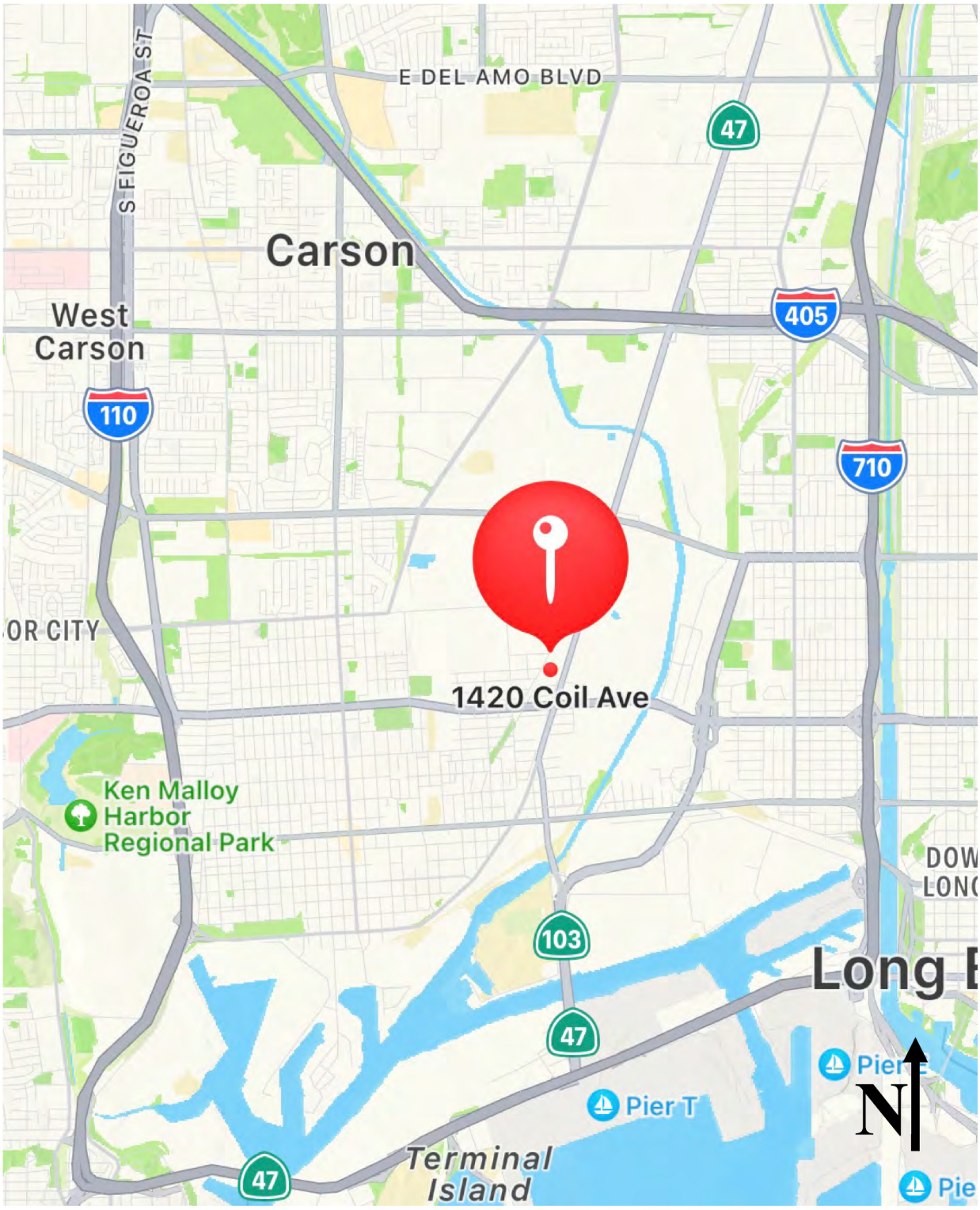
MAPS AND PHOTOS

B1 – Vicinity Map

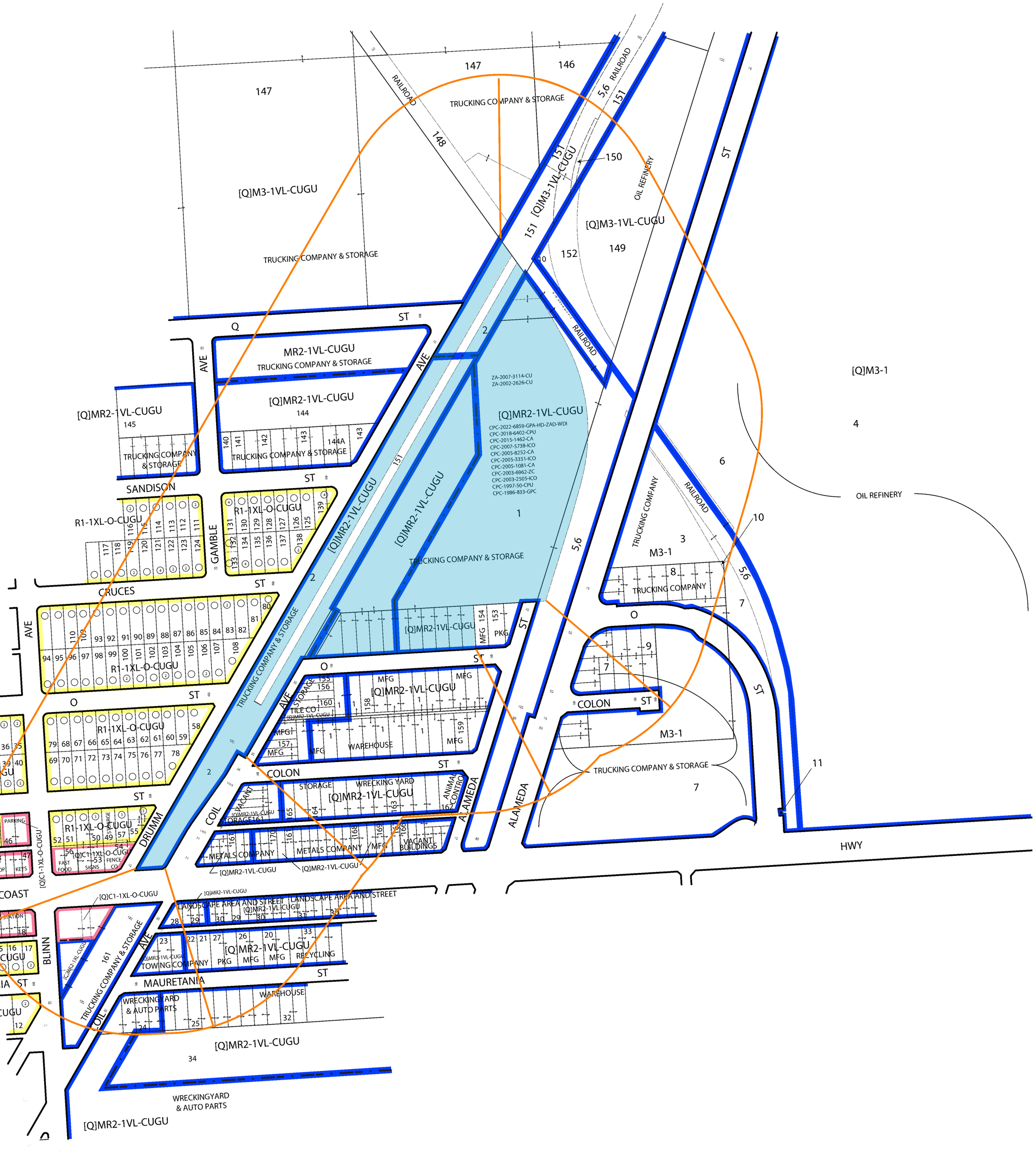
B2 – Radius Map

B3 – Site Photos

B4 – ZIMAS Parcel Profile Report



1420 COIL AVE.
VICINITY MAP



GENERAL PLAN AMENDMENT - HEIGHT DISTRICT CHANGE -WAIVER OF DEDICATION AND/OR IMPROVEMENT - ZAD

QMS Quality Mapping Service

14549 Archwood St. Suite 301
Van Nuys, California 91405
Phone (818) 997-7949 - Fax (818) 997-0351
qmapping@qesqms.com

THOMAS BROTHERS
Page: 794 **Grid:** H-4

LEGAL
" SEE APPLICATIONS"

ASSESSOR PARCEL NUMBER: 7426-029-(005,006,007)
7426-030-(003-013,015)

SITE ADDRESS: 1420 COIL AVE

CD: 15
CT: 2941.20
PA: WILMINGTON HARBOR CITY
USES: FIELD/RECORD

CASE NO:
SCALE: 1" = 200'
D.M.: 036B213,033B213

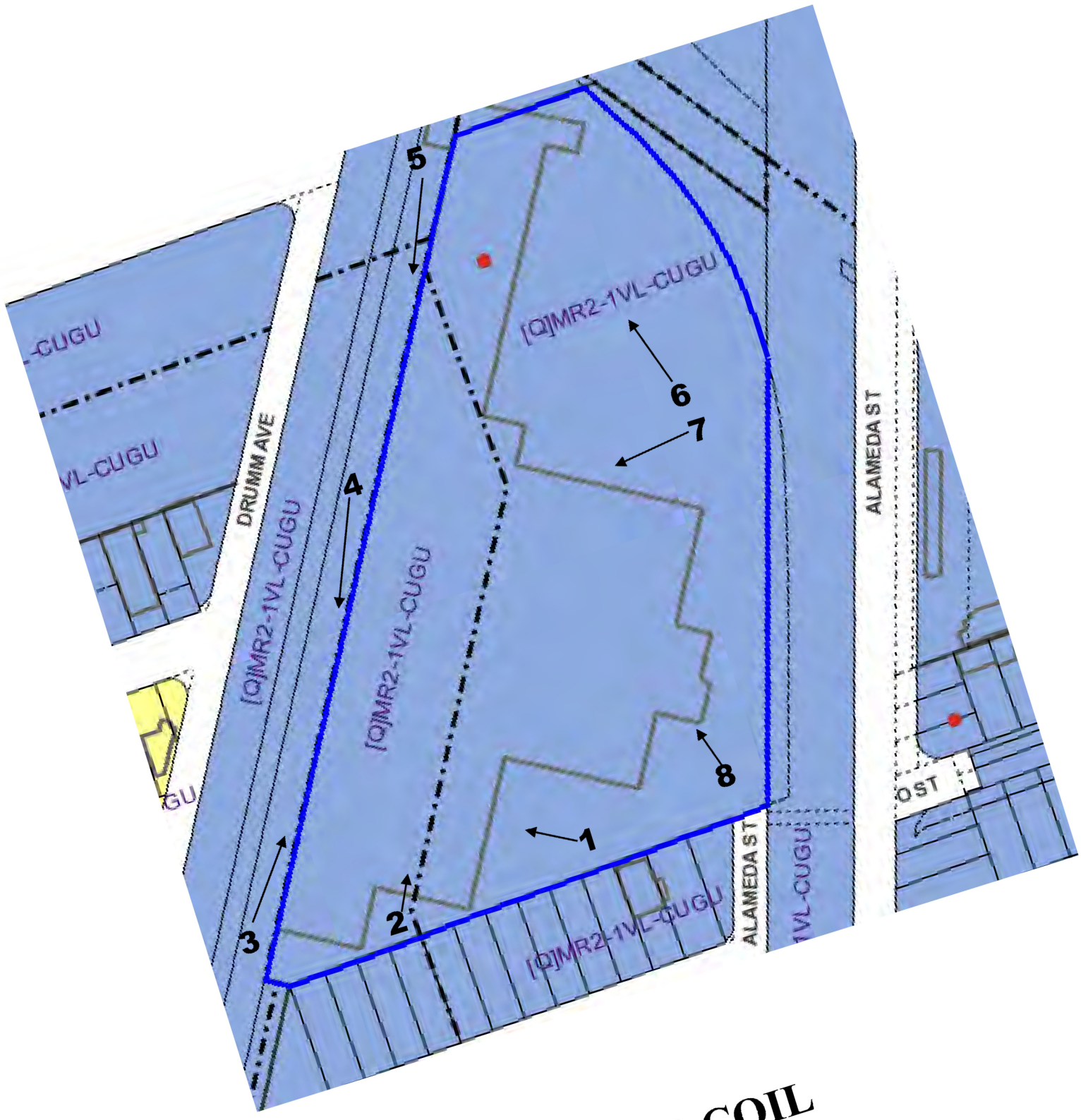
CONTACT: PACIFIC CREST CONSULTANTS
PHONE: 818-591-9309

NORTH

DATE: ~~08-04-2022~~
Update: 11-20-2024

NET AC: 16-008 +/-

QMS: 22-159A



1420 COIL
SITE PHOTOS



1. Subject property facing west



2. Subject property facing north



3. Subject property facing north



4. Subject property facing south



5. Subject property facing south



6. Subject property facing northwest



7. Subject property facing southwest



8. Subject property facing north

City of Los Angeles
Department of City Planning

7/28/2025
PARCEL PROFILE REPORT

PROPERTY ADDRESSES
1542 N ALAMEDA ST
1540 N ALAMEDA ST
1532 N ALAMEDA ST
1420 N COIL AVE
1500 N COIL AVE

ZIP CODES
90012
90744

RECENT ACTIVITY
PAR-2023-2626-WTF
PAR-2022-2594-CM
ADM-2023-2723-APA

CASE NUMBERS
ADM-2022-330-WTF
ADM-2021-3629-WTF
CPC-2022-6859-GPA-HD-ZAD-WDI
CPC-2018-6402-CPU
CPC-2015-1462-CA
CPC-2007-5738-ICO
CPC-2005-8252-CA
CPC-2005-3351-ICO
CPC-2005-1081-CA
CPC-2003-6962-ZC
CPC-2003-2505-ICO
CPC-1997-50-CPU
CPC-1986-833-GPC
ORD-187552
ORD-184246
ORD-177243-SA60
ORD-177243-SA50
ORD-176859
ORD-175384
ORD-172853-SA65
ORD-167208
ORD-166001
ORD-164960
ORD-163420
ORD-162741
ZA-2007-3114-CU
ZA-2002-2626-CU
ENV-2022-6860-ND
ENV-2019-3379-EIR
ENV-2017-2502-CE

Address/Legal Information	
PIN Number	036B213 16
Lot/Parcel Area (Calculated)	404,742.3 (sq ft)
Thomas Brothers Grid	PAGE 794 - GRID G4
	PAGE 794 - GRID H4
Assessor Parcel No. (APN)	7426029007
Tract	TR 12257
Map Reference	M B 229-29/30
Block	None
Lot	1
Arb (Lot Cut Reference)	1
Map Sheet	036B213
Jurisdictional Information	
Community Plan Area	Wilmington - Harbor City
Area Planning Commission	Harbor APC
Neighborhood Council	Wilmington
Council District	CD 15 - Tim McOsker
Census Tract #	2941.20000000
LADBS District Office	San Pedro
Permitting and Zoning Compliance Information	
Administrative Review	ADM-2022-330-WTF
	ADM-2021-3629-WTF
Planning and Zoning Information	
Special Notes	None
Zoning	[Q]MR2-1VL-CUGU
Zoning Information (ZI)	ZI-2514 Wilmington-Harbor Trucking Related Uses
	ZI-1195 Construction Site Review: Department of Conservation, Division of Oil, Gas, and Geothermal Resources
	ZI-2536 Environmental Protection Measures for Residential Projects with Five or More Units (Oil Wells)
	ZI-2458 Clean Up Green Up (CUGU): Wilmington
	ZI-2498 Local Emergency Temporary Regulations - Time Limits and Parking Relief - LAMC 16.02.1
	ZI-2130 State Enterprise Zone: Harbor Gateway
	ZI-2452 Transit Priority Area in the City of Los Angeles
General Plan Land Use	Light Manufacturing
General Plan Note(s)	Yes
Minimum Density Requirement	No
Hillside Area (Zoning Code)	No
Specific Plan Area	None
Subarea	None
Special Land Use / Zoning	None
Historic Preservation Review	No
HistoricPlacesLA	No
Historic Preservation Overlay Zone	None
Other Historic Designations	None
Mills Act Contract	None
CDO: Community Design Overlay	None

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ENV-2015-1463-ND
ENV-2011-1316-CE
ENV-2007-5739-ND
ENV-2007-3115-MND
ENV-2005-8253-ND
ENV-2005-3352-CE
ENV-2005-1781-ND
ENV-2003-2506-CE
ENV-2002-2627
EIR-87-49-ZC-GPA
ED-76-439-SUB
AFF-42178
AFF-39538
AF-93-1230819-LT

CPIO: Community Plan Imp. Overlay	None
Subarea	None
CPIO Historic Preservation Review	No
CUGU: Clean Up-Green Up	Wilmington
HCR: Hillside Construction Regulation	No
NSO: Neighborhood Stabilization Overlay	No
POD: Pedestrian Oriented Districts	None
RBP: Restaurant Beverage Program Eligible Area	None
ASP: Alcohol Sales Program	No
RFA: Residential Floor Area District	None
RIO: River Implementation Overlay	No
SN: Sign District	No
AB 2334: Low Vehicle Travel Area	Yes
AB 2097: Within a half mile of a Major Transit Stop	Yes
Streetscape	No
Adaptive Reuse Incentive Area	None
Affordable Housing Linkage Fee	
Residential Market Area	Low
Non-Residential Market Area	Low
Inclusionary Housing	No
Local Affordable Housing Incentive	No
Targeted Planting	No
Special Lot Line	No
Transit Oriented Communities (TOC)	Tier 1
Mixed Income Incentive Programs	
Transit Oriented Incentive Area (TOIA)	Not Eligible
Opportunity Corridors Incentive Area	Not Eligible
Corridor Transition Incentive Area	Not Eligible
TCAC Opportunity Area	Low
High Quality Transit Corridor (within 1/2 mile)	Yes
ED 1 Eligibility	Not Eligible
RPA: Redevelopment Project Area	None
Central City Parking	No
Downtown Parking	No
Building Line	None
500 Ft School Zone	None
500 Ft Park Zone	None
Zanja System 1 Mile Buffer	No

Assessor Information

Assessor Parcel No. (APN)	7426029007
Ownership (Assessor)	
Owner1	KONOIKE PACIFIC CALIF INC
Address	1420 COIL AVE WILMINGTON CA 90744
Ownership (Bureau of Engineering, Land Records)	
Owner	KONOIKE PACIFIC CALIFORNIA INC
Address	1420 COIL AVE WILMINGTON CA 90744
APN Area (Co. Public Works)*	8.940 (ac)
Use Code	3200 - Industrial - Heavy Manufacturing - One Story
Assessed Land Val.	$4,938,063
Assessed Improvement Val.	$20,903,103
Last Owner Change	01/01/2000

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Last Sale Amount	$9
Tax Rate Area	400
Deed Ref No. (City Clerk)	893231
	877308
	510
	34
	2641516
	2231085
Building 1	
Year Built	1994
Building Class	CX
Number of Units	0
Number of Bedrooms	0
Number of Bathrooms	0
Building Square Footage	9,334.0 (sq ft)
Building 2	
Year Built	1994
Building Class	SX
Number of Units	2
Number of Bedrooms	0
Number of Bathrooms	1
Building Square Footage	32,004.0 (sq ft)
Building 3	
Year Built	1994
Building Class	SX
Number of Units	3
Number of Bedrooms	0
Number of Bathrooms	1
Building Square Footage	103,738.0 (sq ft)
Building 4	
Year Built	1994
Building Class	SX
Number of Units	4
Number of Bedrooms	0
Number of Bathrooms	4
Building 5	
Year Built	1994
Building Class	SX
Number of Units	1
Number of Bedrooms	0
Number of Bathrooms	2
Building Square Footage	2,107.0 (sq ft)
Rent Stabilization Ordinance (RSO)	No [APN: 7426029007]
Additional Information	
Airport Hazard	None
Coastal Zone	None
Coastal Bluff Potential	No
Canyon Bluff Potential	No
Farmland	Area Not Mapped
Urban Agriculture Incentive Zone	YES
Very High Fire Hazard Severity Zone	No
Fire District No. 1	No
Flood Zone	Outside Flood Zone
Watercourse	No
Methane Hazard Site	Methane Zone

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High Wind Velocity Areas	No
Special Grading Area (BOE Basic Grid Map A-13372)	No
Wells	0403722599
Sea Level Rise Area	No
Oil Well Adjacency	Yes
Active (1000 ft)	Yes
Plugged (100 ft)	Yes
Any (100 ft)	Yes
Environmental	
Santa Monica Mountains Zone	No
Biological Resource Potential	None
Mountain Lion Potential	None
Monarch Butterfly Potential	No
300-Foot Habitat Buffer	Yes
County-Designated SEAs and CRAs	No
USFWS-designated CHAs	No
Wildland Urban Interface (WUI)	No
Criterion 1 Protected Areas for Wildlife (PAWs)	No
Seismic Hazards	
Active Fault Near-Source Zone	
Nearest Fault (Distance in km)	4.491228
Nearest Fault (Name)	Newport - Inglewood Fault Zone (Onshore)
Region	Transverse Ranges and Los Angeles Basin
Fault Type	B
Slip Rate (mm/year)	1.00000000
Slip Geometry	Right Lateral - Strike Slip
Slip Type	Poorly Constrained
Down Dip Width (km)	13.00000000
Rupture Top	0.00000000
Rupture Bottom	13.00000000
Dip Angle (degrees)	90.00000000
Maximum Magnitude	7.10000000
Alquist-Priolo Fault Zone	No
Landslide	No
Liquefaction	No
Preliminary Fault Rupture Study Area	None
Tsunami Hazard Area	No
Economic Development Areas	
Business Improvement District	None
Hubzone	None
Jobs and Economic Development Incentive Zone (JEDI)	None
Opportunity Zone	Yes
Promise Zone	None
State Enterprise Zone	HARBOR GATEWAY STATE ENTERPRISE ZONE
Housing	
Rent Stabilization Ordinance (RSO)	No [APN: 7426029007]
Ellis Act Property	No
Just Cause For Eviction Ordinance (JCO)	No
Housing Crisis Act Replacement Review	Yes
Housing Element Sites	
HE Replacement Required	N/A
SB 166 Units	N/A
Housing Use within Prior 5 Years	No

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Public Safety

Police Information	
Bureau	South
Division / Station	Harbor
Reporting District	519
Fire Information	
Bureau	South
Battallion	6
District / Fire Station	38
Red Flag Restricted Parking	No

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CASE SUMMARIES

Note: Information for case summaries is retrieved from the Planning Department's Plan Case Tracking System (PCTS) database.

Case Number:	ADM-2022-330-WTF
Required Action(s):	WTF-WIRELESS TELECOM FACILITY
Project Descriptions(s):	6409(A) UPGRADE TO EXISTING WIRELESS FACILITY. REMOVE (12) (E) PANEL ANTENNAS, ALL MECHANICAL DOWNTILT BRACKETS; INSTALL (1) (N) DC6 SURGE SUPPRESSOR W/ (2) (N) DC POWER & (1) (N) FIBER, (9) (N) PANEL ANTENNAS, (3) (N) C-BAND ANTENNAS, (1) (N) DC12 SURGE SUPPRESSOR; ADJUST ANTENNA SPACING FOR ALL SECTORS; CHANGE EXISTING SFP-3 CPRI TO SFP-7 FOR ALL SINGLE-BAND AWS, PCS, AND DUAL-BAND RADIOS. ALL NR CAPABLE RADIOS SHOULD HAVE 2 CPRIS EXCEPT FOR 4478 B14 & RRUS-32 B30; REPLACE (8) (E) BATTERIES WITH (16) (N) GS PYL12V185FT 185 AH BATTERIES; FINAL BBU CONFIG : (1) 5216, (2) XMU, (1) 6630 & IDLE (MM).
Case Number:	ADM-2021-3629-WTF
Required Action(s):	WTF-WIRELESS TELECOM FACILITY
Project Descriptions(s):	ADMINISTRATIVE SIGN-OFF
Case Number:	CPC-2022-6859-GPA-HD-ZAD-WDI
Required Action(s):	GPA-GENERAL PLAN AMENDMENT HD-HEIGHT DISTRICT ZAD-ZA DETERMINATION (PER LAMC 12.27) WDI-WAIVER OF DEDICATIONS AND IMPROVEMENTS
Project Descriptions(s):	PER LAMC 11.5.6-B A GENERAL PLAN AMENDMENT FROM LIGHT INDUSTRIAL LAND USE (45 FOOT HEIGHT LIMIT) TO LIGHT INDUSTRIAL LAND USE (SITE SPECIFIC 65 FOOT LIMIT.) PER LAMC 12.32 B REQUESTING FOR A CHANGE OF HEIGHT DISTRICT FROM 1VL TO 1LD. PER LAMC 12.37 A WAIVER OF DEDICATION AND IMPROVEMENT REQUIREMENTS FOR PUBLIC RIGHT OF WAY, IN CONJUNCTION WITH THE CONSTRUCTION, USE AND MAINTENANCE OF AN APPROXIMATELY 45,377 SQUARE-FOOT COLD STORAGE BUILDING ADDITION. PER LAMC 12.24 X 28 REQUESTING A ZONING ADMINISTRATOR DETERMINATION TO PERMIT TRANSITIONAL HEIGHT OF 65 FEET IN LIEU OF 61 FEET. THIS IS FOR BUILDINGS LOCATED 100 FEET TO 199 FEET FROM LOTS CLASSIFIED IN THE R1 ZONE.
Case Number:	CPC-2018-6402-CPU
Required Action(s):	CPU-COMMUNITY PLAN UPDATE
Project Descriptions(s):	ADOPTION OF COMMUNITY PLAN POLICY DOCUMENT; GENERAL PLAN AMENDMENTS, AND ZONE CHANGES TO APPLY NEW ZONING CODE.
Case Number:	CPC-2015-1462-CA
Required Action(s):	CA-CODE AMENDMENT
Project Descriptions(s):	A CODE AMENDMENT TO CREATE A CLEAN UP GREEN UP (CUGU) SUPPLEMENTAL USE DISTRICT AS AN OVERLAY AND IMPLEMENT IT OVER PARTS OF PACOIMA/SUN VALLEY, BOYLE HEIGHTS, AND WILMINGTON IN ADDITION TO TWO CITYWIDE AMENDMENTS.
Case Number:	CPC-2007-5738-ICO
Required Action(s):	ICO-INTERIM CONTROL ORDINANCE
Project Descriptions(s):	INTERIM CONTROL ORDINANCE TO REGUALTE RESIDENTIAL-ONLY PROJECTS ON COMMERICAL PROPERTIES ADJACENT TO THE FOLLOWING STREETS: PACIFIC COAST HIGHWAY BETWEEN ALAMEDA STREET AND THE CITY BOUNDARY WITH LOMITA, ANAHEIM STREET BETWEEN ALAMEDA STREET AND THE 110 FREEWAY, AVALON BOULEVARD BETWEEN SANDISON STREET AND THE PORT OF LOS ANGELES IN THE WILMINGTON-HARBOR CITY COMMUNITY PLAN AREA .
Case Number:	CPC-2005-8252-CA
Required Action(s):	CA-CODE AMENDMENT
Project Descriptions(s):	AN ORDINANCE ESTABLISHING PERMANENT REGULATIONS IMPLEMENTING THE MELLO ACT IN THE COASTAL ZONE.
Case Number:	CPC-2005-3351-ICO
Required Action(s):	ICO-INTERIM CONTROL ORDINANCE
Project Descriptions(s):	ICO TO RESTRICT OPEN STORAGE USES IN THE AREA BOUNDED BY LOMITA BLVD., ALAMEDA STREET, HARRY BRIDGES BLVD., 110 FREEWAY
Case Number:	CPC-2005-1081-CA
Required Action(s):	CA-CODE AMENDMENT
Project Descriptions(s):	AMENDMENT TO LOS ANGELES MUNICIPAL CODE TO DEFINE CARGO CONTAINER STORAGE AS A SPECIFIC USE, AND ESTABLISH PERMITTED ZONES AND REGULATIONS FOR SAID USE.
Case Number:	CPC-2003-6962-ZC
Required Action(s):	ZC-ZONE CHANGE
Project Descriptions(s):	ZONE CHANGE TO IMPOSE [Q] CONDITIONS REGULATING OPEN STORAGE ON CERTAIN PROPERTIES IN THE COMMUNITY OF WILMINGTON
Case Number:	CPC-2003-2505-ICO
Required Action(s):	ICO-INTERIM CONTROL ORDINANCE
Project Descriptions(s):	ICO TO RESTRICT OPEN STORAGE USES IN THE AREA BOUNDED BY LOMITA BLVD., ALAMEDA STREET, HARRY BRIDGES BLVD., 110 FREEWAY
Case Number:	CPC-1997-50-CPU

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Required Action(s):	CPU-COMMUNITY PLAN UPDATE
Project Descriptions(s):	COMMUNITY PLAN UPDATE FOR WILMINGTON-HARBOR CITY WHICH IDENTIFIES AND REDEFINES OUTDATED LAND USE ISSUES AND INCONSISTENT ZONING, REVIEWS POLICIES AND PROGRAMS, AS WELL AS REVISING AND UPDATING THE PLAN MAP AND TEXT
Case Number:	CPC-1986-833-GPC
Required Action(s):	GPC-GENERAL PLAN/ZONING CONSISTENCY (AB283)
Project Descriptions(s):	AB-283 PROGRAM - GENERAL PLAN/ZONE CONSISTENCY - WILMINGTON-HARBOR CITY-COMMUNITY WIDE ZONE AND GENERAL PLAN CHANGES TO BRINGTHE PLAN AND ZONING INTO CONSISTENCY. INCLUDES CHANGES OF HEIGHT AS NEEDED. REQUIRED BY COURT AS PART OF SETTLEMENT IN HILLSIDE FEDERATION LAWSUIT (TAYLOR-PARKER)
Case Number:	ZA-2007-3114-CU
Required Action(s):	CU-CONDITIONAL USE
Project Descriptions(s):	MONOPALM WTF TO BE CONSTRUCTED ON PARCEL SITUATED ADJACENT TO AN R ZONE (THE INDUSTRIAL PROPERTY IS DEVELOPED WITH AN EXISTING MONOPOLE 2,000 FEET AT OTHER END OF PARCEL).
Case Number:	ZA-2002-2626-CU
Required Action(s):	CU-CONDITIONAL USE
Project Descriptions(s):	PLAN APPROVAL TO ALLOW THE MODIFICATION OF (E) AT&T WTF WITH THE REMOVAL OF 6 (E) ANTENNAS MONOPALM AND REPLACEMENT OF 12 4' PANEL ANTENNAS WITH THE EXPANSION OF (E) OUTDOOR GROUND SPACE FOR 4 ADDITIONAL EQUIPMENT CABINETS.
Case Number:	ENV-2022-6860-ND
Required Action(s):	ND-NEGATIVE DECLARATION
Project Descriptions(s):	PER LAMC 11.5.6-B A GENERAL PLAN AMENDMENT FROM LIGHT INDUSTRIAL LAND USE (45 FOOT HEIGHT LIMIT) TO LIGHT INDUSTRIAL LAND USE (SITE SPECIFIC 65 FOOT LIMIT.) PER LAMC 12.32 B REQUESTING FOR A CHANGE OF HEIGHT DISTRICT FROM 1VL TO 1LD. PER LAMC 12.37 A WAIVER OF DEDICATION AND IMPROVEMENT REQUIREMENTS FOR PUBLIC RIGHT OF WAY, IN CONJUNCTION WITH THE CONSTRUCTION, USE AND MAINTENANCE OF AN APPROXIMATELY 45,377 SQUARE-FOOT COLD STORAGE BUILDING ADDITION. PER LAMC 12.24 X 28 REQUESTING A ZONING ADMINISTRATOR DETERMINATION TO PERMIT TRANSITIONAL HEIGHT OF 65 FEET IN LIEU OF 61 FEET. THIS IS FOR BUILDINGS LOCATED 100 FEET TO 199 FEET FROM LOTS CLASSIFIED IN THE R1 ZONE.
Case Number:	ENV-2019-3379-EIR
Required Action(s):	EIR-ENVIRONMENTAL IMPACT REPORT
Project Descriptions(s):	ENVIRONMENTAL IMPACT REPORT FOR HARBOR GATEWAY AND WILMINGTON-HARBOR CITY COMMUNITY PLAN UPDATE
Case Number:	ENV-2017-2502-CE
Required Action(s):	CE-CATEGORICAL EXEMPTION
Project Descriptions(s):	ENVIRONMENTAL CLEARANCE
Case Number:	ENV-2015-1463-ND
Required Action(s):	ND-NEGATIVE DECLARATION
Project Descriptions(s):	A CODE AMENDMENT TO CREATE A CLEAN UP GREEN UP (CUGU) SUPPLEMENTAL USE DISTRICT AS AN OVERLAY AND IMPLEMENT IT OVER PARTS OF PACOIMA/SUN VALLEY, BOYLE HEIGHTS, AND WILMINGTON IN ADDITION TO TWO CITYWIDE AMENDMENTS.
Case Number:	ENV-2011-1316-CE
Required Action(s):	CE-CATEGORICAL EXEMPTION
Project Descriptions(s):	CATEGORICAL EXEMPTION FOR THE PLAN APPROVAL TO MODIFY OF (E) AT&T WTF WITH THE REMOVAL OF 6 (E) ANTENNAS ON A 37' MONOPALM AND REPLACEMENT OF 12 4' PANEL ANTENNAS WITH THE EXPANSION OF (E) OUTDOOR GROUND SPACE FOR 4 ADDITIONAL EQUIPMENT CABINETS.
Case Number:	ENV-2007-5739-ND
Required Action(s):	ND-NEGATIVE DECLARATION
Project Descriptions(s):	INTERIM CONTROL ORDINANCE TO REGUALTE RESIDENTIAL-ONLY PROJECTS ON COMMERICAL PROPERTIES ADJACENT TO THE FOLLOWING STREETS: PACIFIC COAST HIGHWAY BETWEEN ALAMEDA STREET AND THE CITY BOUNDARY WITH LOMITA, ANAHEIM STREET BETWEEN ALAMEDA STREET AND THE 110 FREEWAY, AVALON BOULEVARD BETWEEN SANDISON STREET AND THE PORT OF LOS ANGELES IN THE WILMINGTON-HARBOR CITY COMMUNITY PLAN AREA .
Case Number:	ENV-2007-3115-MND
Required Action(s):	MND-MITIGATED NEGATIVE DECLARATION
Project Descriptions(s):	ENV FOR SECOND MONOPALM ON PARCEL (SITUATED NEXT TO R ZONE)
Case Number:	ENV-2005-8253-ND
Required Action(s):	ND-NEGATIVE DECLARATION
Project Descriptions(s):	AN ORDINANCE ESTABLISHING PERMANENT REGULATIONS IMPLEMENTING THE MELLO ACT IN THE COASTAL ZONE.
Case Number:	ENV-2005-3352-CE
Required Action(s):	CE-CATEGORICAL EXEMPTION
Project Descriptions(s):	ICO TO RESTRICT OPEN STORAGE USES IN THE AREA BOUNDED BY LOMITA BLVD., ALAMEDA STREET, HARRY BRIDGES BLVD., 110 FREEWAY
Case Number:	ENV-2005-1781-ND

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Required Action(s):	ND-NEGATIVE DECLARATION
Project Descriptions(s):	AMENDMENT TO LOS ANGELES MUNICIPAL CODE TO DEFINE CARGO CONTAINER STORAGE AS A SPECIFIC USE, AND ESTABLISH PERMITTED ZONES AND REGULATIONS FOR SAID USE.
Case Number:	ENV-2003-2506-CE
Required Action(s):	CE-CATEGORICAL EXEMPTION
Project Descriptions(s):	ICO TO RESTRICT OPEN STORAGE USES IN THE AREA BOUNDED BY LOMITA BLVD., ALAMEDA STREET, HARRY BRIDGES BLVD., 110 FREEWAY
Case Number:	ENV-2002-2627
Required Action(s):	Data Not Available
Project Descriptions(s):	PLAN APPROVAL TO ALLOW THE MODIFICATION OF (E) AT&T WTF WITH THE REMOVAL OF 6 (E) ANTENNAS MONOPALM AND REPLACEMENT OF 12 4' PANEL ANTENNAS WITH THE EXPANSION OF (E) OUTDOOR GROUND SPACE FOR 4 ADDITIONAL EQUIPMENT CABINETS.
Case Number:	EIR-87-49-ZC-GPA
Required Action(s):	ZC-ZONE CHANGE
	GPA-GENERAL PLAN AMENDMENT
Project Descriptions(s):	Data Not Available
Case Number:	ED-76-439-SUB
Required Action(s):	SUB-SUBDIVISIONS
Project Descriptions(s):	Data Not Available

DATA NOT AVAILABLE

ORD-187552
ORD-184246
ORD-177243-SA60
ORD-177243-SA50
ORD-176859
ORD-175384
ORD-172853-SA65
ORD-167208
ORD-166001
ORD-164960
ORD-163420
ORD-162741
AFF-42178
AFF-39538
AF-93-1230819-LT

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ZIMAS INTRANET

Generalized Zoning

07/28/2025

City of Los Angeles
Department of City Planning



Address: 1420 N COIL AVE
APN: 7426029007
PIN #: 036B213 16

Tract: TR 12257
Block: None
Lot: 1
Arb: 1

Zoning: [Q]MR2-1VL-CUGU
General Plan: Light Manufacturing

LEGEND

GENERALIZED ZONING

- OS, GW
- A, RA
- RE, RS, R1, RU, RZ, RW1
- R2, RD, RMP, RW2, R3, RAS, R4, R5, PVSP
- CR, C1, C1.5, C2, C4, C5, CW, WC, ADP, LASED, CEC, USC, PPSP, MU, NMU
- CM, MR, CCS, UV, UI, UC, M1, M2, LAX, M3, SL, HJ, HR, NI
- P, PB
- PF

GENERAL PLAN LAND USE

LAND USE

RESIDENTIAL

- Minimum Residential
- Very Low / Very Low I Residential
- Very Low II Residential
- Low / Low I Residential
- Low II Residential
- Low Medium / Low Medium I Residential
- Low Medium II Residential
- Medium Residential
- High Medium Residential
- High Density Residential
- Very High Medium Residential

COMMERCIAL

- Limited Commercial
- Limited Commercial - Mixed Medium Residential
- Highway Oriented Commercial
- Highway Oriented and Limited Commercial
- Highway Oriented Commercial - Mixed Medium Residential
- Neighborhood Office Commercial
- Community Commercial
- Community Commercial -Mixed High Residential
- Regional Center Commercial

INDUSTRIAL

- Commercial Manufacturing
- Limited Manufacturing
- Light Manufacturing
- Heavy Manufacturing
- Hybrid Industrial

PARKING

- Parking Buffer

PORT OF LOS ANGELES

- General / Bulk Cargo - Non Hazardous (Industrial / Commercial)
- General / Bulk Cargo - Hazard
- Commercial Fishing
- Recreation and Commercial
- Intermodal Container Transfer Facility Site

LOS ANGELES INTERNATIONAL AIRPORT

- Airport Landside / Airport Landside Support
- Airport Airside
- LAX Airport Northside

OPEN SPACE / PUBLIC FACILITIES

- Open Space
- Public / Open Space
- Public / Quasi-Public Open Space
- Other Public Open Space
- Public Facilities

FRAMEWORK

COMMERCIAL

- Neighborhood Commercial
- General Commercial
- Community Commercial
- Regional Mixed Commercial

INDUSTRIAL

- Limited Industrial
- Light Industrial

CHAPTER 1A LEGEND

General Plan Designation

- Transit Core
- Traditional Core
- Regional Center
- High Residential
- Community Center
- Village
- Neighborhood Center
- Medium Neighborhood Residential
- Medium Residential
- Low Neighborhood Residential
- Low Medium Residential
- Low Residential
- Compact Residential
- Very Low Residential
- Minimum Residential
- Agriculture
- Hybrid Industrial
- Markets
- Light Industrial
- Production
- Industrial
- Open Space
- Public Facilities
- Public Facilities - Freeways

Zone Use Districts

- Open Space
- Agricultural
- Residential Single Family
- Residential Multiple Family
- Residential-Mixed
- Commercial
- Commercial-Mixed
- Industrial
- Industrial-Mixed
- Public
- Freeway

CIRCULATION

STREET

- Arterial Mountain Road
- Collector Scenic Street
- Collector Street
- Collector Street (Hillside)
- Collector Street (Modified)
- Collector Street (Proposed)
- Country Road
- Divided Major Highway II
- Divided Secondary Scenic Highway
- Local Scenic Road
- Local Street
- Major Highway (Modified)
- Major Highway I
- Major Highway II
- Major Highway II (Modified)
- Major Scenic Highway
- Major Scenic Highway (Modified)
- Major Scenic Highway II
- Mountain Collector Street
- Park Road
- Parkway
- Principal Major Highway
- Private Street
- Scenic Divided Major Highway II
- Scenic Park
- Scenic Parkway
- Secondary Highway
- Secondary Highway (Modified)
- Secondary Scenic Highway
- Special Collector Street
- Super Major Highway

FREEWAYS

- Freeway
- Interchange
- On-Ramp / Off- Ramp
- Railroad
- Scenic Freeway Highway

MISC. LINES

- Airport Boundary
- Bus Line
- Coastal Zone Boundary
- Coastline Boundary
- Collector Scenic Street (Proposed)
- Commercial Areas
- Commercial Center
- Community Redevelopment Project Area
- Country Road
- DWP Power Lines
- Desirable Open Space
- Detached Single Family House
- Endangered Ridgeline
- Equestrian and/or Hiking Trail
- Hiking Trail
- Historical Preservation
- Horsekeeping Area
- Local Street
- MSA Desirable Open Space
- Major Scenic Controls
- Multi-Purpose Trail
- Natural Resource Reserve
- Park Road
- Park Road (Proposed)
- Quasi-Public
- Rapid Transit Line
- Residential Planned Development
- Scenic Highway (Obsolete)
- Secondary Scenic Controls
- Secondary Scenic Highway (Proposed)
- Site Boundary
- Southern California Edison Power
- Special Study Area
- Specific Plan Area
- Stagecoach Line
- Wildlife Corridor

POINTS OF INTEREST

- Alternative Youth Hostel (Proposed)
- Animal Shelter
- Area Library
- Area Library (Proposed)
- Bridge
- Campground
- Campground (Proposed)
- Cemetery
- HW Church
- City Hall
- Community Center
- Community Library
- Community Library (Proposed Expansion)
- Community Library (Proposed)
- Community Park
- Community Park (Proposed Expansion)
- Community Park (Proposed)
- Community Transit Center
- Convalescent Hospital
- Correctional Facility
- Cultural / Historic Site (Proposed)
- Cultural / Historical Site
- Cultural Arts Center
- DMV DMV Office
- DWP DWP
- DWP Pumping Station
- Equestrian Center
- HQ Fire Department Headquarters
- Fire Station
- Fire Station (Proposed Expansion)
- Fire Station (Proposed)
- Fire Supply & Maintenance
- Fire Training Site
- Fireboat Station
- Health Center / Medical Facility
- Helistop
- Historic Monument
- Historical / Cultural Monument
- Horsekeeping Area
- Horsekeeping Area (Proposed)
- Horticultural Center
- Hospital
- Hospital (Proposed)
- HW House of Worship
- e Important Ecological Area
- e Important Ecological Area (Proposed)
- Interpretive Center (Proposed)
- JC Junior College
- M MTA / Metrolink Station
- M MTA Station
- MTA Stop
- MWD MWD Headquarters
- Maintenance Yard
- Municipal Office Building
- P Municipal Parking lot
- Neighborhood Park
- Neighborhood Park (Proposed Expansion)
- Neighborhood Park (Proposed)
- Oil Collection Center
- P Parking Enforcement
- HQ Police Headquarters
- Police Station
- Police Station (Proposed Expansion)
- Police Station (Proposed)
- Police Training site
- PO Post Office
- Power Distribution Station
- Power Distribution Station (Proposed)
- Power Receiving Station
- Power Receiving Station (Proposed)
- C Private College
- E Private Elementary School
- Private Golf Course
- Private Golf Course (Proposed)
- JH Private Junior High School
- PS Private Pre-School
- Private Recreation & Cultural Facility
- SH Private Senior High School
- SF Private Special School
- E Public Elementary (Proposed Expansion)
- E Public Elementary School
- E Public Elementary School (Proposed)
- Public Golf Course
- Public Golf Course (Proposed)
- Public Housing
- Public Housing (Proposed Expansion)
- JH Public Junior High School
- JH Public Junior High School (Proposed)
- MS Public Middle School
- SH Public Senior High School
- SH Public Senior High School (Proposed)
- Pumping Station
- Pumping Station (Proposed)
- Refuse Collection Center
- Regional Library
- Regional Library (Proposed Expansion)
- Regional Library (Proposed)
- Regional Park
- Regional Park (Proposed)
- RPD Residential Plan Development
- Scenic View Site
- Scenic View Site (Proposed)
- ADM School District Headquarters
- SC School Unspecified Loc/Type (Proposed)
- Skill Center
- SS Social Services
- Special Feature
- Special Recreation (a)
- SF Special School Facility
- SF Special School Facility (Proposed)
- Steam Plant
- sm Surface Mining
- Trail & Assembly Area
- Trail & Assembly Area (Proposed)
- UTL Utility Yard
- Water Tank Reservoir
- Wildlife Migration Corridor
- Wildlife Preserve Gate

SCHOOLS/PARKS WITH 500 FT. BUFFER

- Existing School/Park Site
- Planned School/Park Site
- Inside 500 Ft. Buffer

- Aquatic Facilities
- Beaches
- Child Care Centers
- Dog Parks
- Golf Course
- Historic Sites
- Horticulture/Gardens
- Skate Parks
- Other Facilities
- Park / Recreation Centers
- Parks
- Performing / Visual Arts Centers
- Recreation Centers
- Senior Citizen Centers
- Opportunity School
- Charter School
- Elementary School
- Span School
- Special Education School
- High School
- Middle School
- Early Education Center

COASTAL ZONE

- Coastal Commission Permit Area
- Dual Permit Jurisdiction Area
- Single Permit Jurisdiction Area
- Not in Coastal Zone

TRANSIT ORIENTED COMMUNITIES (TOC)

- Tier 1
- Tier 2
- Tier 3
- Tier 4

Note: TOC Tier designation and map layers are for reference purposes only. Eligible projects shall demonstrate compliance with Tier eligibility standards prior to the issuance of any permits or approvals. As transit service changes, eligible TOC Incentive Areas will be updated.

WAIVER OF DEDICATION OR IMPROVEMENT

- Public Work Approval (PWA)
- Waiver of Dedication or Improvement (WDI)

MIXED INCOME INCENTIVE PROGRAM (MIIP)

TRANSIT ORIENTED INCENTIVE AREAS (TOIA)

- T-1
- T-2
- T-3
- Outside of TOIA

OPPORTUNITY CORRIDORS (OC)

- OC-1
- OC-2
- OC-3

CORRIDOR TRANSITION INCENTIVE AREAS (CT)

- CT-1
- CT-2
- CT-3

OTHER SYMBOLS

- Lot Line
- Tract Line
- Lot Cut
- Easement
- Zone Boundary
- Building Line
- Lot Split
- Community Driveway
- Building Outlines 2020
- Building Outlines 2017
- Airport Hazard Zone
- Census Tract
- Coastal Zone
- Council District
- LADBS District Office
- Downtown Parking
- Fault Zone
- Fire District No. 1
- Tract Map
- Parcel Map
- Flood Zone
- Hazardous Waste
- High Wind Zone
- Hillside Grading
- Historic Preservation Overlay Zone
- Specific Plan Area
- Very High Fire Hazard Severity Zone
- Wells - Acitive
- Wells - Inactive

EXHIBIT C

AGENCY CORRESPONDENCE

C1 – Bureau of Engineering

C2 – Bureau of Street Lighting

C3 – Bureau of Sanitation

C4 – Bureau of Street Services, Urban Forestry Division

C5 – Fire Department

FORM GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

Date: March 1, 2023

To: Vincent Bertoni, Director
Department of City Planning
Attn: Daisy Benicia (City Planner)

for

From: Bertram Moklebust, Principal Civil Engineer
Permit Case Management Division
Bureau of Engineering

Subject: **Case Number CPC 2022-6859-GPA-HD-ZAD-WDI (1420 North Coil Avenue)**

The following recommendations identify the infrastructure deficiencies adjacent to the above-referenced site. These recommendations are respectfully submitted for your consideration in the approval of a General Plan Amendment, Height District, ZA Determination, and Waiver of Dedications and Improvements application:

1. Dedication Required:

   Pacific Coast Highway (Boulevard II/State Highway) – A 5-foot wide strip of land along the property frontage to complete a 55-foot wide half right-of-way in accordance with Boulevard II standards.

   Coil Avenue (Local Street) – A 15-foot wide strip of land along the property frontage between Colon Street and O Street and dedicate a partial elbow at the intersection with O Street. Dedicate a 15-foot by 15-foot cut corner or 20-foot radius property line return at the intersection with Pacific Coast Highway.

   O Street (Local Street) – A 5-foot wide strip of land along the property frontage to complete a 30-foot wide half right-of-way in accordance with Local Street standards.

   Drumm Avenue (Local Street) – A 10-foot wide strip of land along the property frontage to complete a 30-foot wide half right-of-way in accordance with Local Street standards and dedicate a partial elbow at the intersection with Q Street. Dedicate a 20-foot radius property line return at the intersection with Pacific Coast Highway.

2. Improvements Required:

   Pacific Coast Highway – Construct a new 5-foot wide concrete sidewalk in the dedicated area. Obtain Caltrans encroachment permit to upgrade and

reconstruct the ADA curb ramps at the northwest corner intersection of Coil Ave and PCH and at the northeast corner intersection of Drumm Ave and PCH. Under Caltrans encroachment permit, construct a 2% cross slope sidewalk at existing dirt. Remove any non-standard items. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.

Coil Avenue – Construct suitable surfacing to join the existing improvements to provide an 18-foot wide roadway, concrete curb, 2-foot gutter, a 12-foot sidewalk with tree wells, and a partial elbow section with O Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.

O Street – Construct a 10-foot wide concrete sidewalk and repair any broken or off-grade concrete curb and gutter. Connecting or receiving curb ramps to be constructed on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Remove any landscaping within the Public Right-of-way that will obstruct the construction of the improvements. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated.

Drumm Avenue – Construct suitable surfacing to join the existing improvements to provide a 20-foot wide half roadway, concrete curb, 2-foot gutter, a 10-foot wide concrete sidewalk with tree wells, and the partial elbow section with Q Street. Construct connecting or receiving curb ramps on the opposite end of a crosswalk (marked or unmarked) to complete the accessible route per Special Order 01-1020. Upgrade all vaults within the Public Right-of-Way. Any utilities or obstructions that may come in conflict with improvements should be removed or relocated. Remove shrubs in public right-of-way that will obstruct the construction of the improvements. Close all unused driveways and upgrade any existing driveways to comply with BOE standards.

Notes: Broken curb and/or gutter includes segments within existing score lines that are depressed or upraised by more than ¼ inch from the surrounding concrete work or are separated from the main body of the concrete piece by a crack through the entire vertical segment and greater than 1/8 inch at the surface of the section.

Non- ADA compliant sidewalk shall include any sidewalk that has a cross slope that exceeds 2% and/or is depressed or upraised by more than ¼ inch from the surrounding concrete work or has full concrete depth cracks that

have separations greater than 1/8 inch at the surface. The sidewalk also includes that portion of the pedestrian path of travel across a driveway.

All new sidewalk curb and gutter shall conform to the Bureau of Engineering Standard Plans S410-2, S440-4, S442-5 and S444-0.

Install tree wells with root barriers and plant street trees satisfactory to the City Engineer and the Urban Forestry Division of the Bureau of Street Services. The applicant should contact the Urban Forestry Division for further information (213) 847-3077.

Street lighting improvements may be required satisfactory to the Bureau of Street Lighting (BSL). The applicant should contact BSL for further information (213) 847-1551.

The Department of Transportation (LADOT) may have additional requirements for dedication and improvements. The applicant should contact LADOT for further information regarding traffic signals, signs, and equipment at 213-485-1062.

Regarding any conflicts with any power poles, the applicant should contact the Department of Water and Power at 213-367-2715.

Regarding any conflicts with fire hydrants, the applicant should contact the Fire Department Hydrants and Access Unit at 213-482-6543.

3. Relocate catch basins per B-Permit plan check requirements. Provide proper site and street drainages for all streets being improved. Roof drainage and surface run-off from the property shall be collected and treated at the site and drained to the streets through drain pipes constructed under the sidewalk through curb drains or connection to the catch basins.

4. Provide hydraulic and hydrology report and calculations and determine if additional catch basins compliant to Standard Plans S-361-0 / S-362-0 are needed on Coil Avenue, and Drumm Avenue per B-Permit plan check requirements.

5. Sewer lines exist in O Street, and Coil Avenue. Extension of the house connection laterals to the new property line may be required. All Sewerage Facilities Charges and Bonded Sewer Fees are to be paid prior to obtaining a building permit.

6. Submit parking area and driveway plan to the Harbor District Office of the Bureau of Engineering and the Department of Transportation for review and approval.

Any questions regarding this report may be directed to Quyen Phan of my staff via quyen.phan@lacity.org.

FORM GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

Date: 3/19/2024

To: Charlie Rausch, Senior City Planner
Department of City Planning
200 N. Spring St., 6th Floor MS-395

From: Jay Wong, Manager
Private Development Division
Bureau of Street Lighting

SUBJECT: STREET LIGHTING REQUIREMENTS FOR DISCRETIONARY ACTIONS

CITY PLANNING CASE No.: CPC 2022-6859 GPA HD ZAD
1420 N COIL AVE

The Bureau of Street Lighting's recommended condition of approval for the subject city planning case is as follows: (Improvement condition added to S-3 (c) where applicable.)

IMPROVEMENT CONDITION: No street lighting requirements.

NOTES:

The quantity of street lights identified may be modified slightly during the plan check process based on illumination calculations and equipment selection.

Conditions set: 1) in compliance with a Specific Plan, 2) by LADOT, or 3) by other legal instrument excluding the Bureau of Engineering conditions, requiring an improvement that will change the geometrics of the public roadway or driveway apron may require additional or the reconstruction of street lighting improvements as part of that condition.

CC: Land Development Group MS 901
Engineering District Office: HAR

FORM GEN. 160 (Rev. 8-12)

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: November 7, 2022

TO: Vincent P. Bertoni, Director of Planning
City Planning Department.

Attn: Daisy Benicia, City Planner
City Planning Department.

FROM: Rowena Lau, Division Manager
Wastewater Engineering Services Division
LA Sanitation and Environment

SUBJECT: **1420 N COIL AVE - FILING NOTIFICATION AND DISTRIBUTION**

This is in response to your October 27, 2022 Filing Notification and Distribution for the proposed cold storage facility expansion located at 1420 Coil Avenue, Wilmington, CA 90744. LA Sanitation, Wastewater Engineering Services Division has received and logged the notification. Upon review, it has been determined the project is unrelated to sewers and does not require any hydraulic analysis. Please notify our office in the instance that additional environmental review is necessary for this project.

If you have any questions, please call Christopher DeMonbrun at (323) 342-1567 or email at chris.demonbrun@lacity.org

RL/CD: ra

c: Julie Allen, LASAN
Michael Scaduto, LASAN
Christine Sotelo, LASAN
Christopher DeMonbrun, LASAN

FORM GEN. 160 (Rev. 8-12)

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: December 22, 2022

TO: Vincent P. Bertoni, Director of City Planning
Department of City Planning

FROM: Bryan Ramirez, Street Tree Superintendent I
Bureau of Street Services, Urban Forestry Division

SUBJECT: **CPC-2022-6859 – 1420 N. COIL AVE.**

In regard to your request for review of this case regarding Urban Forestry requirements, it is our recommendation that:

1. **STREET TREES**

a. Project shall preserve all healthy mature street trees whenever possible. All feasible alternatives in project design should be considered and implemented to retain healthy mature street trees. A permit is required for the removal of any street tree and shall be replaced 2:1 as approved by the Board of Public Works and Urban Forestry Division.

b. Plant street trees at all feasible planting locations within dedicated streets as directed and required by the Bureau of Street Services, Urban Forestry Division. All tree plantings shall be installed to current tree planting standards when the City has previously been paid for tree plantings. The sub divider or contractor shall notify the Urban Forestry Division at: (213) 847-3077 upon completion of construction for tree planting direction and instructions.

Note: Removal of street trees requires approval from the Board of Public Works. All projects must have environmental (CEQA) documents that appropriately address any removal and replacement of street trees. Contact Urban Forestry Division at: (213) 847-3077 for tree removal permit information.

BR:djm

+FORM. GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

November 23, 2022

TO: Vincent Bertoni, AICP, Director of Planning
Department of City Planning
Attention: Daisy Benicia

FROM: Los Angeles Fire Department

SUBJECT: CPC-2022-6859.:1420 Coil

Submit plot plans for Fire Department approval and review prior to recordation of City Planning Case/zoning action.

RECOMMENDATIONS:

Access for Fire Department apparatus and personnel to and into all structures shall be required.

Address identification. New and existing buildings shall have approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property.

One or more Knox Boxes will be required to be installed for LAFD access to project. Location and number to be determined by LAFD Field Inspector. (Refer to FPB Req # 75).

No building or portion of a building shall be constructed more than 150 feet from the edge of a roadway of an improved street, access road, or designated fire lane.

Where access for a given development requires accommodation of Fire Department apparatus, overhead clearance shall not be less than 14 feet.

The Fire Department may require additional vehicular access where buildings exceed 28 feet in height.

The Fire Department may require additional roof access via parapet access roof ladders where buildings exceed 28 feet in height, and when overhead wires or other obstructions block aerial ladder access.

Entrance to the main lobby shall be located off the address side of the building.

Any required Fire Annunciator panel or Fire Control Room shall be located within 20ft visual line of site of the main entrance stairwell or to the satisfaction of the Fire Department.

Site plans shall include all overhead utility lines adjacent to the site.

Fire Lane Requirements:

1) Fire lane width shall not be less than 20 feet. When a fire lane must accommodate the operation of Fire Department aerial ladder apparatus or where fire hydrants are installed, those portions shall not be less than 28 feet in width.
2) The width of private roadways for general access use and fire lanes shall not be less

than 20 feet, and the fire lane must be clear to the sky.
3) Fire lanes, where required and dead ending streets shall terminate in a cul-de-sac or other approved turning area. No dead ending street or fire lane shall be greater than 700 feet in length or secondary access shall be required.
4) Submit plot plans indicating access road and turning area for Fire Department approval.
5) All parking restrictions for fire lanes shall be posted and/or painted prior to any Temporary Certificate of Occupancy being issued.
6) Plans showing areas to be posted and/or painted, "FIRE LANE NO PARKING" shall be submitted and approved by the Fire Department prior to building permit application sign-off.
7) Electric Gates approved by the Fire Department shall be tested by the Fire Department prior to Building and Safety granting a Certificate of Occupancy.
8) All public street and fire lane cul-de-sacs shall have the curbs painted red and/or be posted "No Parking at Any Time" prior to the issuance of a Certificate of Occupancy or Temporary Certificate of Occupancy for any structures adjacent to the cul-de-sac.
9) No framing shall be allowed until the roadway is installed to the satisfaction of the Fire Department.

Construction of public or private roadway in the proposed development shall not exceed 10 percent in grade.

Private streets shall be recorded as Private Streets, **AND** Fire Lane. All private street plans shall show the words "Private Street and Fire Lane" within the private street easement.

Private streets and entry gates will be built to City standards to the satisfaction of the City Engineer and the Fire Department.

Construction of public or private roadway in the proposed development shall not exceed 10 percent in grade.

Private development shall conform to the standard street dimensions shown on Department of Public Works Standard Plan S-470-0.

Standard cut-corners will be used on all turns.

Private roadways for general access use shall have a minimum width of 20 feet.

All access roads, including fire lanes, shall be maintained in an unobstructed manner, removal of obstructions shall be at the owner's expense. The entrance to all required fire lanes or required private driveways shall be posted with a sign no less than three square feet in area in accordance with Section 503 of the City of Los Angeles Municipal Code.

Any required fire hydrants to be installed shall be fully operational and accepted by the Fire Department prior to any building construction.

FPB #105
5101.1 Emergency responder radio coverage in new buildings. All new buildings shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

That in order to provide assurance that the proposed common fire lane and fire protection facilities, for the project, not maintained by the City, are properly and adequately maintained, the sub-divider shall record with the County Recorder, prior to the recordation of the final map, a covenant and agreement (Planning Department General Form CP-6770) to assure the following:

A. The establishment of a property owners association, which shall cause a yearly inspection to be, made by a registered civil engineer of all common fire lanes and fire protection facilities. The association will undertake any necessary maintenance and corrective measures. Each future property owner shall automatically become a member of the association or organization required above and is automatically subject to a proportionate share of the cost.

B. The future owners of affected lots with common fire lanes and fire protection facilities shall be informed or their responsibility for the maintenance of the devices on their lots. The future owner and all successors will be presented with a copy of the maintenance program for their lot. Any amendment or modification that would defeat the obligation of said association as the Advisory Agency must approve required hereinabove in writing after consultation with the Fire Department.

C. In the event that the property owners association fails to maintain the common property and easements as required by the CC and R's, the individual property owners shall be responsible for their proportional share of the maintenance.

D. Prior to any building permits being issued, the applicant shall improve, to the satisfaction of the Fire Department, all common fire lanes and install all private fire hydrants to be required.

E. That the Common Fire Lanes and Fire Protection facilities be shown on the Final Map.

The plot plans shall be approved by the Fire Department showing fire hydrants and access for each phase of the project prior to the recording of the final map for that phase. Each phase shall comply independently with code requirements.

Adequate off-site public and on-site private fire hydrants may be required. Their number and location to be determined after the Fire Department's review of the plot plan.

The applicant is further advised that all subsequent contact regarding these conditions must be with the Hydrant and Access Unit. This would include clarification, verification of condition compliance and plans or building permit applications, etc., and shall be accomplished **BY**

APPOINTMENT ONLY, in order to assure that you receive service with a minimum amount of waiting please call **(213) 482-6543**. You should advise any consultant representing you of this requirement as well.

Kristin M. Crowley
Fire Chief

Orin Saunders, Fire Marshal
Bureau of Fire Prevention and Public Safety

OS:MRC:mrc

CPC-2022-6859.:1420 Coil

EXHIBIT D

Public Correspondence

D1 – Wilmington Neighborhood Council

D2 – Public Requests Acts

D3 – ND Comment by Adams Broadwell Joseph & Cardozo

Wilmington Neighborhood Council
544 N. Avalon Blvd., Suite 103, Wilmington, CA 90744
(310) 522-2013 wilmingtonnc@empowerla.org
wilmingtonneighborhoodcouncil.com

Gina Martinez, Chair
Gayle Fleury, Co-Chair
Fabiola Garcia, Secretary
Alicia Baltazar, Treasuer
Marisol Ontiveros, Parliamentarian

May 27, 2025

CPC-2022-6859-GPA-HDZAD-SPR-WDI; ENV2022-6860-ND

1420 Coil Avenue

The Wilmington Neighborhood Council congratulates KPAC on their success and desire to expand their operations within the community of Wilmington. I am sure that KPAC has learned what we the community have known all along that Wilmington holds great value for business. However, it is also quite concerning that it appears that KPAC does not value the community of Wilmington and may be taking advantage of our community.

To our knowledge, KPAC does little to nothing for the community. We have noticed that the streets surrounding their facility are completely wrecked and eroded and do very little clean up in the area. They do not partner for improvements in the area, yet they reap the rewards in making profits. These profits do not get invested back into our community and in short leaves our community worse off than it was before they started conducting business in Wilmington. It does not seem prudent to reward a company with waivers and exemptions when they completely exempt the community without a thought. For too long too many businesses in Wilmington have leached off and drained the resources in our community for their own sustenance, benefit and profits.

We further have concerns about the truck traffic that will inevitably increase if these changes are implemented. Idling, pollution, and additional trucks on an already overburdened street are of great concern.

There are many things that KPAC could do to invest in our community and show that they are a true community partner as well as to mitigate any possible negative effects that may take place.

KPAC could do some or all of the following:

- Repave and use reinforced asphalt on the streets directly surrounding their facility. Currently the streets are completely cracked and crumbling.
- Improve lighting conditions in the area surrounding the facility. Lighting helps reduce crime and the area and presently the area is very dark during the evenings.
- Provide and implement a plan that would address any idling trucks or truck traffic that is bound to increase as well as insuring that no trucks would reduce the current level of service on our streets.
- Install purple air sensors to track pollution in the area and have the data put on the purple air website for public access (there is no cost to have monitoring put on purple airs website)
- Provide free Wi-Fi for the community residing in the immediate area
- Hire private security for a 5-block radius to help with the reporting and prevention of crime.
- Weekly clean ups and power washing of streets, alleys and railroad spurs for a 5 block radius.
- Regular tree trimming in the 5 block radius of the facility.
- Provide a Youth Employment program for Students during the summer
- Ensure that residents of Wilmington account for a minimum of 20% of their workforce at all times.

These are just a few ideas that could benefit not just our community but KPAC as well. The residents of Wilmington are hard-working and dedicated individuals. They deserve to be able to work in the community where they live instead of driving by it like they have been for the past 2 decades. There are many studies that suggest that living in close proximity to

home improves productivity, attendance, community pride, shift flexibility and improvement of overall work balance.

At this time, we cannot support this project. Currently, this project holds no benefit whatsoever to our community and unless and until it does, we would be remiss in our duties to support such a project.

Respectfully Submitted,



G Martinez
Chair, Wilmington Neighborhood Council
On Behalf of the Wilmington Neighborhood Council

---------- Forwarded message ---------
From: **Amy Smith** <amy@creedla.com>
Date: Wed, May 7, 2025 at 2:04 PM
Subject: RE: Public Records Act Request and Request for Mailed Notice of Public Hearings and Actions – KPAC Coil Avenue Freezer Expansion Project, 1420 Coil Avenue
To: Planning Custodian of Records <planning.custodianofrecords@lacity.org>

RE: Public Records Act Request and Request for Mailed Notice of Public Hearings and Actions – KPAC Coil Avenue Freezer Expansion Project, 1420 Coil Avenue
CPC-2022-6859-GPA-HD-ZAD-SPR-WDI, ENV-2022-6860-ND

To Whom It May Concern,

CREED LA is writing to request a copy of any and all records related to the project, the KPAC Coil Avenue Freezer Expansion Project, located at 1420 Coil Avenue in Wilmington in Los Angeles County. The project will be the expansion of the expansion of the existing cold storage facility with a new 71,331 sf freezer and a 13,939 sf second floor addition above the existing office building.

Our request for mailed notice of all hearings includes hearings, study sessions and community meetings related to the Project, certification of the MND (or recirculated DEIR), and approval of any Project entitlements. This request is made pursuant to Public Resources Code Sections 21092.2, 21080.4, 21083.9, 21092, 21108 and 21152 and Government Code Section 65092, which require local agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body. Our request includes notice to any City actions, hearings or other proceedings regarding the Project, Project approvals and any actions taken, or additional documents released pursuant to the California Environmental Quality Act.

Our request for all records related to the Project is made pursuant to the California Public Records Act. (Government Code § 6250 et seq.) This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

We will pay for any direct costs of duplication associated with filling this request up to $200. However, please contact me at (877) 810-7473 with a cost estimate before copying/scanning the materials.

Pursuant to Government Code Section 6253.9, if the requested documents are in electronic format and are 10 MB or less (or can be easily broken into sections of 10 MB or less), please email them to me as attachments.

My contact information is:

U.S. Mail
Jeff Modrzejewski
CREED LA
501 Shatto Place, Suite 200
Los Angeles, CA. 90020

Email
creedla@creedla.com

Please call me if you have any questions. Thank you for your assistance with this matter.

Sincerely,

Jeff Modrzejewski
Executive Director

ADAMS BROADWELL JOSEPH & CARDOZO
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
601 GATEWAY BOULEVARD, SUITE 1000
SOUTH SAN FRANCISCO, CA 94080-7037
TEL: (650) 589-1660
FAX: (650) 589-5062
ssannadan@adamsbroadwell.com

SACRAMENTO OFFICE
520 CAPITOL MALL, SUITE 350
SACRAMENTO, CA 95814-4721
TEL: (916) 444-6201
FAX: (916) 444-6209

KEVIN T. CARMICHAEL
CHRISTINA M. CARO
THOMAS A. ENSLOW
KELILAH D. FEDERMAN
RICHARD M. FRANCO
ANDREW J. GRAF
TANYA A. GULESSERIAN
DARION N. JOHNSTON
RACHAEL E. KOSS
AIDAN P. MARSHALL
ALAURA R. McGUIRE
ISABEL TAHIR

Of Counsel
DANIEL L. CARDOZO
MARC D. JOSEPH

May 13, 2025

VIA EMAIL AND U.S. MAIL

Vince Bertoni, Director of Planning
City Planning Department
City of Los Angeles
200 N. Spring St., Suite 525
Los Angeles, CA 90012
Email: vince.bertoni@lacity.org

Holly L. Wolcott, City Clerk
Office of the City Clerk
200 N. Spring Street
City Hall - Room 360
Los Angeles, CA 90012
Email: CityClerk@lacity.org

VIA EMAIL ONLY

Norali Martinez, City Planner
Email: norali.martinez@lacity.org

Re: Request for Mailed Notice of Actions and Hearings – KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND)

Dear Mr. Bertoni, Ms. Wolcott, and Ms. Norali:

We are writing on behalf of Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") to request mailed notice of the availability of any environmental review document, prepared pursuant to the California Environmental Quality Act, related to the KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND) ("Project"), proposed by Alston Construction Company, Inc.("Applicant"), as well as a copy of the environmental review document when it is made available for public review.

The Project proposes the improvement and expansion of an existing one-story, 42-foot tall, 221,496 square-foot (SF) cold storage facility, resulting in a two-story, 65-foot tall, 281,899 SF facility, with a total 0.38:1 Floor Area Ratio. The expansion includes the demolition and alteration of 27,157 SF existing cold dock for a new 71,331 SF freezer, resulting in a net addition of 44,174 SF of new floor area. The improvements include 13,939 SF of new office space, and 2,290 SF of a new engine/mechanical room, electrical room, and fire pump room. The Project also involves new automated racking system, other interior improvements, and

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decreasing the length of the existing double rail spur. The Project site is located at 1420 Coil Avenue, Wilmington, CA 90744 within the Wilmington-Harbor Community Plan area in Los Angeles County. The Project site comprises of Assessor Parcel Numbers 7426029006-007 and 742603004-015.

We also request mailed notice of any and all hearings and/or actions related to the Project. These requests are made pursuant to Public Resources Code Sections 21092.2, 21080.4, 21083.9, 21092, 21108, 21152, and 21167(f) and Government Code Section 65092, which require local agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

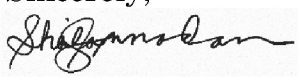
Please send the above requested items by email and U.S. Mail to our South San Francisco Office as follows:

U.S. Mail
Sheila M. Sannadan
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Email
ssannadan@adamsbroadwell.com

If you have any questions, please call me at (650) 589-1660 or email me at ssannadan@adamsbroadwell.com. Thank you for your assistance.

Sincerely,



Sheila M. Sannadan
Legal Assistant

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ISABEL TAHIR

Of Counsel
DANIEL L. CARDOZO
MARC D. JOSEPH

May 13, 2025

Via U.S. Mail and Email
Norali Martinez, City Planner
City of Los Angeles
200 N Spring Room 621
Los Angeles, CA 90012
Email: norali.martinez@lacity.org

Via Email Only
Beatrice Pacheco, Chief Clerk
Lourdes Sanchez, Sr Administrative Clerk
Keaven Shaw, Principal Clerk
Email: planning.custodianofrecords@lacity.org

Re: Request for Immediate Access to Documents Referenced in the Initial Study/Negative Declaration – KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND)

Dear Ms. Martinez, Ms. Pacheco, Ms. Sanchez, and Mr. Shaw:

We are writing on behalf of Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") to request ***immediate access*** to any and all documents referenced, incorporated by reference, and relied upon in the Negative Declaration ("IS/ND") prepared for the KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND) ("Project"), proposed by Alston Construction Company, Inc.("Applicant"). *This request excludes a copy of the IS/ND. This request also excludes any documents that are currently available on the City of Los Angeles website*.[1]

The Project proposes the improvement and expansion of an existing one-story, 42-foot tall, 221,496 square-foot (SF) cold storage facility, resulting in a two-story, 65-foot tall, 281,899 SF facility, with a total 0.38:1 Floor Area Ratio. The expansion includes the demolition and alteration of 27,157 SF existing cold dock for a new 71,331 SF freezer, resulting in a net addition of 44,174 SF of new floor area. The improvements include 13,939 SF of new office space, and 2,290 SF of a new engine/mechanical room, electrical room, and fire pump room. The Project also involves new automated racking system, other interior improvements, and

[1] https://planning.lacity.gov/project-review/environmental-review/published-documents on May 13, 2025.

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decreasing the length of the existing double rail spur. The Project site is located at 1420 Coil Avenue, Wilmington, CA 90744 within the Wilmington-Harbor Community Plan area in Los Angeles County. The Project site comprises of Assessor Parcel Numbers 7426029006-007 and 742603004-015.

Our request for ***immediate access*** to all documents referenced in the IS/ND is made pursuant to the California Environmental Quality Act ("CEQA"), which requires that all documents referenced, incorporated by reference, and relied upon in an environmental review document be made available to the public for the entire comment period.[2]

Please use the following contact information for all correspondence:

U.S. Mail
Sheila M. Sannadan
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Email
ssannadan@adamsbroadwell.com

If you have any questions, please call me at (650) 589-1660 or email me at ssannadan@adamsbroadwell.com. Thank you for your assistance with this matter.

Sincerely,

Sheila M. Sannadan
Legal Assistant

CC: Vince Bertoni, Director of Planning
Email: vince.bertoni@lacity.org

SMS:acp

[2] *See* Public Resources Code § 21092(b)(1) (stating that "all documents referenced in the draft environmental impact report or negative declaration" shall be made "available for review"); 14 Cal. Code Reg. § 15072(g)(4) (stating that all documents incorporated by reference in the MND . . . "shall be readily accessible to the public").

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May 13, 2025

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City of Los Angeles
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Los Angeles, CA 90012
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Via Email Only
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Lourdes Sanchez, Sr Administrative Clerk
Keaven Shaw, Principal Clerk
Email: planning.custodianofrecords@lacity.org

Re: Request for Immediate Access to Public Records - KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND)

Dear Ms. Martinez, Ms. Pacheco, Ms. Sanchez, and Mr. Shaw:

We are writing on behalf of Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") to request ***immediate access*** to any and all public records referring or related to the KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND) ("Project"), proposed by Alston Construction Company, Inc.("Applicant"). This request includes, but is not limited to, any and all file materials, applications, correspondence, resolutions, memos, notes, analysis, email messages, files, maps, charts, and any other documents related to the Project. *This request does not include the Initial Study/Negative Declaration ("IS/ND') or documents referenced or relied upon in the IS/ND, which we have requested in a separate letter pursuant to the California Environmental Quality Act.*

The Project proposes the improvement and expansion of an existing one-story, 42-foot tall, 221,496 square-foot (SF) cold storage facility, resulting in a two-story, 65-foot tall, 281,899 SF facility, with a total 0.38:1 Floor Area Ratio. The expansion includes the demolition and alteration of 27,157 SF existing cold dock for a new 71,331 SF freezer, resulting in a net addition of 44,174 SF of new floor area. The improvements include 13,939 SF of new office space, and 2,290 SF of a new engine/mechanical room, electrical room, and fire pump room. The Project also involves new automated racking system, other interior improvements, and

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CREED LA's members include the Sheet Metal Workers Local 105, International Brotherhood of Electrical Workers Local 11, Southern California Pipe Trades District Council 16, and District Council of Iron Workers of the State of California, and their members and their families who live and work in and around the City of Los Angeles.

This request is made pursuant to the California Public Records Act (Government Code §§ 7920.000, et seq.). This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a Constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

We request ***immediate access*** to review the above documents pursuant to section 7922.525 of the Public Records Act, which requires public records to be "open to inspection at all times during the office hours of a state or local agency" and provides that "every person has a right to inspect any public record."[1] Therefore, the 10-day response period applicable to a "request for a copy of records" under Section 7922.535(a) does not apply to this request.

We request access to the above records in their original form, as maintained by the agency.[2] Pursuant to Government Code Section 7922.570, if the requested documents are in electronic format, please upload them to a file hosting program such as Dropbox, NextRequest or a similar program. Alternatively, if the electronic documents are 10 MB or less (or can be easily broken into sections of 10 MB or less), they may be emailed to me as attachments.

We will pay for any direct costs of duplication associated with filling this request up to $200. However, please contact me at (650) 589-1660 with a cost estimate before copying/scanning the materials.

---

[1] Gov. Code §7922.525(a).
[2] Gov. Code § 7922.570; *Sierra Club v. Super. Ct.* (2013) 57 Cal. 4th 157, 161-62.

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We reserve the right to have a copy service make copies of any and all of the requested documents depending on the volume. Please contact me to arrange for transmission/duplication of the responsive records.

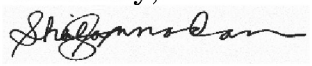
Please use the following contact information for all correspondence:

U.S. Mail
Sheila M. Sannadan
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Email
ssannadan@adamsbroadwell.com

If you have any questions, please call me at (650) 589-1660 or email me at ssannadan@adamsbroadwell.com. Thank you for your assistance with this matter.

Sincerely,



Sheila M. Sannadan
Legal Assistant

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May 19, 2025

VIA E-Mail and U.S. Mail

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Los Angeles, California 90012
norali.martinez@lacity.org

VIA E-Mail Only
Keaven Shaw, Principal Clerk
planning.custodianofrecords@lacity.org
keaven.shaw@lacity.org

Re: **Request for Extension of Comment Period for Initial Study/Negative Declaration for KPAC Coil Avenue Freezer Expansion Project (Case No. ENV-2022-6860-ND, SCH No. 2025041295)**

Dear Ms. Martinez and Mr. Shaw:

We write on behalf of the Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") to respectfully request that the City of Los Angeles ("City"): (1) immediately provide access to all documents referenced or relied upon in the Initial Study/Negative Declaration[1] ("ND") for the KPAC Coil Avenue Freezer Expansion Project (Case No. ENV-2022-6860-ND, SCH No. 2025041295) ("Project") and (2) extend public review and comment period by a minimum of 30 days from the date all referenced materials are made available to CREED LA and other members of the public.

The City's failure to make the ND reference documents available for review during the public comment period violates the public's right to meaningfully review

[1] City of Los Angeles, Department of City Planning, Initial Study: KPAC Coil Avenue Freezer Expansion Project (Apr. 2025) (hereinafter "ND"), *available at* https://planning.lacity.gov/odocument/e1530a49-43ec-49de-9db4-95396a173b68/ENV-2022-6860.pdf.

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the evidence underlying the ND's conclusions, as required by the California Environmental Quality Act ("CEQA").[2]

On May 13, 2025, CREED LA submitted a request for immediate access to all documents referenced or relied upon in the ND,[3] as well as a request for immediate access to all public records related to the Project.[4] The first request was made pursuant to the Public Resources Code § 21092(b)(1), which requires that all documents *referenced* in an environmental review document be made available to the public for the entirety of the public review period. The second request was made pursuant to Government Code § 7922.525, which requires public records to be "open to inspection at all times during the office hours of the state or local agency" and provides that "every person has a right to inspect any public record."

In response, the City asserts that it has 10 days to respond to CREED LA's requests under the California Public Records Act ("CPRA").[5] This response appears to confuse CREED LA's request for ND reference materials with a separate CPRA request, and demonstrates that the City is not complying with Public Resources Code § 21092(b)(1).

CEQA independently mandates that all materials cited or relied upon in an ND be made "readily available" during the full comment period.[6] Courts have consistently held that CEQA review may not rely on inaccessible or undisclosed documents.[7] Even partial unavailability of supporting documentation during the

---

[2] Pub. Res. Code § 21000 *et seq.*
[3] Letter to Norali Martinez, City of Los Angeles from Sheila M. Sannadan, Adams Broadwell Joseph & Cardozo re: Request for Immediate Access to Documents Referenced in the Initial Study/Negative Declaration – KPAC Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND) (May 13, 2025).
[4] Letter to Norali Martinez, City of Los Angeles from Sheila M. Sannadan, Adams Broadwell Joseph & Cardozo re: Request for Immediate Access to Public Records – KPAC Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND) (May 13, 2025).
[5] Email to Sheila M. Sannadan, Adams Broadwell Joseph & Cardozo from Keaven Shaw, City of Los Angeles re: Request for Immediate Access to Documents Referenced in the Initial Study/Negative Declaration – KPAC Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND) (May 16, 2025).
[6] Pub. Res. Code § 21092(b)(1); 14 Cal. Code Regs. § 15072(g)(4).
[7] *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3rd 818, 831 ("Whatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.").

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comment period can invalidate the review process.[8] In such instances, the remedy is to restart or extend the comment period to ensure full and fair participation.[9]

Here, the ND references numerous studies and technical reports that are not included in the appendices or hyperlinked in the ND. While some materials are accessible, several key documents remain unavailable to the public. For example, the ND cites an Energy Report purportedly attached as Appendix D.[10] However, Appendix D only contains the energy calculations referenced in footnotes 30 and 31,[11] not the data cited in footnote 29.

In addition, the following reference materials have not been provided: the Los Angeles Citywide General Plan Framework Draft Environmental Impact Report,[12] supporting data or documents from the California Department of Fish and Wildlife's Biographic Information and Observation System, Land, or Wetlands Inventory,[13] supporting data or documents from the U.S. Environmental Protection Agency's NEPAssist,[14] U.S. Department of Transpiration's Transit Noise and Vibration Impact Assessment,[15] Los Angeles Department of Transportation's Transportation Assessment Guidelines,[16] and LAAFP Control Room Operator conversation.[17]

Access to these documents is essential for CREED LA and other stakeholders to meaningfully review the ND and evaluate the validity of its environmental conclusions. By failing to provide timely access to all reference materials, the City has not satisfied CEQA's procedural requirements and has deprived the public of a fair opportunity to comment. This omission implicates CPRA to the extent that the documents responsive to CREED LA's public records request remain withheld.

To remedy this deficiency, and in the interest of transparency and compliance with state law, CREED LA respectfully requests that the City:

---

[8] *Ultramar v. South Coast Air Quality Man. Dist.* (1993) 17 Cal.App.4th 689, 697-99.
[9] *Id.* at p. 699-700.
[10] ND at p. 39, fn. 20.
[11] ND at p. 39, fn. 30-31.
[12] ND at p. 29, 76, fns. 12, 61.
[13] ND at p. 30, fns. 17-19.
[14] ND at pp. 30-31, fns. 20, 23
[15] ND at p. 81.
[16] ND at p. 91, fn. 70.
[17] ND at p. 90, fn. 71.

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1) **immediately release all documents** referenced in the ND that have not yet been made publicly available; and

2) **extend the public comment period** on the ND by no fewer than 30 days from the date the City makes all reference documents available to the public.

Given the limited time remaining before the current comment deadline on May 27, 2025, we request a written response to this request by **Wednesday, May 21, 2025**.

We appreciate your prompt attention to this matter.

Sincerely,

Andrew J. Graf

AJG:acp

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July 15, 2025

Via U.S. Mail and Email
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Via Email Only
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Re: Request for Immediate Access to Public Records - KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND)

Dear Ms. Martinez, Ms. Pacheco, Ms. Sanchez, and Mr. Shaw:

We are writing on behalf of Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") to request ***immediate access*** to any and all public records referring or related to the KPAC Coil Avenue Freezer Expansion Project (SCH No. 2025041295; Case Nos. CPC-2022-6859-GPA-HD-ZAD-SPR-WDI and ENV-2022-6860-ND) ("Project"), proposed by Alston Construction Company, Inc.("Applicant"), ***since the date of our last request on May 13, 2025***. This request includes, but is not limited to, any and all file materials, applications, correspondence, resolutions, memos, notes, analysis, email messages, files, maps, charts, and any other documents related to the Project.

The Project proposes the improvement and expansion of an existing one-story, 42-foot tall, 221,496 square-foot (SF) cold storage facility, resulting in a two-story, 65-foot tall, 281,899 SF facility, with a total 0.38:1 Floor Area Ratio. The expansion includes the demolition and alteration of 27,157 SF existing cold dock for a new 71,331 SF freezer, resulting in a net addition of 44,174 SF of new floor area. The improvements include 13,939 SF of new office space, and 2,290 SF of a new engine/mechanical room, electrical room, and fire pump room. The Project also involves new automated racking system, other interior improvements, and decreasing the length of the existing double rail spur. The Project site is located at 1420 Coil Avenue, Wilmington, CA 90744 within the Wilmington-Harbor

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Community Plan area in Los Angeles County. The Project site comprises of Assessor Parcel Numbers 7426029006-007 and 742603004-015.

CREED LA is a non-profit organization formed to ensure that the construction of major urban projects in the Los Angeles region proceeds in a manner that minimizes public and worker health and safety risks, avoids or mitigates environmental and public service impacts, and fosters long-term sustainable construction and development opportunities. The organization's members include Wilmington residents Jesus Reyes, Ezequiel Sanchez, Valentin Castelan, and Jaime Flores, Sheet Metal Workers Local 105, International Brotherhood of Electrical Workers Local 11, Southern California Pipe Trades District Council 16, and District Council of Iron Workers of the State of California, along with their members, their families, and other individuals who live and work in the Los Angeles region.

This request is made pursuant to the California Public Records Act (Government Code §§ 7920.000, et seq.). This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a Constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

We request ***immediate access*** to review the above documents pursuant to section 7922.525 of the Public Records Act, which requires public records to be "open to inspection at all times during the office hours of a state or local agency" and provides that "every person has a right to inspect any public record."[1] Therefore, the 10-day response period applicable to a "request for a copy of records" under Section 7922.535(a) does not apply to this request.

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[1] Gov. Code §7922.525(a).
[2] Gov. Code § 7922.570; *Sierra Club v. Super. Ct.* (2013) 57 Cal. 4th 157, 161-62.

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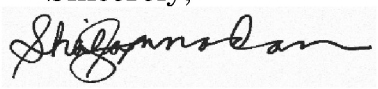

Sheila M. Sannadan
Legal Assistant

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June 12, 2025

VIA E-Mail and Overnight Mail

Norali Martinez
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City of Los Angeles
200 N. Spring Street, Room 721
Los Angeles, California 90012
norali.martinez@lacity.org

Re: **Comments on Negative Declaration for KPAC Coil Avenue Freezer Expansion Project (Case No. ENV-2022-6860-ND, SCH No. 2025041295)**

Dear Ms. Martinez:

We write on behalf of the Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") to provide comments on the Negative Declaration[1] ("ND") prepared by the City of Los Angeles ("City") for the KPAC Coil Avenue Freezer Expansion Project ("Project") proposed by Alston Construction Company, Inc. ("Applicant").

The proposed Project involves the expansion of an existing cold storage facility,[2] including the demolition and alteration of approximately 27,157 square foot of existing cold dock area to accommodate a new 71,331 square foot freezer.[3] Following the expansion, the facility plans to increase its operational schedule by adding one 8-hour shift on Saturdays.[4] Construction is anticipated to occur over a one-year period and will be executed in five phases: demolition, grading, building construction, paving, and architectural coating.[5]

[1] City of Los Angeles, Initial Study: KPAC Coil Avenue Freezer Expansion Project (Apr. 2025) (hereinafter "ND"), *available at* https://planning.lacity.gov/odocument/e1530a49-43ec-49de-9db4-95396a173b68/ENV-2022-6860.pdf.
[2] ND at p. 6.
[3] *Ibid.*
[4] *Ibid.*
[5] *Id.* at p. 12.

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CREED LA's evaluation of the ND and supporting documents demonstrate that the ND fails to comply with the California Environmental Quality Act ("CEQA").[6] The ND fails to provide comprehensive disclosure, assessment, and mitigation of potentially significant impacts to air quality, noise, and public health from the Project's construction and operational phases, and the City lacks substantial evidence to support the ND's conclusions that there will be no significant environmental impacts or that no mitigation is required. As detailed below, substantial evidence supports a fair argument that the Project may have potentially significant air quality, noise, and public health impacts that require mitigation and necessitate preparation of an environmental impact report ("EIR").

For example, the ND fails to accurately evaluate health risk from exposure to toxic air emissions by failing to disclose baseline health conditions in the surrounding community and relying on unsupported significance thresholds designed to assess impacts from criteria pollutants, rather than toxic air contaminants ("TACs"). The Project site is located near economically and socially vulnerable communities that are already burdened by elevated levels of high toxic air pollution. According to Multiple Air Toxics Exposure Study V ("MATES V") conducted by the South Coast Air Quality Management District ("SCAQMD"), the existing cumulative cancer risk in the zip code where the Project is situated is 664 in 1 million – placing it in the top 2% of communities in the South Coast Air Basin most impacted by TACs.[7] Notably, more than 66% of the existing risk is due to exposure to diesel particulate matter ("DPM"), a TAC that will be emitted during Project construction and operation.[8]

Moreover, CalEnviroScreen data indicate that the census tract encompassing the Project site ranks in the top 3% statewide for overall environmental and economic vulnerability, making it one of the most overburdened communities in California.[9] CREED LA's air quality expert, James J. Clark, Ph.D., concludes that the health risk posed to the surrounding community from exposure to the Project's TAC emissions in light of the existing health burden may result in significant individual and cumulative health impacts which the ND fails to disclose or mitigate.

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[6] Pub. Res. Code §§ 21000 *et seq.*
[7] Letter to Andrew J. Graf, Adams Broadwell Joseph & Cardozo from James J. Clark, Clark & Associates Environmental Consulting re: Comments on Draft Initial Study/Negative Declaration for KPAC Coil Avenue Freezer Expansion Project, Wilmington, CA (Case Number: ENV-2022-6860-ND) (May 22, 2025) pp. 5-6 (hereinafter "Clark Comments").
[8] *Id.* at p. 5.
[9] Office on Environmental Health Hazard Assessment, CalEnviroScreen 4.0, https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0 (last visited May 27, 2025).

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In addition, CREED LA's noise expert, Ani Toncheva, concludes that demolition activity during Project construction may exceed ambient noise levels by 11 dB, violating the City's 80-dBA absolute noise threshold and resulting in significant noise impacts. The ND fails to demonstrate that the proposed Project would comply with applicable construction noise ordinances and fails to evaluate operational noise sources, resulting in undisclosed and unmitigated noise impacts. The ND also fails to accurately characterize baseline noise conditions by improperly relying on 15-minute measurements taken on a single weekday morning, which are not representative of the surrounding community or the Project's expanded operations.

CREED LA urges the City to comply with CEQA and land use laws by preparing an EIR for the Project which fully discloses the Project's significant impacts, implements mitigation measures to reduce adverse impacts to the greatest extent feasible, and evaluates a reasonable range of project alternatives in accordance with CEQA's requirements. These comments are supported by the comments of Dr. Clark and Ms. Toncheva. Their reports and qualifications are incorporated by reference and included as **Attachment A** and **Attachment B**,[10] respectively. The City must respond to each expert's comments separately and fully.

I. STATEMENT OF INTEREST

CREED LA is a non-profit organization formed to ensure that the construction of major urban projects in the Los Angeles region proceeds in a manner that minimizes public and worker health and safety risks, avoids or mitigates environmental and public service impacts, and fosters long-term sustainable construction and development opportunities. The organization's members include Wilmington residents Jesus Reyes, Ezequiel Sanchez, Valentin Castelan, and Jaime Flores, Sheet Metal Workers Local 105, International Brotherhood of Electrical Workers Local 11, Southern California Pipe Trades District Council 16, and District Council of Iron Workers of the State of California, along with their members, their families, and other individuals who live and work in the Los Angeles region.

CREED LA's individual members live, work, recreate, and raise families in the City and surrounding communities. Accordingly, they will be directly affected by the environmental and health and safety impacts of the Project. Individual members may also work on the Project itself. They will be first in line to be exposed

[10] Letter to Andrew J. Graf, Adams Broadwell Joseph & Cardozo from Ani Toncheva, Wilson Ihrig re: KPA Coil Avenue Freezer Expansion Project, Wilmington, CA, Review and Comment on Noise Study (May 22, 2025) (hereinafter "Toncheva Comments").

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to any health and safety hazards created by the Project. They each have a personal interest in protecting the Project area from unnecessary, adverse environmental and public health impacts.

CREED LA has an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for its members. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for business and industry to expand in the region, and by making the area less desirable for new businesses and new residents. Continued environmental degradation can, and has, caused construction moratoriums and other restrictions on growth that, in turn, reduce future employment opportunities.

CREED LA supports the development of commercial and residential projects where properly analyzed and carefully planned to minimize impacts on public health, climate change, and the environment. These projects should avoid adverse impacts to air quality, public health, climate change, noise, and traffic, and must incorporate all feasible mitigation to ensure that any remaining adverse impacts are reduced to the maximum extent feasible. Only by maintaining the highest standards can commercial development truly be sustainable.

II. THE CITY MUST PREPARE AN ENVIRONMENTAL IMPACT REPORT

CEQA requires that lead agencies prepare an EIR for projects that could have significant environmental effects, except in limited circumstances.[11] The purpose of an EIR is to ensure that the public and decision-makers are fully informed about potential environmental consequences before decisions are made, thus promoting informed decision-making and protecting the environment.[12]

The "fair argument" standard creates a presumption in favor of more robust environmental review in an EIR when it is unclear if a project has significant impacts. Under this standard, an EIR must be prepared if there is substantial evidence in the record indicating a fair argument that the project could significantly impact the environment.[13] The fair argument standard sets a "low threshold" for triggering environmental review through an EIR, rather than through a negative declaration, which is only appropriate if the proposed project will not have a

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[11] Pub. Res. Code § 21000; 14 Cal. Code Regs. ("CEQA Guidelines") § 15002.
[12] *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564.
[13] Pub. Res. Code §§ 21080(d), 21082.2(d); CEQA Guidelines §§ 15002(k)(3), 15064(f)(1), (h)(1); *Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1123; *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75, 82; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 1501-51; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.Appl.4th 1597, 1601-02.

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significant effect on the environment.[14] The Initial Study procedure implements CEQA's requirement that the agency prepare an EIR if it finds that a proposed project may have a significant effect on the environment.[15] Because "[t]he adoption of a negative declaration … has a terminal effect on the environmental review process" by allowing the agency to dispense with the duty to prepare an EIR, negative declarations are allowed only in cases where there is not even a "fair argument" that the project will have a significant environmental effect.[16]

"Substantial evidence" under the fair argument standard means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached."[17] In cases where it's uncertain whether substantial evidence exists regarding a project's potential environmental effects, the lead agency must consider expert opinion and facts.[18] If there is disagreement among experts about the significance of an effect on the environment, the lead agency must treat the effect as significant and prepare an EIR.[19]

The City's decision to prepare an ND violates CEQA because there is substantial evidence supporting a fair argument that the Project has significant, unmitigated environmental impacts. Given the deficiencies identified below, the City must prepare an EIR which discloses, analyzes, and mitigates all the Project's potentially significant air quality, noise, and public health impacts.

A. The ND Fails to Adequately Describe Baseline Noise Conditions

Under CEQA, a project is considered to have a potentially significant effect on the environment if it may cause "substantial, or potentially substantial, adverse change in the environment."[20] To evaluate such effects, the lead agency typically uses the existing physical conditions at the time environmental review begins as the baseline for assessing environmental impacts.[21] When a proposed project involves the alteration or expansion of existing activities, the environmental analysis must focus on the incremental effects of the proposed changes compared to the actual, existing operations on the ground, not hypothetical conditions allowed under

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[14] Pub. Res. Code § 21064; CEQA Guidelines § 15371.
[15] *See* Pub. Res. Code § 21080(c)(2); CEQA Guidelines § 15063.
[16] *Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440; Pub. Res. Code §§ 21100, 21064.
[17] CEQA Guidelines § 15384(a).
[18] *Id.* § 15064(g).
[19] *Ibid.*
[20] Pub. Res. Code § 21068; see also CEQA Guidelines § 15382.
[21] CEQA Guidelines § 15125.

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existing permits.[22] This ensures that the environmental review accurately reflects the real-world conditions and avoids overstating baseline activity levels in a way that could understate project impacts.[23]

The ND fails to accurately disclose baseline noise conditions at the Project site, which is adjacent to several residences.[24] The ND identifies ambient noise levels based on 15-minute sample measurements taken at six locations near single-family residences west of the Project site.[25] The measurements were conducted on a single weekday morning.[26] The information provided in the ND about baseline noise conditions at the Project site is incomplete and unsupported for two primary reasons.

First, the ND's short-duration sampling failed to capture the full variability of ambient noise, particularly for traffic and rail-related sources, which fluctuate significantly throughout the day and week.[27] As explained by Ms. Toncheva, a 15-minute measurement taken during mid-morning hours represents only a narrow temporal window and cannot reasonably approximate average conditions or reasonably foreseeable scenarios.[28] Moreover, the 15-minute samples account for only 2% of the both the allowable weekday construction hours and the typical 16-hour span of weekday operations.[29] This minimal sampling duration is not representative of the noise environment during the periods when construction and operational activities, and therefore potential noise impacts, will actually occur.[30] As a result, the ND's conclusions regarding baseline conditions and potential impacts are based on incomplete information, and are therefore unreliable and underestimate actual noise exposure.

Second, the ND fails to consider that the Project's expanded operations will occur on Saturdays, a day not included in the ambient noise sampling.[31] Noise levels on Saturdays may increase adverse effects on adjacent residents, and differ substantially from weekday conditions due to changes in traffic patterns, train

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[22] *El Dorado County Taxpayers for Quality Growth v. County of El Dorado* (2004) 122 Cal.App.4th 1591; *Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310.
[23] *Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310.
[24] ND, pp. 7-9.
[25] ND, appen. F at p. 5.
[26] *Ibid.*
[27] Toncheva Comments at p. 3.
[28] *Ibid.*
[29] *Ibid.*
[30] *Ibid.*
[31] *Ibid.*

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schedules, and local activity levels.[32] By not accounting for this additional noise or disclosing ambient weekend noise conditions, the ND overlooks potentially significant noise impacts on nearby sensitive receptors during weekend operations.[33] This omission further undermines the adequacy of the environmental analysis and violates CEQA's requirement to consider the full scope of potential impacts associated with the proposed Project.

B. An EIR Is Required to Address Potentially Significant Air Quality and Public Health Impacts

1. The ND Improperly Relies on Localized Significance Thresholds to Conclude that Health Impacts from Exposure to Diesel Particulate Matter Are Less than Significant

Under CEQA, a lead agency may rely on thresholds of significance recommended by other public agencies, provided that the decision is supported by substantial evidence.[34] When applying such thresholds, the lead agency must explain how compliance demonstrates that the environmental impact would be less than significant.[35] Even where the agency relies on such a threshold, it must still consider substantial evidence indicating that the impact may be significant notwithstanding compliance with the selected threshold.[36]

The ND concludes that construction-related emissions of DPM would be less than significant based solely on the Project's estimated $PM_{2.5}$ emissions falling below localized significance thresholds ("LST").[37] This conclusion is legally deficient and scientifically flawed.

LSTs were developed by the SCAQMD as a tool to assess the localized short-term impacts of criteria pollutants – such as nitrogen oxides, carbon monoxide, and particulate matter ("PM_{10}" and "$PM_{2.5}$") – on ambient air quality.[38] These thresholds are based on dispersion modeling and ambient air quality standards and

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[32] *Ibid.*
[33] *Ibid.*
[34] CEQA Guidelines § 15064.7(c).
[35] *Id.* § 15064(b)(2); see *League to Save Lake Tahoe Mtn. Area Preservation Found. v. County of Placer* (2022) 7 Cal.5th 63, 105-06.
[36] CEQA Guidelines § 15064(b)(2).
[37] ND at p. 26.
[38] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology (July 2008) p. 1-1, *available at* https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=8c641d61_2.

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are intended to prevent exceedances of federal and state air quality standards for criteria pollutants.[39] Critically, LSTs were not designed to evaluate TACs, such as DPM, which are associated with long-term carcinogenic and chronic health risks.[40] LSTs do not account for cancer risk, proximity to sensitive receptors, duration of exposure, or cumulative impacts, factors that are essential to evaluating TAC-related risks under CEQA.

Compounding this deficiency, the ND ignores SCAQMD's adopted thresholds of significance for TACs, including DPM. According to SCAQMD's TAC thresholds, TAC emissions may result in a significant impact if: (1) the maximum incremental cancer risk exceeds 10 in one million, (2) the cancer burden exceeds 0.5 excess cancer cases in the population, or (3) the acute or chronic hazard index exceeds 1.[41] Quantified health risk analyses ("HRAs") that evaluate compliance with these thresholds are typically prepared in accordance with the Office of Health and Human Hazard Assessment's ("OEHHA") *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.*[42] The ND does not include such an assessment and therefore fails to apply the appropriate methodology for evaluating DPM-related health risks.[43]

In addition, the ND's reliance on $PM_{2.5}$ as a proxy for DPM is inappropriate. While DPM is a subset of $PM_{2.5}$, it consists specifically of particulate emissions from diesel engines and contains a unique mixture of elemental carbon, toxic organic compounds, and trace metals.[44] Unlike $PM_{2.5}$, DPM is classified by the California Air Resources Board as a TAC, and the U.S. Environmental Protection Agency identifies it as a likely human carcinogen.[45] Unlike $PM_{2.5}$, DPM is specifically linked to elevated cancer risks, respiratory illness, and disproportionate health impacts in vulnerable communities.[46] By relying solely on PM2.5 emissions and

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[39] *Ibid.*
[40] *Ibid.*
[41] South Coast Air Quality Management District, Air Quality Significance Thresholds (Mar. 2023), *available at* https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25.
[42] Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program: Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments (Feb. 2015), *available at* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.
[43] Clark Comments at p. 4.
[44] *Ibid.*
[45] 17 C.C.R. § 93000; U.S. Environmental Protection Agency, Integrated Risk Assessment Information System: Diesel Engine Exhaust (Feb. 28, 2023), *available at* https://iris.epa.gov/static/pdfs/0642_summary.pdf.
[46] California Air Resources Board, Overview: Diesel Exhaust & Health, https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-

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ignoring the unique toxicology profile of DPM, the ND omits necessary evaluation of the Project's potential to result in significant impacts. This omission is particularly concerning given the elevated TAC exposure levels and documented environmental justice concerns in the surrounding community.

Accordingly, the ND relies on an inapplicable threshold which fails to provide substantial evidence to support its conclusion that air quality and public health impacts from DPM emissions and exposure would be less than significant. This omission triggers the need for a full EIR that includes a quantitative HRA to evaluate the cancer risk, chronic exposure, and cumulative impacts from DPM emissions generated by Project construction activities. Without such analysis, the ND is legally deficient under CEQA.

2. The ND Fails to Analyze Cumulative Air Quality Impacts

Under CEQA, a lead agency must prepare an EIR if a project's environmental effects, while individually limited, are cumulatively considerable.[47] This determination requires the agency to answer two questions: (1) whether the cumulative impact itself may be significant, and (2) whether the project's incremental contribution to that cumulative impact is "cumulatively considerable."[48] "Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effect of past projects, other projects, and probable future projects.[49]

The ND fails to meet this standard because its discussion of cumulative air quality impacts is conclusory and legally deficient. The ND summarily asserts that the Project will not result in significant cumulative air quality impacts because it does not exceed SCAQMD thresholds for criteria pollutants.[50] However, as noted above, SCAQMD has established separate and distinct significance thresholds for TACs. Reliance solely on criteria pollutant thresholds is therefore misplaced and insufficient.[51]

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health#:~:text=DPM%20has%20a%20significant%20impact%20on%20California's,toxics%20in%20California%20is%20attributable%20to%20DPM (last visited May 27, 2025).

[47] Pub. Res. Code § 21083(b); CEQA Guidelines § 15064(h)(1), 15063(a)(3).

[48] *Ibid.*

[49] Pub. Res. Code § 21083(b)(2); CEQA Guidelines § 15064(h)(1), 15063(a)(3); *see San Bernardino Valley Audubon Soc'y v. Metropolitan Water Dist.* (1999) 71 Cal.App.4th 382, 398 (EIR required for habitat conservation plan in part because initial study di not adequately explain why cumulative adverse effects to endangered species would not occur).

[50] ND at p. 27.

[51] The City may also attempt to rely on SCAQMD's previous cumulative impact threshold which assumed that cumulative impacts would not be significant

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Moreover, SCAQMD is currently updating its guidance on cumulative impact analysis for TACs in response to widespread community concerns about elevated health risks.[52] In its most recent working group, SCAQMD outlined a two-step process for evaluating whether a projects cancer risk is "cumulatively considerable".[53] Agencies must first identify background cancer risks in the project area using SCAQMD's MATES V.[54] If the background risk exceeds the 90th percentile, SCAQMD recommends applying an initial cancer risk significance threshold of 3 in one million.[55]

Agencies must then assess whether the project meets any additional stringency criteria, such as a high volume of diesel traffic or proximity to a health-sensitive population.[56] Health sensitive populations include communities designated under SB 535 (disadvantaged communities) or AB 617 (air quality priority communities).[57] If either criterion applies, the initial threshold should be adjusted.[58]

The ND entirely omits this framework. It fails to disclose the background cancer risks in the project area, does not analyze proximity to health-sensitive communities, and offers no evaluation of whether the project's contribution to cancer risks exceeds either initial or adjusted thresholds. This omission is particularly troubling given that the surrounding community already experiences disproportionate exposure to air pollution,[59] a fact that heightens the need for rigorous cumulative impact analysis.

Additionally, the ND dismisses the potential for overlapping impacts from foreseeable future projects as speculative.[60] This assertion is unsubstantiated and

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[52] Clark Comments at p. 5; *see also* South Coast Air Quality Management District, CEQA Policy Development (NEW), https://www.aqmd.gov/home/rules-compliance/ceqa/ceqa-policy-development-(new) (last visited May 27, 2025).
[53] Clark Comments at p. 5; South Coast Air Quality Management District, Working Group Meeting #6: Cumulative Impacts from Air Toxics for CEQA Projects (Nov. 6, 2024) (hereinafter "SCAQMD Working Group Meeting #6"), *available at* https://www.aqmd.gov/docs/default-source/ceqa/documents/wgm-6-20241106.pdf?sfvrsn=405a8561_13.
[54] Clark Comments at p. 5; SCAQMD Working Group Meeting #6 at p. 21.
[55] Clark Comments at p. 6; SCAQMD Working Group Meeting #6 at p. 21.
[56] *Ibid.*
[57] *Ibid.*
[58] *Ibid*
[59] Clark Comments at pp. 5-6.
[60] ND at p. 27.

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contrary to CEQA's requirement for proactive, good faith analysis.[61] The identification of reasonably foreseeable future projects is standard expectation under CEQA and cannot be avoided by a lack of effort or data collection. CEQA does not permit agencies to create analytical infeasibility through inaction.[62] Rather, agencies must utilize the best information available to assess cumulative impacts and cannot defer meaningful analysis under the guise of speculation.[63]

The ND fails to meaningfully analyze the Project's cumulative impacts, resulting in a legally inadequate air quality analysis. The ND fails to utilize adopted thresholds or relevant SCAQMD guidance, ignores known health risks in the Project vicinity, and does not support its conclusions with substantial evidence. Accordingly, the City lacks substantial evidence to support the ND's conclusion that the Project would not result in significant cumulative impacts. The City must prepare an EIR to evaluate these potentially significant cumulative impacts.

3. Substantial Evidence Supports a Fair Argument the Project May Result in Significant Cancer Risk from Exposure to Construction DPM Emissions

Dr. Clark performed an independent evaluation of the Project's cancer risks associated with the Project's construction-related DPM emissions using the SCAQMD's cumulative risk assessment framework. He concludes DPM emissions and the resulting health impact from exposure are potentially significant.[64] First, using SCAQMD's methodology, Dr. Clark determined that the initial cumulative cancer risk significance threshold applicable to the Project would be 3 in one million, based on background cancer risk levels in the Project area.[65] According to MATES V, the Project site falls within the top 2% of the communities most impacted by TACs in the region – well above the 90th percentile benchmark used to trigger the more stringent 3 in one million threshold.[66]

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[61] CEQA Guidelines §§ 15144, 15151; *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376; *California Oak Found. v. Regents of Univ. of Cal.* (2010) 188 Cal.App.4th 227, 269; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428.
[62] CEQA Guidelines § 15144; *Rodeo Citizens Ass'n v. County of Contra Costa* (2018) 22 Cal.App.5th 214, 226.
[63] *Ibid.*
[64] Clark Comments at pp. 7-11.
[65] *Id.* at pp. 5-6.
[66] *Id.* at p. 5.

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Second, SCAQMD recommends adjusting this threshold downward if the Project is in a vulnerable community or involves significant diesel truck activity.[67] In this case, the Project site is in both a SB 535-designated disadvantaged community and an AB 617 community.[68] Under SCAQMD's framework, the presence of these environmental justice indicators necessitates reducing the cumulative significance threshold from 3 in one million to 1 in one million to better protect already overburdened populations.[69]

Third, and most critically, Dr. Clark's analysis found that the Project's estimated cancer risk from DPM emissions during construction is 2.27 in one million, exceeding the adjusted 1 in one million thresholds.[70] This conclusion was based on SCAQMD's cumulative impact assessment framework, and standard risk assessment modeling, including emissions estimates, receptor proximity, and accepted dispersion modeling protocols.[71] Dr. Clark's conclusion that health risk from exposure to DPM emissions would exceed this threshold, especially in a community already experiencing disproportionate environmental burdens, constitutes substantial evidence supporting a fair argument that the Project may result in significant health impacts. Therefore, the City must prepare an EIR to fully evaluate and mitigate the Project's potentially significant cancer risks.

4. The ND Underestimates Operational Emissions

The ND's discussion of operational air quality impacts is fundamentally flawed and cannot be relied upon to support a less than significant finding. The air quality modeling fails to account for several key operational sources of DPM, thereby severely underestimating the Project's contribution to air quality degradation and associated public health risks.

First, the CalEEMod data omits emissions from transport refrigeration units ("TRUs), which are significant sources of DPM at cold storage facilities like the Project.[72] TRUs are commonly diesel-powered and often operate for extended periods during loading and unloading.[73] Excluding these emissions ignores a substantial source of operational DPM that can contribute to localized cancer risks and cumulative air quality impacts. Second, the analysis fails to quantify emissions from cargo handling equipment, such as yard trucks, forklifts, or top picks, which

[67] *Id.* at pp. 6-7.
[68] *Ibid.*
[69] *Id.* at p. 7.
[70] *Id.* at p. 11.
[71] *Id.* at pp. 7-11.
[72] *Id.* at p. 12.
[73] *Ibid.*

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are commonly used at cold storage facilities.[74] There is no indication of baseline or future operational emissions associated with this equipment category, despite its routine use in moving goods on-site.[75] The omission of cargo handling equipment from the model represents a significant analytical gap. Third, the model fails to include emissions from the facility's stationary fire pump.[76] Fire pumps are typically tested monthly and during annual performance checks, and their diesel engines contribute to both DPM and nitrogen oxide emissions.[77] The omission of this source further undermines the integrity of the modeling results.

Collectively, these emissions render the operational emissions estimates incomplete and unreliable. By failing to disclose and analyze all substantial sources of operational air emissions, the ND does not meet CEQA's standard for a good faith effort at full disclosure.[78] Without a complete inventory of emission sources, the City cannot accurately evaluate the Project's air quality impacts or determine whether feasible mitigation is required. Consequently, the ND cannot support the finding of no significant impact, and an EIR must be prepared.

C. Substantial Evidence Supports a Fair Argument that an EIR Is Required to Address Potentially Significant Noise Impacts

1. The ND's Noise Modeling Contains Unsupported Assumptions

The ND and its supporting noise study contain significant analytical flaws that undermine the validity of the conclusions regarding construction noise impacts. First, the noise analysis fails explain how the distances between construction activities and nearby residential receptors were determined for use in the noise modeling.[79] The study assumes specific distances between equipment and sensitive receptors but does not disclose the methodology used to derive these distances.[80] More critically, the ND does provide any empirical evidence – such as site-specific measurements, scaled plans, or verified mapping data – to confirm the distances used in the noise model accurately reflect the actual proximity of the Project site to nearby residential receptors.[81]

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[74] Clark Comments at pp. 12-13.
[75] *Id.* at p. 13.
[76] *Id.* at p. 14.
[77] *Ibid.*
[78] *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376; *California Oak Found. Regents of Univ. of Cal.* (2010) 188 Cal.App.4th 227, 269.
[79] Toncheva Comments at p. 4.
[80] *Ibid.*
[81] *Ibid.*

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Second, there are notable discrepancies between the modeled noise levels presented in the underlying data and the levels reported in the ND and noise study narrative.[82] The differences between these figures are not explained or reconciled, raising concerns about the internal consistency and reliability of the noise analysis.[83] These discrepancies suggest that the analysis may have selectively or inaccurately represented noise levels, thereby mischaracterizing the potential impact of construction activities on nearby sensitive receptors.

Taken together, the absence of transparent distance justification and the inconsistencies in reported noise levels result in a fundamentally flawed noise analysis that appears to significantly underestimate actual impacts. As a result, the ND fails to provide substantial evidence to support a less than significant finding for construction noise impacts.

2. The ND's Reliance on a High Absolute Threshold for Construction Noise Impacts Does Not Reflect the Sensitivity of Affected Receptors

The ND contains a flawed impact assessment based on an inappropriate significance threshold. Specifically, Ms. Toncheva's analysis demonstrates that the data show significant noise impacts when established Federal Transit Administration noise thresholds or prior City-adopted guidance are applied.[84] In contrast, the ND concludes that the impact is less than significant impact only by relying on an absolute 80 dBA threshold – an approach that is inconsistent with standard noise assessment practices,[85] and with CEQA's requirement to assess the increase over ambient noise levels when assessing significance. The courts have held that reliance on a maximum noise level as the sole threshold of significance for noise impacts violates CEQA because it fails to consider whether the magnitude of changes in noise levels is significant.[86] The City's methodology fails to account for the sensitivity of affected receptors or the cumulative nature of the noise environment, thereby understanding the Project's true noise impacts.[87]

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[82] *Ibid.*
[83] *Ibid.*
[84] *Id.* at pp. 4-5.
[85] *Id.* at pp. 4-5.
[86] *King & Gardiner Farms, LLC,* 45 Cal.App.5th at 865.
[87] Toncheva Comments at pp. 4-5.

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3. Substantial Evidence Supports a Fair Argument that Construction Noise Impacts Are Significant and Unmitigated

In addition to adopting an absolute 80 dBA threshold for evaluating construction noise, it fails to apply the City's recommended methodology for assessing such impacts.[88] Ms. Toncheva provides a detailed calculation of the 8-hour equivalent continuous noise level (Leq) for the nosiest activity: demolition.[89] Using a center-of-site distance of 195 feet, and a residential receptor distance of 60 feet (based on Ms. Toncheva's independent review and 85 feet (based on the ND's own vibration analysis), Ms. Toncheva calculates an 8-hour Leq of 82 dBA for demolition activity.[90] This figure exceeds the ambient noise levels by 11 dB, violates the Los Angeles Municipal Code threshold, and surpasses the 80-dBA absolute threshold.[91]

These results – grounded in the City's own prescribed methodology – constitute substantial evidence of a potentially significant noise impact. Under CEQA, when expert opinion or data raises a fair argument that a project may have a significant impact, an EIR is required.[92] Here, Ms. Toncheva's analysis satisfies that standard. Accordingly, the City must prepare an EIR to fully evaluate and mitigate construction noise impacts.

4. The ND Fails to Demonstrate the Project Would Comply with Applicable Construction Noise Standards

Compliance with applicable regulatory standards may support a finding that a project will not result in significant environmental impacts.[93] However, such a conclusion must be based on a project-specific analysis that demonstrates how compliance will effectively avoid or reduce those impacts.[94] While adherence to specific laws, regulations, or permit requirements can, in some cases, constitute adequate mitigation under CEQA, reliance on regulatory compliance is only appropriate where substantial evidence shows that compliance will, in practice,

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[88] *Id.* at p. 6.
[89] *Ibid.*
[90] *Ibid.*
[91] *Ibid.*
[92] CEQA Guidelines § 15064(g); *City of Carmel-by-the-Sea v. Board of Supervisors* (1986) 183 Cal.App.3d 229, 24; *Clews Land & Livestock v. City of San Diego* (2017) 19 Cal.App.5th 161, 192.
[93] *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 912.
[94] *Save Our Capitol! v. Department of Gen. Servs.* (2023) 87 Cal.App.5th 655, 696; *Californians for Alternatives to Toxics v. Department of Food & Agric.* (2005) 136 Cal.App.4th 1.

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reduce the impact below a level of significance.[95] This determination requires a detailed analysis of both anticipated environmental impact and the effectiveness of the regulatory measure, considered in the context of applicable performance standards and oversight mechanisms.[96]

The ND is deficient because it fails to demonstrate that the proposed Project would comply with applicable local noise ordinances governing construction activities. Specifically, Los Angeles Municipal Code § 112.05 prohibits construction equipment noise from exceeding 75 dBA at 50 feet between the hours of 7am and 10pm when such activities occur near any residential zone. Neither the ND nor the accompanying noise study acknowledge the applicability of this ordinance to the Project.[97] This omission is significant because CEQA requires a lead agency to evaluate whether a project would result in a significant impact based on noncompliance with applicable standards or regulations, including local noise ordinances.[98]

Moreover, the ND provides no substantial evidence demonstrating that the Project would comply with this 75 dBA threshold.[99] To the contrary, the study submitted as Appendix F indicates that anticipated construction noise levels would exceed this threshold.[100] The failure to disclose this exceedance or to propose feasible mitigation measures renders the ND inadequate under CEQA.

5. The ND Fails to Adequately Analyze Compliance with Regulatory Standards Governing Fixed Mechanical Equipment

The ND acknowledges that the Project would introduce various stationary noise sources, including heating, ventilation, and air conditioning ("HVAC") systems.[101] It further asserts that all mechanical equipment would be required to incorporate appropriate noise-control devices to ensure compliance with Los Angeles Municipal Code § 112.02, which prohibits noise from such equipment from causing an increase in ambient noise level of more than 5 dBA.[102] However, the ND's analysis is legally and substantively inadequate.

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[95] CEQA Guidelines § 15126.4(a)(1)(B); see *Save Our Capitol! v. Department of Gen. Servs.* (2023) 87 Cal.App.5th 655, 687-88, 699.
[96] *Tiburon Open Space Comm. v. County of Marin* (2022) 78 Cal.App.5th 700, 763.
[97] Toncheva Comments at p. 5.
[98] CEQA Guidelines, Appendix G, Section XIII.
[99] Toncheva Comments at p. 5.
[100] *Ibid.*
[101] ND at p. 79-80.
[102] *Id.* at p. 80.

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Specifically, the ND does not evaluate whether stationary noise sources located near residential receptors would, in fact, exceed the 5 dBA threshold over existing ambient noise levels.[103] Simply asserting that equipment will comply with code requirements, without a site-specific analysis or supporting technical data, does not satisfy CEQA's requirement to disclose and analyze potential significant impacts. In the absence of detailed noise modeling or empirical evidence demonstrating compliance, the ND improperly defers analysis and mitigation. An EIR is required to identify equipment locations, quantify projected noise levels at the nearest property lines, and evaluate the potential for exceedances above ambient levels in accordance with applicable noise standards.

6. The ND Fails to Adequately Analyze Noise Impacts from Truck and Dock Activity

The ND fails to adequately analyze the noise impacts associated with increased truck activity, both on-site and off-site. Notably, the document omits any discussion of the increased traffic along Drumm Avenue, particularly because of the proposed extension of operational hours into Saturdays.[104] This expansion will lead to increased truck traffic during weekend hours, yet the ND does not assess the potential noise effects on nearby sensitive receptors.[105]

In addition, the ND fails to consider noise generated from on-site dock operations. The ND acknowledges that ambient levels are already elevated near residences adjacent to the existing cold dock.[106] However, the proposed Project would relocate the dock closer to these homes and extend its operations into Saturdays – both of which are likely to increase noise exposure for nearby residents.[107] Despite these changes, the ND offers no meaningful analysis of the potential noise increases from this new configuration.[108]

Furthermore, ambient noise levels were not properly established over the weekend, when the extended operational hours would occur.[109] Without weekend baseline measurements, the ND cannot accurately evaluate the Project's impact on the acoustic environment during the times when the greatest changes are proposed. As a result of these omissions, the ND does not provide substantial evidence to support the conclusion of a less than significant impact.

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[103] Toncheva Comments at p. 7.
[104] *Ibid.*
[105] *Ibid.*
[106] *Ibid.*
[107] *Ibid.*
[108] *Ibid.*
[109] *Ibid.*

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III. THE CITY CANNOT MAKE THE NECESSARY LAND USE FINDINGS DUE TO SIGNIFICANT, UNMITIGATED PUBLIC HEALTH AND ENVIRONMENTAL IMPACTS

The proposed Project is seeking the following approvals from the City: (1) a General Plan Amendment, (2) a Zone Change, (3) a Zoning Administrator Determination, (4) a Site Plan Review, and (5) a Waiver of Dedication and Improvements. The City cannot lawfully make the required findings to approve these entitlements because the Project would result in significant, unmitigated public health and environmental impacts

To approve the requested entitlements, the City must determine that the Project substantially conforms to the purposes, intent, and provision of the General Plan, appliable Community Plan, and any Specific Plan; is consistent with public necessity, convenience, general welfare, and good zoning practice, and that its features – such as building height, size, and operations – are compatible with the surrounding development and will not adversely affect public health, welfare, or safety.[110] Additionally, approval of a transitional height change requires findings that the project enhances the built environment or provides a beneficial service, will not degrade adjacent properties or public welfare, and is compatible with the scale and character of the neighborhood.[111] Similarly, Site Plan approval requires findings of compatibility with existing and future development and appropriate arrangement of buildings, structures, and supporting improvements.[112] Finally, to approve the requested Waiver of Dedication and Improvements, the City must find that the dedication or improvement either lacks a reasonable relationship to project impacts, is unnecessary to meet long-term mobility needs, or is physically impractical.[113]

Given the Project's significant, unmitigated public health impacts, including those described in Section II,[114] these findings cannot be made. The Project's adverse effects on air quality, noise, and other environmental factors would directly conflict with key General Plan and the Wilmington – Harbor City Community Plan policies aimed at protecting public health and welfare including, but not limited to, Air Quality Element Policy 1.3.1, Noise Element Policy 2.2, P8, and P11, and

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[110] Los Angeles City Charter § 555; Los Angeles Municipal Code ("LAMC") §§ 11.5.6, 12.24.X.22(a), 12.32, 13B.1.4.E.1., 13B.2.1.E.1., 13B.2.4.E.
[111] LAMC § 12.24.X.22(a).
[112] *Id.* § 13B.2.4.E.
[113] *Id.* § 12.37.I.2(b).
[114] *See generally* Clark Comments (air quality and public health impacts); Toncheva Comments (noise impacts).

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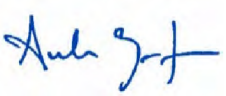
Community Plan Policy 3-1.4.[115] As such granting the requested approvals would be inconsistent with the General Plan and applicable community plan.

IV. CONCLUSION

Substantial evidence supports a fair argument that the Project may have a significant environmental effect, necessitating the preparation of an EIR. The defects with the ND's analysis of noise, air quality, and public health impacts underscore the potential for significant environmental impacts that have not been sufficiently addressed. Moreover, the City cannot make the required findings to approve the requested entitlements. Given these inadequacies, an EIR is necessary to thoroughly evaluate and mitigate the Project's environmental impacts, ensuring compliance with CEQA and the protection of the public and environmental health.

Sincerely,



Andrew J. Graf

Attachments
AJG:acp

[115] City of Los Angeles, Air Quality Element (2003), *available at* https://planning.lacity.gov/odocument/0ff9a9b0-0adf-49b4-8e07-0c16feea70bc/Air_Quality_Element.pdf; City of Los Angeles, Noise Element (1998), *available at* https://planning.lacity.gov/odocument/b49a8631-19b2-4477-8c7f-08b48093cddd/Noise_Element.pdf; City of Los Angeles, Wilmington-Harbor City Community Plan (2016), *available at* https://planning.lacity.gov/odocument/1fbe8e13-5c84-42cd-913e-5fc659a4241a/Wilmington-Harbor_City_Community_Plan.pdf.

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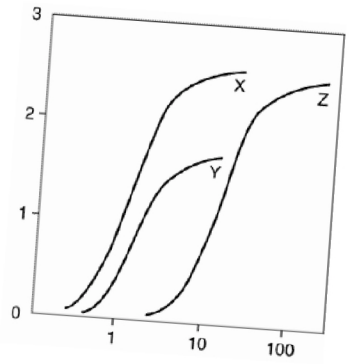
ATTACHMENT A



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May 22, 2025

Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Attn: Mr. Andrew Graf

Subject: Comments On Draft Initial Study/Negative Declaration For KPAC Coil Avenue Freezer Expansion Project, Wilmington, CA (Case Number: ENV-2022-6860-ND)

At the request of Adams Broadwell Joseph & Cardozo (ABJC), Clark and Associates (Clark) reviewed materials related to Initial Study/Negative Declaration (ND) for the above-referenced Project.

Clark's review of the materials in no way constitutes a validation of the conclusions or materials contained within the plan. If we do not comment on a specific item this does not constitute acceptance of the item.

Project Description:

According to the ND, the proposed Project involves improvement and expansion of the existing cold storage facility which includes demolition and alteration of the 27,157 square foot existing cold dock for a new freezer. The new freezer would be approximately 71,331 square feet resulting in a net addition of 44,174 square feet of new floor area. The proposed Project would contain a maximum Floor Area Ratio (FAR) of 0.38:1 and would be 65 feet in height (not including rooftop equipment) which exceeds the 45-foot height limit currently allowed per the applicable zoning. Additionally, the existing interior freezer would be remodeled. The improved facility will be expanding to the west and would result in the removal of the existing portion of double rail spur that is located in the path of the expansion. Additionally, the proposed

development would include 2,290 square feet designated for the mechanical room expansion, electrical room expansion, and fire pump building and 13,939 square feet of total new second floor building area for the offices. Following the expansion, the facility would also operate on Saturdays for one 8-hour shift. The expansion would decrease the length of the existing double rail spur and would also decrease the number of trains unloading stations from 18 down to 6.



Figure 1: Project Site Location Map

The Project site is located at 1420 Coil Avenue within the Wilmington-Harbor Community Plan area in the City of Los Angeles (City). The Project site encompasses approximately 747,302 square feet (17.16 acres) and includes two zoning designations: [Q] MR2-1 VL-CUGU (Restricted Light Industrial) and [Q] M3-1VL-CUGU (Heavy Industrial). The site's land use designations include Light Manufacturing, Light Industrial, and Heavy Manufacturing. The Project site is currently developed with a one-story (varying heights between 26 to approximately 42 feet) 221,496 square foot

cold storage facility used to store wholesale food products for third party users. The facility currently provides cooler and freezer temperature storage and operates 5 days a week (Monday through Friday) for 16 hours per day, at a quantity of two 8-hour shifts. Additionally, there is an existing double rail spur that includes 9 unloading docks each, equating to 18 unloading stations. Properties surrounding the Project site are zoned M3-1VL, [Q]M3-1VL-CUGU and [Q]M3-1 (Heavy Industrial) to the north and east along Alameda Street, R1-1XL-O-CUGU (One-Family Residential) to the west along Drumm Avenue and [Q]C1-1VL-O-CUGU (Limited Commercial) to the southwest along Pacific Coast Highway.

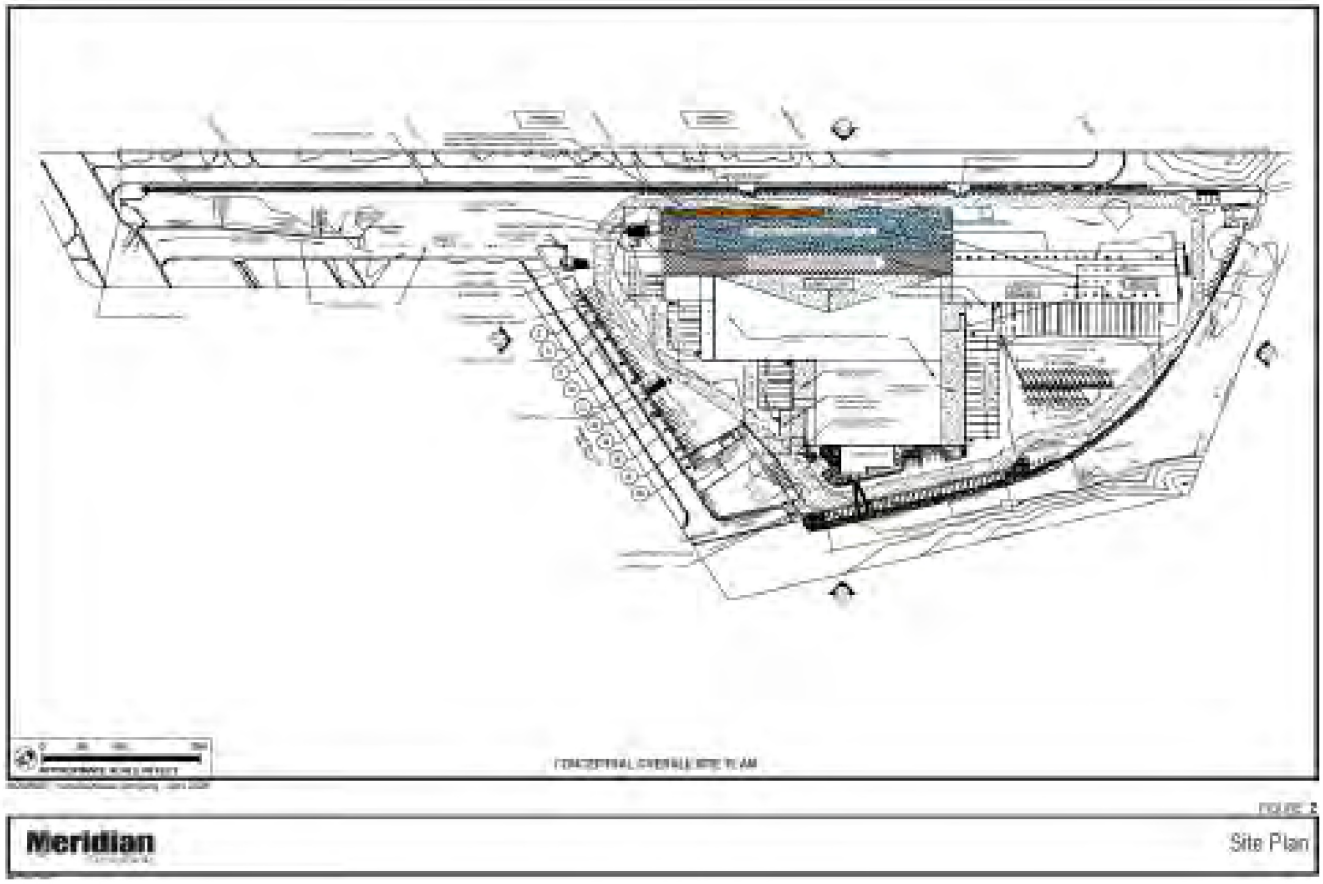

Figure 2: Proposed Project Site Plan

Based on the information contained in the ND it is clear that conclusions that the construction and operational phases of the Project will have no significant adverse impacts on the environment are not warranted. That conclusion is not born out in the data provided in the ND.

Specific Comments

1. **The Negative Declaration Fails To Analyze The Project's Health Impacts from Diesel Particulate Matter Emissions**

The ND lacks any quantitative or qualitative analysis of public health risks associated with the Project's construction or operation emissions. Notably, it does not identify any significance thresholds for toxic air contaminants (TACs), nor does it evaluate whether the Project's diesel particulate matter (DPM) emissions would exceed applicable significance thresholds.

SCAQMD has established project-level significance thresholds for TACs, including carcinogens and non-carcinogens. TAC emissions are potentially signfiiacnt if they meet one of the following conditions: (1) the maximum incremental cancer risk exceeds 10 in 1 million, (2) the cancer burden exceeds 0.5 excess cancer cases, and (3) the chronic or acute hazard index exceeds 1.0.[1] The ND does not mention these thresholds. Instead, the ND concludes the Project's DPM impacts from construction emissions are less than significant because PM2.5 emissions do not exceed SCAQMD's localized significance threshold.

First, health risks from TACs are typically evaluated in accordance with the Office of Health and Human Hazard Assessment's ("OEHHA") *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, not localized significance thresholds.[2] The manual recommends that even short-term projects, such as construction activities lasting more than 2 months, be evaluated for cancer risks.[3]

Second, PM2.5 emissions are not an adequate proxy for DPM. Diesel exhaust contains a range of inhalable particles including particles as large ten microns (PM10), and is a unique mixture of elemental carbon, toxic organic compounds, and trace metals. The CalEEMod model includes both emission estimates of PM10 from diesel exhaust and PM2.5 from diesel exhaust. Using the PM2.5 emissions underestimates the exposure point concentrations of emissions in the environment. In contrast, the use of the PM10 exhaust value as the source term for any analysis ensures the exposure point concentration is not underestimated since the PM10 value includes all particles equal to or less than 10 microns are included. Moreover, unlike PM2.5, DPM is specifically linked to elevated cancer

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[1] https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25.

[2] https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

[3] OEHHA Guidance Manual for Preparation of Health Risk Assessments, Pg. 8-17 to 8-18.

risks, respiratory illness, and disproportionate health impacts in vulnerable communities. By relying solely on PM2.5 emissions and ignoring the unique toxicology profile of DPM, the ND's evaluation of the potential health risks is inadequate.

For cumulative impacts, SCAQMD has initiated a public process to update existing guidance due to community concerns about high-risk health impacts from air toxics, particularly from aggregation of warehouses. Since 2022, SCAQMD has held six Working Group (WG) meetings to develop additional guidance for analyzing such potential impacts.[4] The first two WG meetings focused on Information Gathering and Analysis as well as the Initial Objective and Scope of the WGs. The third WG meeting was specific to the Initial Objective and Scope of the WGs and pushed into the Conceptual/Potential Cumulative Health Risk Assessment protocols. WG meetings #4 and #5 focused only on the Conceptual/Potential Cumulative Health Risk Assessment protocols. WG meeting #6 (WG 6), held in November of 2024, refined the proposed the Conceptual/Potential Cumulative Health Risk Assessment protocols based on public comments. The result of WG 6 was a draft process/analysis flow diagram which is intended to be used to inform the drafting of a planned Draft Guidance Document for conducting Cumulative Health Risk Assessments in the South Coast Air Basin.

Step 1 of the WG 6 process for determining the cumulative significance threshold is to identify the background cancer risk affecting the Project area via the SCAQMD Multiple Air Toxics Exposure Study (MATES).[5] According to SCAQMD's MATES V study, zip code 90744 (the location of the Project Site) has a cumulative cancer risk of 664 in 1 million placing it in the top 2% of communities in the South Coast Air Basin (SCAB) impacted by TACs. More than 66% of that risk is from exposure to DPM.

[4] https://www.aqmd.gov/home/rules-compliance/ceqa/ceqa-policy-development-(new).

[5] https://www.aqmd.gov/docs/default-source/ceqa/documents/wgm-6-20241106.pdf?sfvrsn=405a8561_13.

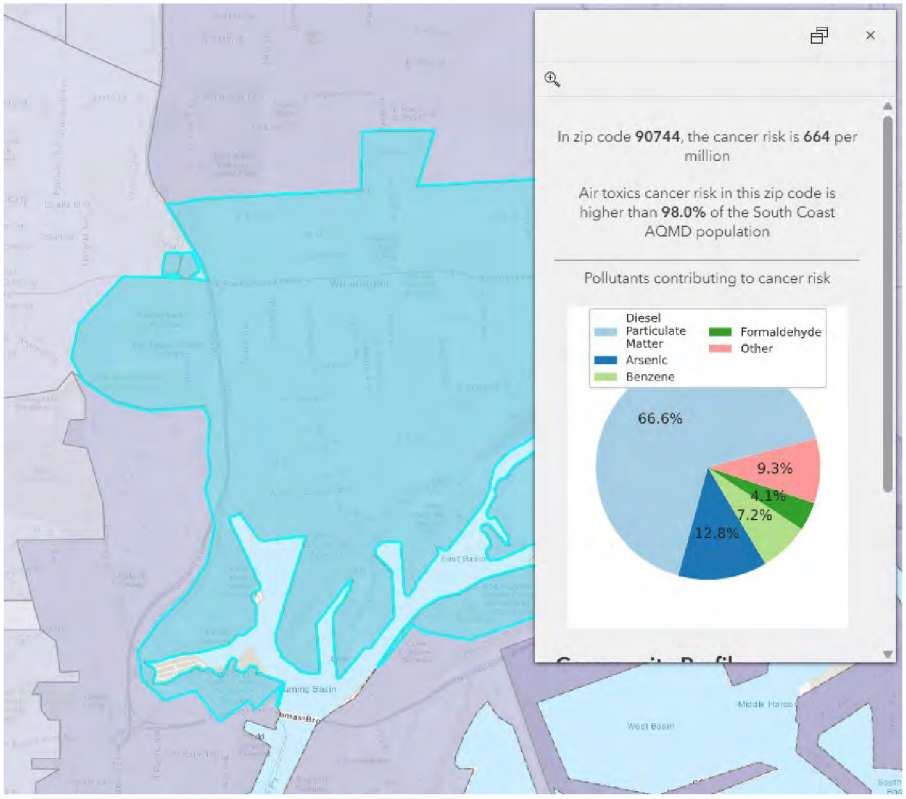


Figure 3: MATES Cancer Risk Analysis Of Project Location

Per WG 6, areas experiencing background excess cancer risk in the 90th percentile would result in a drop of the Cancer Risk Threshold from 10 in one million to 3 in one million. Because the zip code where the Project resides has an air toxics cancer risk higher than 98%, the initial threshold would be 3 in one million.

Step 2 of the WG 6 flow diagram is to determine whether one or more of the listed criteria is met causing an adjustment to the initial threshold. The additional criteria include an assessment of whether the project involves a high-volume of diesel-fueled trucks or is located within a health sensitive population. Here, the Project meets the second criteria because it is in both a SB 535 disadvantaged community and an AB 617 community.

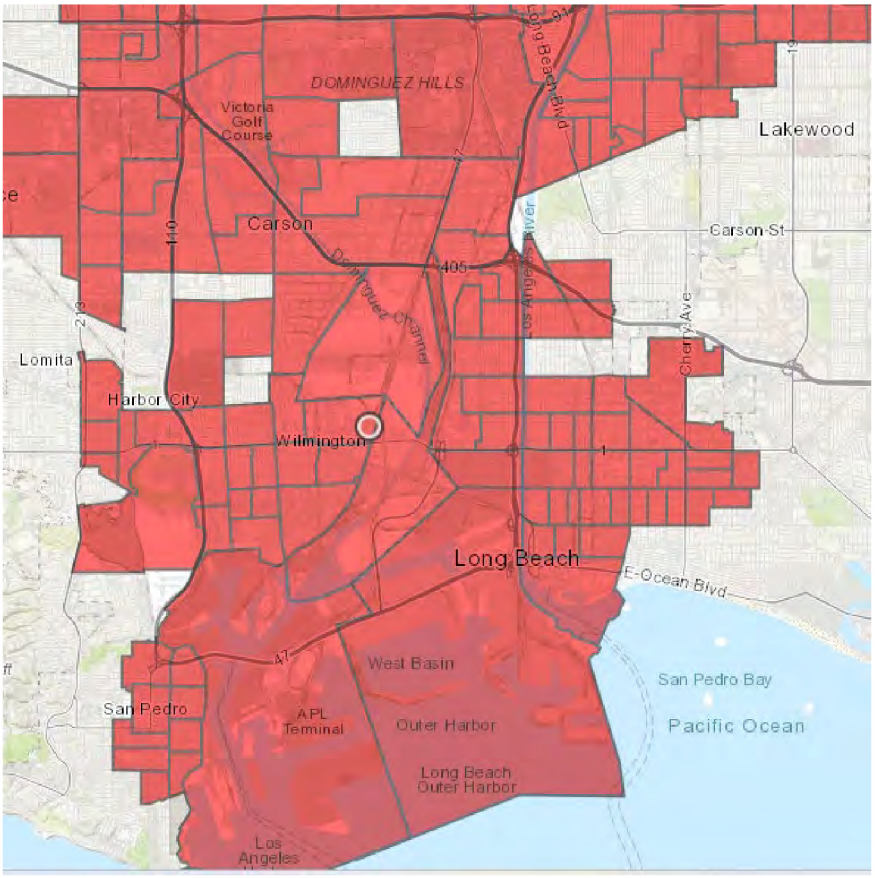


Figure 4: SB 535 Classification Of Port Area

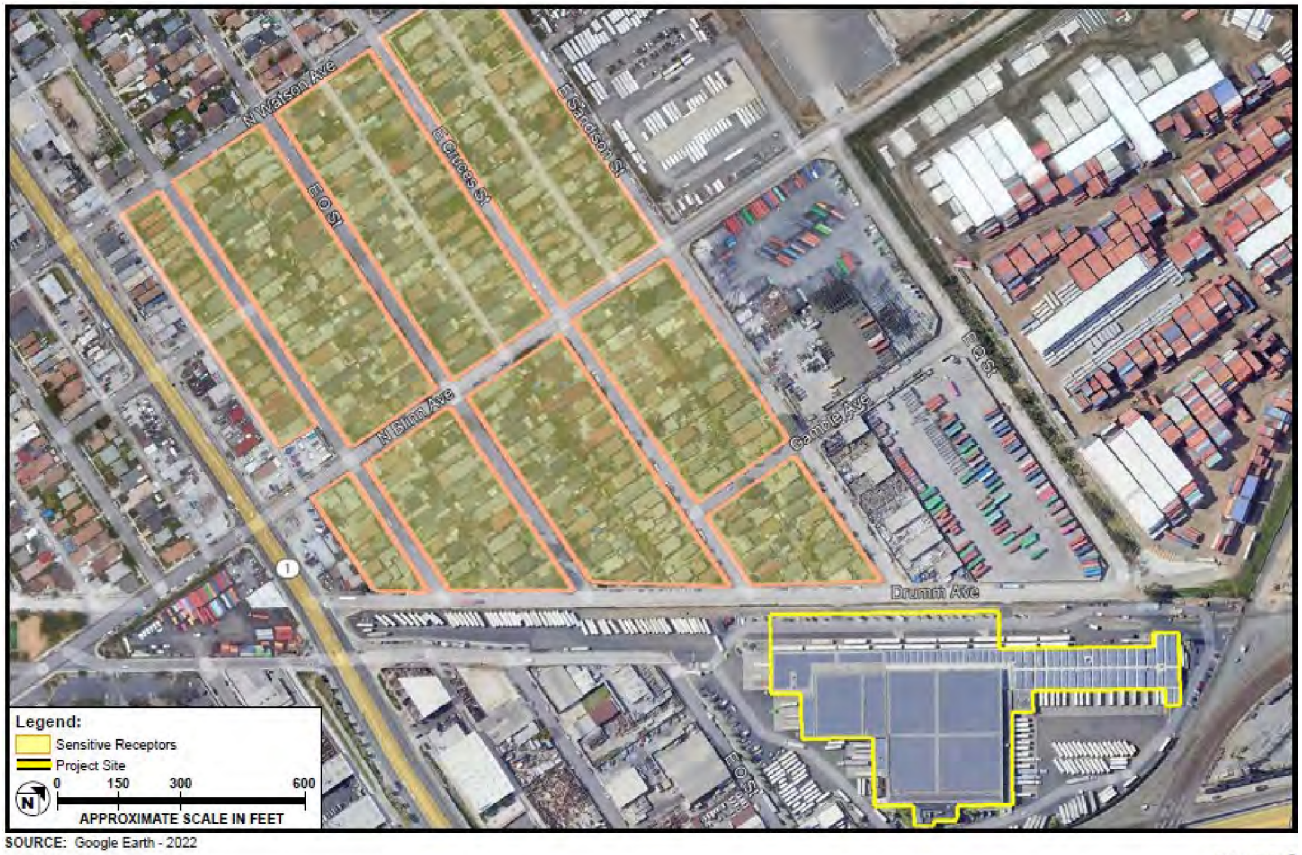
Therefore, the Project's cumulative impacts should be evaluated against an adjusted cumulative cancer risk threshold of 1 in one million.

2. Using The CalEEMod Analysis Of The Construction Phase Of The Project It Is Clear That The Project's Emissions From Construction Equipment Will Exceed The 1 In One Million Health Risk Threshold Defined In Comment 1.

According to the Air Quality (AQ) Study,[6] "Construction emissions would not contribute to short- or long-term emissions that would increase the carcinogenic effects on sensitive receptors. Construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people." The AQ Study goes on to identify a specific set of sensitive receptors near the Project Site. The receptors include:

[6] Meridian Consultants. 2024. Air Quality Study KPAC Coil Avenue Freezer Expansion Project. 1420 Coile Avenue, Wilmington, CA. 90074. Dated September 2024. Pg. 2

- Located at the corner of E. Sandison Street and Drumm Avenue, sensitive uses include the single and multi-family residential uses.
- Located at the corner of E. Cruces Street and Drumm Avenue, sensitive uses include single and multifamily residential uses.
- Located at the corner of E. O Street and Drumm Avenue, sensitive uses include single family residential uses.
- Located along Drumm Avenue between E. Colon Street and Pacific Coast Highway, sensitive uses include the multi-family residential uses.
- Located at the corner of E. Sandison Street and Gamble Avenue, sensitive uses include single- and multi-family residential uses.
- Located at the corner of E. Cruces Street and N. Binn Avenue, sensitive uses include single- and multi-family residential uses.



SOURCE: Google Earth - 2022

FIGURE 2

Meridian Consultants

Sensitive Receptor Map

Figure 5: Sensitive Receptors Near Project Site

I will demonstrate that this conclusion is not supported by the evidence in the ND and AQ Study in light of the analysis presented in Comment 1. Using the details from Attachment A.2 (Proposed Construction Emissions) of the AQ Study, I constructed an air dispersion model of the emissions from the off-road equipment listed in the CalEEMod analysis and a health risk analysis for residents located in homes west of the Project Site that is consistent with OEHHA guidance .

I calculated DPM emissions based on the DPM_{10} Exhaust values disclosed in the CalEEMod file. Based on the average daily emissions of PM_{10} as exhaust (DPM) from tables 3.1 (demolition), 3.3 (grading), 3.5 (building construction), 3.7 (paving), and 3.9 (architectural coatings), I calculated the total emission of DPM for each phase of the project. In total, approximately 66 lbs of DPM is estimated to be released per day from the Project site over the duration of the construction phase, with most emissions occurring during the 10 months of building construction. Using the emission rate identified in the CalEEMOD model for each construction phase, the total amount of DPM emitted from off-road equipment is equal to the number of work days multiplied by the emission rate calculated in the CalEEMOD model.

$$DPM\ (lbs) = \sum Emission\ Rate\ \left(\frac{lbs}{day}\right) * Number\ Of\ Work\ Days\ (days)$$

Phase	Start	End	Daily Emissions*	Duration	Total Emissions For Phase	Emissions Per Day	Emission Rate Per Hour	Site Wide Annual Emission Rate
			lbs/day	days	lbs	lbs/day	lbs-hour	lbs-hr/ft2
Demolition	1/2/206	1/30/2026	0.03	20	0.6	**3.00E-02**	3.75E-03	**8.50E-08**
Grading	1/31/2026	2/9/2026	0.01	60	0.6	**1.00E-02**	1.25E-03	**2.83E-08**
Building Construction	2/10/2026	12/14/2026	0.22	292	64.24	**2.20E-01**	2.75E-02	**6.24E-07**
Paving	12/15/2026	12/28/2026	0.01	22	0.22	**1.00E-02**	1.25E-03	**2.83E-08**
Architectural Coating	12/15/2026	1/11/2027	0.0025	44	0.11	**2.50E-03**	3.13E-04	**7.09E-09**

* - Daily Average On-site Emissions From CalEEMOD Analysis

Assuming 8-hour workdays and an approximate area of 44,105 square feet (equal to the construction area), I calculated an average daily emission rate of 2.46 x 10^{-7} lbs of DPM per hour per square feet for the averaged source term in the air dispersion model. This average rate is much lower than the

maximum daily rate reported in the CalEEMod analysis in tables 3.1 through 3.9 and is therefore a conservative estimate of the daily emission rates.

The next step in the analysis is to input the source terms, location and type of the sources, the location of the existing building, and the sensitive receptors to be analyzed in the air dispersion model. I used a version of AERMOD, which is the U.S. EPA's and SCAQMD's preferred gaussian dispersion model for this type of analysis. AERMOD is an acronym for the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee's Dispersion Model. AERMOD contains the necessary algorithms to model air concentrations from a wide range of emission source types, including stack-based point sources, fugitive area sources, and volume sources. The modeling domain with the building around the Project site are indicated in the figure below. The outline of the existing KPAC building is contained in the blue line, while the green lined area is the source area of DPM from construction of the Project.

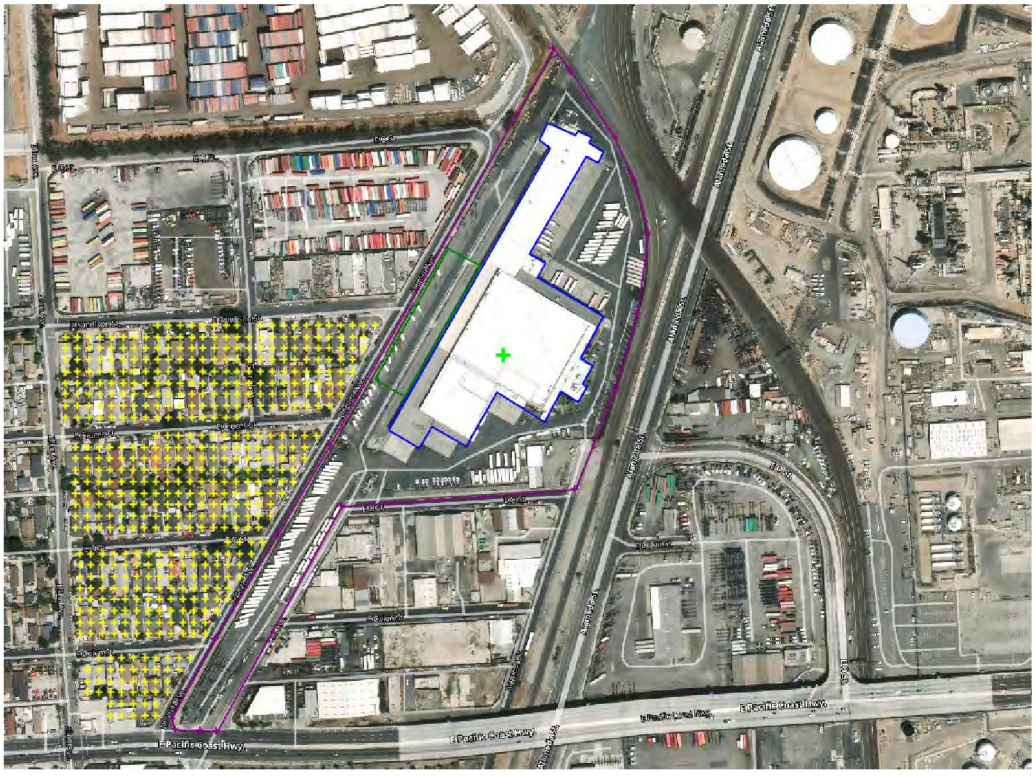


Figure 6: AERMOD Model Domain With Construction Source Area, Existing Building, & Sensitive Receptor Locations

The yellow crosses indicated the location of the sensitive receptors closest to the Project Site.

Next the elevation of each object in the model was obtained from the California Air Resources Board;s (CARB's) HARP Digital Elevation Model Files website. The Project Site is contained in the file for the Long Beach quad file. The resolution of the file is 10 meters by 10 meters. The model was then run using AERMAP, the U.S. EPA's AERMOD Terrain Preprocessor (AERMAP) software. AERMAP produces terrain base elevations for each receptor and source and a hill height scale value for each receptor. AERMAP outputs the elevation results in a format that can be directly inserted into an AERMOD control file.

Following the AERMAP run, I selected meteorological data from the SCAQMD's Data for AERMOD website.[7] Using the AERMET Files And HRA Tool html link embedded in the webpage I identified the source receptor area (SRA) for the Project Site. The SRA for 1420 Coil Avenue, is SRA 4 or Long Beach. Using the meteorological data from SCAQMD for the Long Beach monitoring station (closest met station to the Project site), limiting the emissions to an 8-hour period on weekdays, the concentrations at the residences immediate across the street from the Project site were calculated.

The output from the AERMOD model was then imported into an excel spreadsheet to identify the maximum exposure point concentration in the model domain. The maximum annual average concentration was calculated to be 0.01656 ug/m^3 and the averaged value across the whole model domain was 0.001409 ug/m^3.

Using the algorithm outlined in OEHHA's HARP 2 Standalone Risk software, the cancer risk for the maximally exposed individual resident was calculated. Using the maximum concentration modeled for residential receptors west of the Project Site, the cumulative risk is 2.27 in 1,000,000. This value is greater than the 1 in 1 million identified in Comment 1 above as being the cumulative threshold of significance based on the SCAQMD's new working group guidance. If the incremental operational impacts are included in the analysis, the cumulative cancer risk would be even higher given the longer duration of exposure. The results of the air model and the health risk analysis are attached as an exhibit to this letter.

3. The Air Quality Analysis Fails To Analyze For Transportation Refrigeration Units (TRUs) Onsite During Normal Operations.

The AQ Study fails to consider the use of Transport Refrigeration Units (TRUs) onsite. TRUs

[7] SCAQMD. 2025. https://www.aqmd.gov/home/air-quality/meteorological-data/data-for-aermod

are refrigeration systems powered by diesel internal combustion engines designed to refrigerate or heat perishable products that are transported in various containers, including truck vans, semi-truck trailers, and shipping containers. CARB defines diesel exhaust as a complex mixture of inorganic and organic compounds that exists in gaseous, liquid, and solid phases. CARB and U.S. EPA identify 40 components of the exhaust as suspected human carcinogens, including formaldehyde, 1,3-butadiene, and benzo[a]pyrene.

According to CalEEMod analysis of the Project's operational emissions provided in Appendix A.3, the Project is modeled as a refrigerated warehouse. The baseline CalEEMod analysis does not include the TRUs on trucks accessing the Project site. Furthermore, nowhere in the future operational CalEEMod analysis or in the air quality section of the ND are the emissions from the TRUs (primarily DPM) quantified. To account for the TRUs, the model would need to include a line item in the sources to include the TRUs. Without that line item, it is improper to assume that the DPM emissions are accounted for when the model type is designated as a refrigerated warehouse. Emissions from TRUs are not addressed in either the baseline or the future operational emission analysis.

Given that the IS/ND identified the warehouse as a refrigerated warehouse, it is therefore reasonable to conclude that TRUs are a foreseeable project component, even if the trucks entering the facility do so by appointment.[8] The TRU emissions have not been quantified, resulting in an underestimation of the foreseeable health risk to the community as well as the associated GHG emissions from the operation of the TRUs.

4. The Analysis of Operational Emissions Is Incomplete Since If Fails To Address The Use Of Cargo Handling Equipment Onsite.

According to the AQ Study, operational emissions were calculated using the CalEEMOD software assuming that Project will continue as a refrigerated warehouse. A review of CalEEMOD analysis shows that emissions from onsite service vehicles that may be used to move products from the warehouse area into the loading bays were not included in the analysis.

[8] Meridian Consultants. 2024. Air Quality Study KPAC Coil Avenue Freezer Expansion Project. 1420 Coile Avenue, Wilmington, CA. 90074. Dated September 2024. Pg. 9

According to the latest CAPCOA Guidance,[9] cargo handling equipment (e.g., forklifts, yard goats, and pallet jacks) may include diesel powered, compressed natural gas powered, and gasoline powered equipment. The CalEEMod baseline and the future operational reports do not include line items for cargo handling equipment onsite. If the cargo handling equipment is not electrified, then emissions from the cargo handling equipment are not accounted for in any of the emission estimates. The AQ Study is therefore missing a potentially significant source of criteria and toxic pollutants.

5. The CalEEMod Analysis For The Operational Phase Does Not Include Fire Pumps.

As noted in the AQ Study, "the proposed development would include 2,290 square feet designated for the mechanical room expansion, electrical room expansion, and fire pump building and 13,939 square feet of total new second floor building area for the offices." [10] Fire pumps are a source of DPM emission since they need independent power to work during power outages. The most common independent power source is a dedicated back-up generator (BUG). While there are electrically powered fire pumps on the market, the utility of the fire pumps is compromised when the power source is cut. The fire pump will need to be tested and maintained annually. Under the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines Guidance, the District may allow a new stationary emergency standby diesel-fueled Cl engine (> 50 hp) to operate up to 100 hours per year for maintenance and testing purposes on a site-specific basis, provided the DPM emission rate is less than or equal to 0.01 g/bhp-hr. Neither the ND nor the accompanying AQ Study identifies emissions from any stationary equipment, including fire pumps. This results in a significant underestimation of potential air quality impacts and public health risks.

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[9] CAPCOA. 2021. Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Pg 741

[10] Meridian Consultants. 2024. Air Quality Study KPAC Coil Avenue Freezer Expansion Project. 1420 Coile Avenue, Wilmington, CA. 90074. Dated September 2024. Pg. 3

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

Conclusion

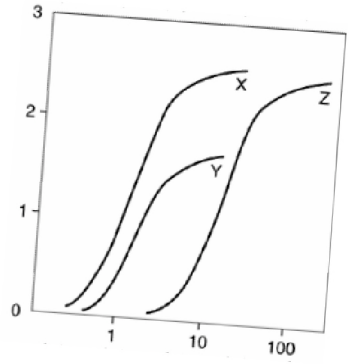
The facts identified and referenced in this comment letter lead me to reasonably conclude that the Project could result in significant impacts if allowed to proceed. A draft environmental impact report should be prepared to address these substantial concerns.

Sincerely,



Exhibit A

Curriculum Vitae



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James J. J. Clark, Ph.D.

Principal Toxicologist

Toxicology/Exposure Assessment Modeling

Risk Assessment/Analysis/Dispersion Modeling

Education:

Ph.D., Environmental Health Science, University of California, 1995

M.S., Environmental Health Science, University of California, 1993

B.S., Biophysical and Biochemical Sciences, University of Houston, 1987

Professional Experience:

Dr. Clark is a well recognized toxicologist, air modeler, and health scientist. He has 20 years of experience in researching the effects of environmental contaminants on human health including environmental fate and transport modeling (SCREEN3, AEROMOD, ISCST3, Johnson-Ettinger Vapor Intrusion Modeling); exposure assessment modeling (partitioning of contaminants in the environment as well as PBPK modeling); conducting and managing human health risk assessments for regulatory compliance and risk-based clean-up levels; and toxicological and medical literature research.

Significant projects performed by Dr. Clark include the following:

LITIGATION SUPPORT

Case: James Harold Caygle, et al, v. Drummond Company, Inc. Circuit Court for the Tenth Judicial Circuit, Jefferson County, Alabama. Civil Action. CV-2009

Client: Environmental Litgation Group, Birmingham, Alabama

Dr. Clark performed an air quality assessment of emissions from a coke factory located in Tarrant, Alabama. The assessment reviewed include a comprehensive review of air quality standards, measured concentrations of pollutants from factory, an inspection of the facility and detailed assessment of the impacts on the community. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Rose Roper V. Nissan North America, et al. Superior Court of the State Of California for the County Of Los Angeles – Central Civil West. Civil Action. NC041739

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to multiple chemicals, including benzene, who later developed a respiratory distress. A review of the individual's medical and occupational history was performed to prepare an exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to respiratory irritants. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: O'Neil V. Sherwin Williams, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to petroleum distillates who later developed a bladder cancer. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Summary judgment for defendants.

Case: Moore V., Shell Oil Company, et al. Superior Court of the State Of California for the County Of Los Angeles

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to chemicals while benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Raymond Saltonstall V. Fuller O'Brien, KILZ, and Zinsser, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Richard Boyer and Elizabeth Boyer, husband and wife, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-7G.

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: JoAnne R. Cook, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-9R

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of an individual exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Patrick Allen And Susan Allen, husband and wife, and Andrew Allen, a minor, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-W

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Michael Fahey, Susan Fahey V. Atlantic Richfield Company, et al. United States District Court Central District of California Civil Action Number CV-06 7109 JCL.

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Constance Acevedo, et al., V. California Spray-Chemical Company, et al., Superior Court of the State Of California, County Of Santa Cruz. Case No. CV 146344

Dr. Clark performed a comprehensive exposure assessment of community members exposed to toxic metals from a former lead arsenate manufacturing facility. The former manufacturing site had undergone a DTSC mandated removal action/remediation for the presence of the toxic metals at the site. Opinions were presented regarding the elevated levels of arsenic and lead (in attic dust and soils) found throughout the community and the potential for harm to the plaintiffs in question.

Case Result: Settlement in favor of defendant.

Case: Michael Nawrocki V. The Coastal Corporation, Kurk Fuel Company, Pautler Oil Service, State of New York Supreme Court, County of Erie, Index Number I2001-11247

Client: Richard G. Berger Attorney At Law, Buffalo, New York

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the

known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Judgement in favor of defendant.

SELECTED AIR MODELING RESEARCH/PROJECTS

Client – Confidential

Dr. Clark performed a comprehensive evaluation of criteria pollutants, air toxins, and particulate matter emissions from a carbon black production facility to determine the impacts on the surrounding communities. The results of the dispersion model will be used to estimate acute and chronic exposure concentrations to multiple contaminants and will be incorporated into a comprehensive risk evaluation.

Client – Confidential

Dr. Clark performed a comprehensive evaluation of air toxins and particulate matter emissions from a railroad tie manufacturing facility to determine the impacts on the surrounding communities. The results of the dispersion model have been used to estimate acute and chronic exposure concentrations to multiple contaminants and have been incorporated into a comprehensive risk evaluation.

Client – Los Angeles Alliance for a New Economy (LAANE), Los Angeles, California

Dr. Clark is advising the LAANE on air quality issues related to current flight operations at the Los Angeles International Airport (LAX) operated by the Los Angeles World Airport (LAWA) Authority. He is working with the LAANE and LAX staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client – City of Santa Monica, Santa Monica, California

Dr. Clark is advising the City of Santa Monica on air quality issues related to current flight operations at the facility. He is working with the City staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client: Omnitrans, San Bernardino, California

Dr. Clark managed a public health survey of three communities near transit fueling facilities in San Bernardino and Montclair California in compliance with California Senate Bill 1927. The survey included an epidemiological survey of the effected communities, emission surveys of local businesses, dispersion modeling to determine potential emission concentrations within the communities, and a comprehensive risk assessment of each community. The results of the study were presented to the Governor as mandated by Senate Bill 1927.

Client: Confidential, San Francisco, California

Summarized cancer types associated with exposure to metals and smoking. Researched the specific types of cancers associated with exposure to metals and smoking. Provided causation analysis of the association between cancer types and exposure for use by non-public health professionals.

Client: Confidential, Minneapolis, Minnesota

Prepared human health risk assessment of workers exposed to VOCs from neighboring petroleum storage/transport facility. Reviewed the systems in place for distribution of petroleum hydrocarbons to identify chemicals of concern (COCs), prepared comprehensive toxicological summaries of COCs, and quantified potential risks from carcinogens and non-carcinogens to receptors at or adjacent to site. This evaluation was used in the support of litigation.

Client – United Kingdom Environmental Agency

Dr. Clark is part of team that performed comprehensive evaluation of soil vapor intrusion of VOCs from former landfill adjacent residences for the United Kingdom's Environment

Agency. The evaluation included collection of liquid and soil vapor samples at site, modeling of vapor migration using the Johnson Ettinger Vapor Intrusion model, and calculation of site-specific health based vapor thresholds for chlorinated solvents, aromatic hydrocarbons, and semi-volatile organic compounds. The evaluation also included a detailed evaluation of the use, chemical characteristics, fate and transport, and toxicology of chemicals of concern (COC). The results of the evaluation have been used as a briefing tool for public health professionals.

EMERGING/PERSISTENT CONTAMINANT RESEARCH/PROJECTS

Client: Ameren Services, St. Louis, Missouri

Managed the preparation of a comprehensive human health risk assessment of workers and residents at or near an NPL site in Missouri. The former operations at the Property included the servicing and repair of electrical transformers, which resulted in soils and groundwater beneath the Property and adjacent land becoming impacted with PCB and chlorinated solvent compounds. The results were submitted to U.S. EPA for evaluation and will be used in the final ROD.

Client: City of Santa Clarita, Santa Clarita, California

Dr. Clark is managing the oversight of the characterization, remediation and development activities of a former 1,000 acre munitions manufacturing facility for the City of Santa Clarita. The site is impacted with a number of contaminants including perchlorate, unexploded ordinance, and volatile organic compounds (VOCs). The site is currently under a number of regulatory consent orders, including an Immanent and Substantial Endangerment Order. Dr. Clark is assisting the impacted municipality with the development of remediation strategies, interaction with the responsible parties and stakeholders, as well as interfacing with the regulatory agency responsible for oversight of the site cleanup.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of perchlorate in environment. Dr. Clark evaluated the production, use, chemical characteristics, fate and transport, toxicology, and remediation of perchlorate. Perchlorates form the basis of solid rocket fuels and have recently been detected in water supplies in the United States. The results of this research

were presented to the USEPA, National GroundWater, and ultimately published in a recent book entitled *Perchlorate in the Environment.*

Client – Confidential, Los Angeles, California

Dr. Clark is performing a comprehensive review of the potential for pharmaceuticals and their by-products to impact groundwater and surface water supplies. This evaluation will include a review if available data on the history of pharmaceutical production in the United States; the chemical characteristics of various pharmaceuticals; environmental fate and transport; uptake by xenobiotics; the potential effects of pharmaceuticals on water treatment systems; and the potential threat to public health. The results of the evaluation may be used as a briefing tool for non-public health professionals.

PUBLIC HEALTH/TOXICOLOGY

Client: Brayton Purcell, Novato, California

Dr. Clark performed a toxicological assessment of residents exposed to methyl-tertiary butyl ether (MTBE) from leaking underground storage tanks (LUSTs) adjacent to the subject property. The symptomology of residents and guests of the subject property were evaluated against the known outcomes in published literature to exposure to MTBE. The study found that residents had been exposed to MTBE in their drinking water; that concentrations of MTBE detected at the site were above regulatory guidelines; and, that the symptoms and outcomes expressed by residents and guests were consistent with symptoms and outcomes documented in published literature.

Client: Confidential, San Francisco, California

Identified and analyzed fifty years of epidemiological literature on workplace exposures to heavy metals. This research resulted in a summary of the types of cancer and non-cancer diseases associated with occupational exposure to chromium as well as the mortality and morbidity rates.

Client: Confidential, San Francisco, California

Summarized major public health research in United States. Identified major public health research efforts within United States over last twenty years. Results were used as a briefing tool for non-public health professionals.

Client: Confidential, San Francisco, California

Quantified the potential multi-pathway dose received by humans from a pesticide applied indoors. Part of team that developed exposure model and evaluated exposure concentrations in a comprehensive report on the plausible range of doses received by a specific person. This evaluation was used in the support of litigation.

Client: Covanta Energy, Westwood, California

Evaluated health risk from metals in biosolids applied as soil amendment on agricultural lands. The biosolids were created at a forest waste cogeneration facility using 96% whole tree wood chips and 4 percent green waste. Mass loading calculations were used to estimate Cr(VI) concentrations in agricultural soils based on a maximum loading rate of 40 tons of biomass per acre of agricultural soil. The results of the study were used by the Regulatory agency to determine that the application of biosolids did not constitute a health risk to workers applying the biosolids or to residences near the agricultural lands.

Client – United Kingdom Environmental Agency

Oversaw a comprehensive toxicological evaluation of methyl-*tertiary* butyl ether (M*t*BE) for the United Kingdom's Environment Agency. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of M*t*BE. The results of the evaluation have been used as a briefing tool for public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of *tertiary* butyl alcohol (TBA) in municipal drinking water system. TBA is the primary breakdown product of M*t*BE, and is suspected to be the primary cause of M*t*BE toxicity. This evaluation will include available information on the production, use, chemical characteristics, fate and transport in the environment, absorption, distribution, routes of detoxification, metabolites, carcinogenic potential, and remediation of TBA. The results of the evaluation were used as a briefing tool for non-public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of methyl *tertiary* butyl ether (MTBE) in municipal drinking water system. MTBE is a chemical added to gasoline to increase the octane

rating and to meet Federally mandated emission criteria. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of MTBE. The results of the evaluation have been were used as a briefing tool for non-public health professionals.

Client – Ministry of Environment, Lands & Parks, British Columbia

Dr. Clark assisted in the development of water quality guidelines for methyl tertiary-butyl ether (MTBE) to protect water uses in British Columbia (BC). The water uses to be considered includes freshwater and marine life, wildlife, industrial, and agricultural (e.g., irrigation and livestock watering) water uses. Guidelines from other jurisdictions for the protection of drinking water, recreation and aesthetics were to be identified.

Client: Confidential, Los Angeles, California

Prepared physiologically based pharmacokinetic (PBPK) assessment of lead risk of receptors at middle school built over former industrial facility. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client: Kaiser Venture Incorporated, Fontana, California

Prepared PBPK assessment of lead risk of receptors at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

RISK ASSESSMENTS/REMEDIAL INVESTIGATIONS

Client: Confidential, Atlanta, Georgia

Researched potential exposure and health risks to community members potentially exposed to creosote, polycyclic aromatic hydrocarbons, pentachlorophenol, and dioxin compounds used at a former wood treatment facility. Prepared a comprehensive toxicological summary of the chemicals of concern, including the chemical characteristics, absorption, distribution, and carcinogenic potential. Prepared risk characterization of the carcinogenic and non-carcinogenic chemicals based on the exposure assessment to quantify the potential risk to members of the surrounding community. This evaluation was used to help settle class-action tort.

Client: Confidential, Escondido, California

Prepared comprehensive Preliminary Endangerment Assessment (PEA) of dense non-aqueous liquid phase hydrocarbon (chlorinated solvents) contamination at a former printed circuit board manufacturing facility. This evaluation was used for litigation support and may be used as the basis for reaching closure of the site with the lead regulatory agency.

Client: Confidential, San Francisco, California

Summarized epidemiological evidence for connective tissue and autoimmune diseases for product liability litigation. Identified epidemiological research efforts on the health effects of medical prostheses. This research was used in a meta-analysis of the health effects and as a briefing tool for non-public health professionals.

Client: Confidential, Bogotá, Columbia

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of a 13.7 hectares plastic manufacturing facility in Bogotá, Colombia The risk assessment was used as the basis for the remedial goals and closure of the site.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally cadmium) and VOCs from soil and soil vapor at 12-acre former crude oilfield and municipal landfill. The site is currently used as a middle school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and was used as the basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Managed remedial investigation (RI) of heavy metals and volatile organic chemicals (VOCs) for a 15-acre former manufacturing facility. The RI investigation of the site included over 800 different sampling locations and the collection of soil, soil gas, and groundwater samples. The site is currently used as a year round school housing approximately 3,000 children. The Remedial Investigation was performed in a manner

that did not interrupt school activities and met the time restrictions placed on the project by the overseeing regulatory agency. The RI Report identified the off-site source of metals that impacted groundwater beneath the site and the sources of VOCs in soil gas and groundwater. The RI included a numerical model of vapor intrusion into the buildings at the site from the vadose zone to determine exposure concentrations and an air dispersion model of VOCs from the proposed soil vapor treatment system. The Feasibility Study for the Site is currently being drafted and may be used as the basis for granting closure of the site by DTSC.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally lead), VOCs, SVOCs, and PCBs from soil, soil vapor, and groundwater at 15-acre former manufacturing facility. The site is currently used as a year round school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and will be basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of VOC vapor intrusion into classrooms of middle school that was former 15-acre industrial facility. Using the Johnson-Ettinger Vapor Intrusion model, the evaluation determined acceptable soil gas concentrations at the site that did not pose health threat to students, staff, and residents. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client –Dominguez Energy, Carson, California

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of 6-acre portion of a 500-acre oil and natural gas production facility in Carson, California. The risk assessment was used as the basis for closure of the site.

Kaiser Ventures Incorporated, Fontana, California

Prepared health risk assessment of semi-volatile organic chemicals and metals for a fifty-year old wastewater treatment facility used at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

ANR Freight - Los Angeles, California

Prepared a comprehensive Preliminary Endangerment Assessment (PEA) of petroleum hydrocarbon and metal contamination of a former freight depot. This evaluation was as the basis for reaching closure of the site with lead regulatory agency.

Kaiser Ventures Incorporated, Fontana, California

Prepared comprehensive health risk assessment of semi-volatile organic chemicals and metals for 23-acre parcel of a 1,100-acre former steel mill. The health risk assessment was used to determine clean up goals and as the basis for granting closure of the site by lead regulatory agency. Air dispersion modeling using ISCST3 was performed to determine downwind exposure point concentrations at sensitive receptors within a 1 kilometer radius of the site. The results of the health risk assessment were presented at a public meeting sponsored by the Department of Toxic Substances Control (DTSC) in the community potentially affected by the site.

Unocal Corporation - Los Angeles, California

Prepared comprehensive assessment of petroleum hydrocarbons and metals for a former petroleum service station located next to sensitive population center (elementary school). The assessment used a probabilistic approach to estimate risks to the community and was used as the basis for granting closure of the site by lead regulatory agency.

Client: Confidential, Los Angeles, California

Managed oversight of remedial investigation most contaminated heavy metal site in California. Lead concentrations in soil excess of 68,000,000 parts per billion (ppb) have been measured at the site. This State Superfund Site was a former hard chrome plating operation that operated for approximately 40-years.

Client: Confidential, San Francisco, California

Coordinator of regional monitoring program to determine background concentrations of metals in air. Acted as liaison with SCAQMD and CARB to perform co-location sampling and comparison of accepted regulatory method with ASTM methodology.

Client: Confidential, San Francisco, California

Analyzed historical air monitoring data for South Coast Air Basin in Southern California and potential health risks related to ambient concentrations of carcinogenic metals and volatile organic compounds. Identified and reviewed the available literature and calculated risks from toxins in South Coast Air Basin.

IT Corporation, North Carolina

Prepared comprehensive evaluation of potential exposure of workers to air-borne VOCs at hazardous waste storage facility under SUPERFUND cleanup decree. Assessment used in developing health based clean-up levels.

Professional Associations

American Public Health Association (APHA)

Association for Environmental Health and Sciences (AEHS)

American Chemical Society (ACS)

California Redevelopment Association (CRA)

International Society of Environmental Forensics (ISEF)

Society of Environmental Toxicology and Chemistry (SETAC)

Publications and Presentations:

Books and Book Chapters

Sullivan, P., **J.J. J. Clark,** F.J. Agardy, and P.E. Rosenfeld. (2007). *Synthetic Toxins In The Food, Water and Air of American Cities*. Elsevier, Inc. Burlington, MA.

Sullivan, P. and **J.J. J. Clark**. 2006. *Choosing Safer Foods, A Guide To Minimizing Synthetic Chemicals In Your Diet*. Elsevier, Inc. Burlington, MA.

Sullivan, P., Agardy, F.J., and **J.J.J. Clark**. 2005. *The Environmental Science of Drinking Water*. Elsevier, Inc. Burlington, MA.

Sullivan, P.J., Agardy, F.J., **Clark, J.J.J.** 2002. *America's Threatened Drinking Water: Hazards and Solutions*. Trafford Publishing, Victoria B.C.

Clark, J.J.J. 2001. "TBA: Chemical Properties, Production & Use, Fate and Transport, Toxicology, Detection in Groundwater, and Regulatory Standards" in *Oxygenates in the Environment.* Art Diaz, Ed.. Oxford University Press: New York.

Clark, J.J.J. 2000. "Toxicology of Perchlorate" in *Perchlorate in the Environment.* Edward Urbansky, Ed. Kluwer/Plenum: New York.

Clark, J.J.J. 1995. Probabilistic Forecasting of Volatile Organic Compound Concentrations At The Soil Surface From Contaminated Groundwater. UMI.

Baker, J.; **Clark, J.J.J.**; Stanford, J.T. 1994. Ex Situ Remediation of Diesel Contaminated Railroad Sand by Soil Washing. Principles and Practices for Diesel Contaminated Soils, Volume III. P.T. Kostecki, E.J. Calabrese, and C.P.L. Barkan, eds. Amherst Scientific Publishers, Amherst, MA. pp 89-96.

Journal and Proceeding Articles

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008) A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equialency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. Organohalogen Compounds, Volume 70 (2008) page 002254.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008) Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. Organohalogen Compounds, Volume 70 (2008) page 000527

Hensley A.R., Scott, A., Rosenfeld P.E., **Clark, J.J.J.** (2007). "Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility." *Environmental Research.* 105:194-199.

Rosenfeld, P.E., **Clark, J. J.,** Hensley, A.R., and Suffet, I.H. 2007. "The Use Of An Odor Wheel Classification For The Evaluation of Human Health Risk Criteria For Compost Facilities" Water Science & Technology. 55(5): 345-357.

Hensley A.R., Scott, A., Rosenfeld P.E., **Clark, J.J.J.** 2006. "Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility." The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006, August 21 – 25, 2006. Radisson SAS Scandinavia Hotel in Oslo Norway.

Rosenfeld, P.E., **Clark, J. J.** and Suffet, I.H. 2005. "The Value Of An Odor Quality Classification Scheme For Compost Facility Evaluations" The U.S. Composting Council's 13th Annual Conference January 23 - 26, 2005, Crowne Plaza Riverwalk, San Antonio, TX.

Rosenfeld, P.E., **Clark, J. J.** and Suffet, I.H. 2004. "The Value Of An Odor Quality Classification Scheme For Urban Odor" WEFTEC 2004. 77th Annual Technical Exhibition & Conference October 2 - 6, 2004, Ernest N. Morial Convention Center, New Orleans, Louisiana.

Clark, J.J.J. 2003. "Manufacturing, Use, Regulation, and Occurrence of a Known Endocrine Disrupting Chemical (EDC), 2,4-Dichlorophnoxyacetic Acid (2,4-D) in California Drinking Water Supplies." National Groundwater Association Southwest Focus Conference: Water Supply and Emerging Contaminants. Minneapolis, MN. March 20, 2003.

Rosenfeld, P. and **J.J.J. Clark**. 2003. "Understanding Historical Use, Chemical Properties, Toxicity, and Regulatory Guidance" National Groundwater Association Southwest Focus Conference: Water Supply and Emerging Contaminants. Phoenix, AZ. February 21, 2003.

Clark, J.J.J., Brown A. 1999. Perchlorate Contamination: Fate in the Environment and Treatment Options. In Situ and On-Site Bioremediation, Fifth International Symposium. San Diego, CA, April, 1999.

Clark, J.J.J. 1998. Health Effects of Perchlorate and the New Reference Dose (RfD). Proceedings From the Groundwater Resource Association Seventh Annual Meeting, Walnut Creek, CA, October 23, 1998.

Browne, T., **Clark, J.J.J.** 1998. Treatment Options For Perchlorate In Drinking Water. Proceedings From the Groundwater Resource Association Seventh Annual Meeting, Walnut Creek, CA, October 23, 1998.

Clark, J.J.J., Brown, A., Rodriguez, R. 1998. The Public Health Implications of MtBE and Perchlorate in Water: Risk Management Decisions for Water Purveyors. Proceedings of the National Ground Water Association, Anaheim, CA, June 3-4, 1998.

Clark J.J.J., Brown, A., Ulrey, A. 1997. Impacts of Perchlorate On Drinking Water In The Western United States. U.S. EPA Symposium on Biological and Chemical Reduction of Chlorate and Perchlorate, Cincinnati, OH, December 5, 1997.

Clark, J.J.J.; Corbett, G.E.; Kerger, B.D.; Finley, B.L.; Paustenbach, D.J. 1996. Dermal Uptake of Hexavalent Chromium In Human Volunteers: Measures of Systemic Uptake From Immersion in Water At 22 PPM. Toxicologist. 30(1):14.

Dodge, D.G.; **Clark, J.J.J.**; Kerger, B.D.; Richter, R.O.; Finley, B.L.; Paustenbach, D.J. 1996. Assessment of Airborne Hexavalent Chromium In The Home Following Use of Contaminated Tapwater. Toxicologist. 30(1):117-118.

Paulo, M.T.; Gong, H., Jr.; **Clark, J.J.J.** (1992). Effects of Pretreatment with Ipratroprium Bromide in COPD Patients Exposed to Ozone. American Review of Respiratory Disease. 145(4):A96.

Harber, P.H.; Gong, H., Jr.; Lachenbruch, A.; **Clark, J.**; Hsu, P. (1992). Respiratory Pattern Effect of Acute Sulfur Dioxide Exposure in Asthmatics. American Review of Respiratory Disease. 145(4):A88.

McManus, M.S.; Gong, H., Jr.; Clements, P.; **Clark, J.J.J.** (1991). Respiratory Response of Patients With Interstitial Lung Disease To Inhaled Ozone. American Review of Respiratory Disease. 143(4):A91.

Gong, H., Jr.; Simmons, M.S.; McManus, M.S.; Tashkin, D.P.; Clark, V.A.; Detels, R.; **Clark, J.J.** (1990). Relationship Between Responses to Chronic Oxidant and Acute

Ozone Exposures in Residents of Los Angeles County. American Review of Respiratory Disease. 141(4):A70.

Tierney, D.F. and **J.J.J. Clark.** (1990). Lung Polyamine Content Can Be Increased By Spermidine Infusions Into Hyperoxic Rats. American Review of Respiratory Disease. 139(4):A41.

Exhibit B

AERMOD Model Output

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** BREEZE AERMOD
** Trinity Consultants
** VERSION  11.0

CO STARTING
CO TITLEONE  KPAC COIL AVENUE FREEZER EXPANSION PROJECT
CO TITLETWO  1420 Coil Avenue, Wilmington, CA 90074
CO MODELOPT  DFAULT  CONC  NODRYDPLT  NOWETDPLT
CO RUNORNOT  RUN
CO AVERTIME  PERIOD
CO URBANOPT  2276.89  AREA1  1
CO POLLUTID  DPM
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  IA0AM1RA  AREAPOLY  385067.2  3740104.3  0
SO SRCPARAM  IA0AM1RA  3.337856E-07  5  5  2.5
SO AREAVERT  IA0AM1RA  385067.2 3740104.3  385038.5 3740118.7  384975.2 3740004.8  385001.4 3739989.6
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SO URBANSRC  IA0AM1RA
SO EMISFACT  IA0AM1RA  HRDOW  0  0  0  0  0  0  0  1  1  1  1  0  1  1  1  1  0  0  0  0  0  0  0  0  0  0
SO EMISFACT  IA0AM1RA  HRDOW  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
SO EMISFACT  IA0AM1RA  HRDOW  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
SO SRCGROUP  ALL
SO FINISHED

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** RCPDESCR  East Cruces And East Sandison Residences
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** RCPDESCR  East Cruces And East Sandison Residences
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** RCPDESCR  East Cruces And East Sandison Residences
RE DISCCART  384725.1  3740041.5  12.19  12.19
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** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384813.9  3739875.3  10.36  10.36
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384823.9  3739875.3  10.36  10.36
** RCPDESCR  Blinn and East O Street Residences
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** RCPDESCR  Blinn and East O Street Residences
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** RCPDESCR  Blinn and East O Street Residences
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RE DISCCART  384823.9  3739895.3  10.62  10.62
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RE DISCCART  384743.9  3739935.3  11.28  11.28
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** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384833.9  3739945.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384843.9  3739945.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384853.9  3739945.3  10.95  10.95
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384863.9  3739945.3  10.93  10.93
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384873.9  3739945.3  10.93  10.93
** RCPDESCR  Blinn and East O Street Residences
```

```
RE DISCCART  384883.9  3739945.3  10.93  10.93
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384893.9  3739945.3  10.93  10.93
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384903.9  3739945.3  10.93  10.93
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384913.9  3739945.3  10.8  10.8
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384783.9  3739955.3  11.28  11.28
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384793.9  3739955.3  11.28  11.28
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384803.9  3739955.3  11.26  11.26
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384813.9  3739955.3  11.23  11.23
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384823.9  3739955.3  11.23  11.23
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384833.9  3739955.3  11.23  11.23
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384843.9  3739955.3  11.1  11.1
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384853.9  3739955.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384863.9  3739955.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384873.9  3739955.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384883.9  3739955.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384893.9  3739955.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384903.9  3739955.3  10.97  10.97
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384913.9  3739955.3  10.95  10.95
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384923.9  3739955.3  10.8  10.8
** RCPDESCR  Blinn and East O Street Residences
RE DISCCART  384717.2  3739782.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739782.4  9.95  9.95
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739782.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739782.4  9.78  9.78
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739782.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739782.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739782.4  9.64  9.64
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739782.4  9.62  9.62
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739782.4  9.62  9.62
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739782.4  9.48  9.48
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739782.4  9.45  9.45
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739782.4  9.45  9.45
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384717.2  3739792.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739792.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739792.4  10.09  10.09
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739792.4  9.95  9.95
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** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739792.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739792.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739792.4  9.78  9.78
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739792.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739792.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739792.4  9.64  9.64
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739792.4  9.62  9.62
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739792.4  9.62  9.62
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384717.2  3739802.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739802.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739802.4  10.25  10.25
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739802.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739802.4  10.09  10.09
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739802.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739802.4  9.95  9.95
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739802.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739802.4  9.78  9.78
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739802.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739802.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739802.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384837.2  3739802.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384717.2  3739812.4  10.53  10.53
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739812.4  10.39  10.39
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739812.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739812.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739812.4  10.25  10.25
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739812.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739812.4  10.09  10.09
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739812.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739812.4  9.95  9.95
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739812.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739812.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739812.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384837.2  3739812.4  9.78  9.78
** RCPDESCR  East Colon and Blinn Ave Residences
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RE DISCCART  384847.2  3739812.4  9.75  9.75
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384717.2  3739822.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739822.4  10.56  10.56
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739822.4  10.53  10.53
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739822.4  10.39  10.39
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739822.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739822.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739822.4  10.25  10.25
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739822.4  10.09  10.09
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739822.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739822.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739822.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739822.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384837.2  3739822.4  9.95  9.95
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384847.2  3739822.4  9.93  9.93
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384717.2  3739832.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739832.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739832.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739832.4  10.56  10.56
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739832.4  10.39  10.39
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739832.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739832.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739832.4  10.25  10.25
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739832.4  10.09  10.09
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739832.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739832.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739832.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384837.2  3739832.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384847.2  3739832.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384857.2  3739832.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384717.2  3739842.4  10.7  10.7
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739842.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739842.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739842.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739842.4  10.42  10.42
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** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739842.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739842.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739842.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739842.4  10.25  10.25
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739842.4  10.09  10.09
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739842.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739842.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384837.2  3739842.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384847.2  3739842.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384857.2  3739842.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384717.2  3739852.4  10.86  10.86
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384727.2  3739852.4  10.7  10.7
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384737.2  3739852.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384747.2  3739852.4  10.67  10.67
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384757.2  3739852.4  10.56  10.56
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384767.2  3739852.4  10.39  10.39
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384777.2  3739852.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384787.2  3739852.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384797.2  3739852.4  10.36  10.36
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384807.2  3739852.4  10.25  10.25
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384817.2  3739852.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384827.2  3739852.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384837.2  3739852.4  10.09  10.09
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384847.2  3739852.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384857.2  3739852.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384867.2  3739852.4  10.06  10.06
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384847.2  3739862.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384857.2  3739862.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384867.2  3739862.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
RE DISCCART  384877.2  3739862.4  10.23  10.23
** RCPDESCR  East Colon and Blinn Ave Residences
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** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384764.0  3739711.2  8.97  8.97
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384774.0  3739711.2  8.91  8.91
** RCPDESCR  East Colon and Drumm Ave Residences
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RE DISCCART  384784.0  3739711.2  8.84  8.84
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384744.0  3739721.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
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RE DISCCART  384764.0  3739721.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384774.0  3739721.2  9.06  9.06
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384784.0  3739721.2  8.97  8.97
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384724.0  3739731.2  9.21  9.21
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384734.0  3739731.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384744.0  3739731.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384754.0  3739731.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384764.0  3739731.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384774.0  3739731.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384784.0  3739731.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384794.0  3739731.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384724.0  3739741.2  9.36  9.36
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384734.0  3739741.2  9.28  9.28
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384744.0  3739741.2  9.28  9.28
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384754.0  3739741.2  9.21  9.21
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384764.0  3739741.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384774.0  3739741.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384784.0  3739741.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384794.0  3739741.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384724.0  3739751.2  9.52  9.52
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384734.0  3739751.2  9.45  9.45
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384744.0  3739751.2  9.45  9.45
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384754.0  3739751.2  9.36  9.36
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384764.0  3739751.2  9.28  9.28
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384774.0  3739751.2  9.21  9.21
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384784.0  3739751.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384794.0  3739751.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384804.0  3739751.2  9.14  9.14
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384734.0  3739761.2  9.58  9.58
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384744.0  3739761.2  9.52  9.52
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384754.0  3739761.2  9.45  9.45
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384764.0  3739761.2  9.45  9.45
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** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384774.0  3739761.2  9.36  9.36
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384784.0  3739761.2  9.28  9.28
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384794.0  3739761.2  9.28  9.28
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384804.0  3739761.2  9.28  9.28
** RCPDESCR  East Colon and Drumm Ave Residences
RE DISCCART  384814.0  3739761.2  9.28  9.28
** RCPDESCR  East Colon and Drumm Ave Residences
** BOUNDARY  IA0AM1AX
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RE DISCCART  385150  3739908.7  10.36  10.36
RE DISCCART  385185.1  3739994.7  10.76  10.76
RE DISCCART  385204.2  3740061.6  11.05  11.05
RE DISCCART  385213.8  3740131.8  11.51  11.51
RE DISCCART  385201.8  3740178  12.19  12.19
RE DISCCART  385185.1  3740215.4  12.18  12.18
RE DISCCART  385146  3740273.6  11.89  11.89
RE DISCCART  385130.9  3740293.5  11.64  11.64
RE DISCCART  384935.7  3739946.9  10.67  10.67
RE DISCCART  384890.3  3739869.6  10.33  10.33
RE DISCCART  384835.3  3739778  9.45  9.45
RE DISCCART  384797.9  3739708.7  8.84  8.84
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ME SURFFILE  "C:\Users\jclar\OneDrive\Clark and Associates\Project 316 - ABJC - KPAC Coil Avenue
ISMND\KLGB_V11_trimmed.sfc"
** SURFFILE  "C:\Users\jclar\OneDrive\Clark and Associates\Project 316 - ABJC - KPAC Coil Avenue
ISMND\KLGB_V11_trimmed.sfc"
ME PROFFILE  "C:\Users\jclar\OneDrive\Clark and Associates\Project 316 - ABJC - KPAC Coil Avenue
ISMND\KLGB_V11_trimmed.pfl"
** PROFFILE  "C:\Users\jclar\OneDrive\Clark and Associates\Project 316 - ABJC - KPAC Coil Avenue
ISMND\KLGB_V11_trimmed.pfl"
ME SURFDATA  23129 2015
ME UAIRDATA  3190 2015
ME PROFBASE  9.65  METERS
ME FINISHED

OU STARTING
OU FILEFORM  FIX
OU PLOTFILE  PERIOD  ALL  ALL`PERIOD.plt  10000
OU POSTFILE  PERIOD  ALL  UNFORM  ALL`PERIOD.bin  10001
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            5 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 CO W320      11       URBOPT: Input Parameter May Be Out-of-Range for Parameter       URB-POP
 ME W186    1143       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
 ME W187    1143       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
 OU W565    1147       PERPLT: Possible Conflict With Dynamically Allocated FUNIT     PLOTFILE
```

```
 OU W565    1148       PERPST: Possible Conflict With Dynamically Allocated FUNIT     POSTFILE

 ************************************
 *** SETUP Finishes Successfully ***
 ************************************

 *** AERMOD - VERSION 22112  ***   ***  KPAC COIL AVENUE FREEZER EXPANSION PROJECT                          ***
     05/19/25
 *** AERMET - VERSION  22112 ***   ***  1420 Coil Avenue, Wilmington, CA 90074                             ***
   11:56:38

   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  URBAN  ADJ_U*

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
        for Total of    1 Urban Area(s):
   Urban Population =      2276.9 ;  Urban Roughness Length =  1.000 m
      * Urban Roughness Length of 1.0 Meter Used.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
      * CCVR_Sub - Meteorological data includes CCVR substitutions
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: DPM

 **Model Calculates PERIOD Averages Only

 **This Run Includes:      1 Source(s);       1 Source Group(s); and     559 Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                 and:      0 SWPOINT source(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  22112

 **Output Options Selected:
          Model Outputs Tables of PERIOD Averages by Receptor
          Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     9.65 ;  Decay Coef. =    0.000     ;  Rot. Angle
```

=   0.0
                  Emission Units = GRAMS/SEC   ; Emission Rate Unit Factor =
0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =   3.6 MB of RAM.

 **Input Runstream File: aermod.inp

 **Output Print File: aermod.out

                                          *** AREAPOLY SOURCE DATA ***

              NUMBER EMISSION RATE   LOCATION OF AREA BASE   RELEASE NUMBER   INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC   X   Y   ELEV.   HEIGHT OF VERTS.   SZ   SOURCE SCALAR VARY
     ID   CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)   (METERS)   BY
 -
- - - - - -

 IA0AM1RA   0   0.33379E-06 385067.2 3740104.3   0.0   5.00   5   2.50   YES   HRDOW

                                       *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
 -----------   ----------

  ALL   IA0AM1RA   ,

                                      *** SOURCE IDs DEFINED AS URBAN SOURCES ***

  URBAN ID   URBAN POP   SOURCE IDs
  --------   ---------   ----------

                2277.   IA0AM1RA   ,

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = IA0AM1RA ; SOURCE TYPE = AREAPOLY :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.1000E+01												
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.0000E+00	13	.1000E+01	14	.1000E+01	15	.1000E+01
16	.1000E+01												
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00
24	.0000E+00												
DAY OF WEEK = SATURDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00												
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00
16	.0000E+00												
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00
24	.0000E+00												
DAY OF WEEK = SUNDAY													
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00
8	.0000E+00												
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00
16	.0000E+00												
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00
24	.0000E+00												

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(384875.4, 3739981.5, 11.3, 11.3, 0.0); (384885.4, 3739981.5, 11.3, 11.3, 0.0);
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*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(384725.1, 3739981.5, 11.9, 11.9, 0.0); (384735.1, 3739981.5, 11.8, 11.8, 0.0);
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*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(384775.1, 3740031.5, 12.2, 12.2, 0.0); (384785.1, 3740031.5, 12.2, 12.2, 0.0);
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(384865.1, 3740041.5, 12.2, 12.2, 0.0); (384785.1, 3740051.5, 12.3, 12.3, 0.0);
(384795.1, 3740051.5, 12.3, 12.3, 0.0); (384805.1, 3740051.5, 12.3, 12.3, 0.0);
(384815.1, 3740051.5, 12.3, 12.3, 0.0); (384825.1, 3740051.5, 12.3, 12.3,

0.0);
(384835.1, 3740051.5, 12.2, 12.2, 0.0); (384845.1, 3740051.5, 12.2, 12.2,
0.0);
(384855.1, 3740051.5, 12.2, 12.2, 0.0); (384713.9, 3739875.3, 11.0, 11.0,
0.0);
(384723.9, 3739875.3, 11.0, 11.0, 0.0); (384733.9, 3739875.3, 10.8, 10.8,
0.0);
(384743.9, 3739875.3, 10.7, 10.7, 0.0); (384753.9, 3739875.3, 10.7, 10.7,
0.0);
(384763.9, 3739875.3, 10.7, 10.7, 0.0); (384773.9, 3739875.3, 10.6, 10.6,
0.0);
(384783.9, 3739875.3, 10.5, 10.5, 0.0); (384793.9, 3739875.3, 10.4, 10.4,
0.0);
(384803.9, 3739875.3, 10.4, 10.4, 0.0); (384813.9, 3739875.3, 10.4, 10.4,
0.0);
(384823.9, 3739875.3, 10.4, 10.4, 0.0); (384833.9, 3739875.3, 10.4, 10.4,
0.0);
(384843.9, 3739875.3, 10.4, 10.4, 0.0); (384853.9, 3739875.3, 10.4, 10.4,
0.0);
(384863.9, 3739875.3, 10.4, 10.4, 0.0); (384873.9, 3739875.3, 10.4, 10.4,
0.0);
(384713.9, 3739885.3, 11.0, 11.0, 0.0); (384723.9, 3739885.3, 11.0, 11.0,
0.0);
(384733.9, 3739885.3, 11.0, 11.0, 0.0); (384743.9, 3739885.3, 10.8, 10.8,
0.0);
(384753.9, 3739885.3, 10.7, 10.7, 0.0); (384763.9, 3739885.3, 10.7, 10.7,
0.0);
(384773.9, 3739885.3, 10.7, 10.7, 0.0); (384783.9, 3739885.3, 10.7, 10.7,
0.0);
(384793.9, 3739885.3, 10.6, 10.6, 0.0); (384803.9, 3739885.3, 10.5, 10.5,
0.0);
(384813.9, 3739885.3, 10.4, 10.4, 0.0); (384823.9, 3739885.3, 10.4, 10.4,
0.0);
(384833.9, 3739885.3, 10.4, 10.4, 0.0); (384843.9, 3739885.3, 10.4, 10.4,
0.0);
(384853.9, 3739885.3, 10.4, 10.4, 0.0); (384863.9, 3739885.3, 10.4, 10.4,
0.0);
(384873.9, 3739885.3, 10.4, 10.4, 0.0); (384883.9, 3739885.3, 10.4, 10.4,
0.0);
(384713.9, 3739895.3, 11.1, 11.1, 0.0); (384723.9, 3739895.3, 11.0, 11.0,
0.0);
(384733.9, 3739895.3, 11.0, 11.0, 0.0); (384743.9, 3739895.3, 11.0, 11.0,
0.0);
(384753.9, 3739895.3, 10.8, 10.8, 0.0); (384763.9, 3739895.3, 10.7, 10.7,
0.0);
(384773.9, 3739895.3, 10.7, 10.7, 0.0); (384783.9, 3739895.3, 10.7, 10.7,
0.0);
(384793.9, 3739895.3, 10.7, 10.7, 0.0); (384803.9, 3739895.3, 10.7, 10.7,
0.0);
(384813.9, 3739895.3, 10.6, 10.6, 0.0); (384823.9, 3739895.3, 10.6, 10.6,
0.0);
(384833.9, 3739895.3, 10.5, 10.5, 0.0); (384843.9, 3739895.3, 10.4, 10.4,
0.0);
(384853.9, 3739895.3, 10.4, 10.4, 0.0); (384863.9, 3739895.3, 10.4, 10.4,
0.0);
(384873.9, 3739895.3, 10.4, 10.4, 0.0); (384883.9, 3739895.3, 10.4, 10.4,
0.0);
(384713.9, 3739905.3, 11.3, 11.3, 0.0); (384723.9, 3739905.3, 11.1, 11.1,
0.0);

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)

(METERS)

(384733.9, 3739905.3, 11.0, 11.0, 0.0); (384743.9, 3739905.3, 11.0, 11.0, 0.0);
(384753.9, 3739905.3, 11.0, 11.0, 0.0); (384763.9, 3739905.3, 10.9, 10.9, 0.0);
(384773.9, 3739905.3, 10.8, 10.8, 0.0); (384783.9, 3739905.3, 10.7, 10.7, 0.0);
(384793.9, 3739905.3, 10.7, 10.7, 0.0); (384803.9, 3739905.3, 10.7, 10.7, 0.0);
(384813.9, 3739905.3, 10.7, 10.7, 0.0); (384823.9, 3739905.3, 10.7, 10.7, 0.0);
(384833.9, 3739905.3, 10.7, 10.7, 0.0); (384843.9, 3739905.3, 10.6, 10.6, 0.0);
(384853.9, 3739905.3, 10.6, 10.6, 0.0); (384863.9, 3739905.3, 10.5, 10.5, 0.0);
(384873.9, 3739905.3, 10.4, 10.4, 0.0); (384883.9, 3739905.3, 10.4, 10.4, 0.0);
(384893.9, 3739905.3, 10.4, 10.4, 0.0); (384713.9, 3739915.3, 11.3, 11.3, 0.0);
(384723.9, 3739915.3, 11.3, 11.3, 0.0); (384733.9, 3739915.3, 11.1, 11.1, 0.0);
(384743.9, 3739915.3, 11.0, 11.0, 0.0); (384753.9, 3739915.3, 11.0, 11.0, 0.0);
(384763.9, 3739915.3, 11.0, 11.0, 0.0); (384773.9, 3739915.3, 11.0, 11.0, 0.0);
(384783.9, 3739915.3, 10.9, 10.9, 0.0); (384793.9, 3739915.3, 10.8, 10.8, 0.0);
(384803.9, 3739915.3, 10.7, 10.7, 0.0); (384813.9, 3739915.3, 10.7, 10.7, 0.0);
(384823.9, 3739915.3, 10.7, 10.7, 0.0); (384833.9, 3739915.3, 10.7, 10.7, 0.0);
(384843.9, 3739915.3, 10.7, 10.7, 0.0); (384853.9, 3739915.3, 10.7, 10.7, 0.0);
(384863.9, 3739915.3, 10.7, 10.7, 0.0); (384873.9, 3739915.3, 10.6, 10.6, 0.0);
(384883.9, 3739915.3, 10.6, 10.6, 0.0); (384893.9, 3739915.3, 10.6, 10.6, 0.0);
(384903.9, 3739915.3, 10.6, 10.6, 0.0); (384713.9, 3739925.3, 11.3, 11.3, 0.0);
(384723.9, 3739925.3, 11.3, 11.3, 0.0); (384733.9, 3739925.3, 11.3, 11.3, 0.0);
(384743.9, 3739925.3, 11.2, 11.2, 0.0); (384753.9, 3739925.3, 11.1, 11.1, 0.0);
(384763.9, 3739925.3, 11.0, 11.0, 0.0); (384773.9, 3739925.3, 11.0, 11.0, 0.0);
(384783.9, 3739925.3, 11.0, 11.0, 0.0); (384793.9, 3739925.3, 11.0, 11.0, 0.0);
(384803.9, 3739925.3, 10.9, 10.9, 0.0); (384813.9, 3739925.3, 10.9, 10.9, 0.0);
(384823.9, 3739925.3, 10.8, 10.8, 0.0); (384833.9, 3739925.3, 10.7, 10.7, 0.0);
(384843.9, 3739925.3, 10.7, 10.7, 0.0); (384853.9, 3739925.3, 10.7, 10.7, 0.0);
(384863.9, 3739925.3, 10.7, 10.7, 0.0); (384873.9, 3739925.3, 10.7, 10.7, 0.0);
(384883.9, 3739925.3, 10.7, 10.7, 0.0); (384893.9, 3739925.3, 10.7, 10.7, 0.0);
(384903.9, 3739925.3, 10.7, 10.7, 0.0); (384713.9, 3739935.3, 11.4, 11.4, 0.0);
(384723.9, 3739935.3, 11.3, 11.3, 0.0); (384733.9, 3739935.3, 11.3, 11.3, 0.0);
(384743.9, 3739935.3, 11.3, 11.3, 0.0); (384753.9, 3739935.3, 11.3, 11.3, 0.0);
(384763.9, 3739935.3, 11.2, 11.2, 0.0); (384773.9, 3739935.3, 11.1, 11.1, 0.0);
(384783.9, 3739935.3, 11.0, 11.0, 0.0); (384793.9, 3739935.3, 11.0, 11.0, 0.0);
(384803.9, 3739935.3, 11.0, 11.0, 0.0); (384813.9, 3739935.3, 11.0, 11.0,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(	384823.9,	3739935.3,	11.0,	11.0,	0.0);	(384833.9,	3739935.3,	10.9,	10.9,	0.0);
(	384843.9,	3739935.3,	10.9,	10.9,	0.0);	(384853.9,	3739935.3,	10.8,	10.8,	0.0);
(	384863.9,	3739935.3,	10.7,	10.7,	0.0);	(384873.9,	3739935.3,	10.7,	10.7,	0.0);
(	384883.9,	3739935.3,	10.7,	10.7,	0.0);	(384893.9,	3739935.3,	10.7,	10.7,	0.0);
(	384903.9,	3739935.3,	10.7,	10.7,	0.0);	(384913.9,	3739935.3,	10.7,	10.7,	0.0);
(	384713.9,	3739945.3,	11.6,	11.6,	0.0);	(384723.9,	3739945.3,	11.5,	11.5,	0.0);
(	384733.9,	3739945.3,	11.4,	11.4,	0.0);	(384743.9,	3739945.3,	11.3,	11.3,	0.0);
(	384753.9,	3739945.3,	11.3,	11.3,	0.0);	(384763.9,	3739945.3,	11.3,	11.3,	0.0);
(	384773.9,	3739945.3,	11.3,	11.3,	0.0);	(384783.9,	3739945.3,	11.2,	11.2,	0.0);
(	384793.9,	3739945.3,	11.2,	11.2,	0.0);	(384803.9,	3739945.3,	11.1,	11.1,	0.0);
(	384813.9,	3739945.3,	11.0,	11.0,	0.0);	(384823.9,	3739945.3,	11.0,	11.0,	0.0);
(	384833.9,	3739945.3,	11.0,	11.0,	0.0);	(384843.9,	3739945.3,	11.0,	11.0,	0.0);
(	384853.9,	3739945.3,	11.0,	11.0,	0.0);	(384863.9,	3739945.3,	10.9,	10.9,	0.0);
(	384873.9,	3739945.3,	10.9,	10.9,	0.0);	(384883.9,	3739945.3,	10.9,	10.9,	0.0);
(	384893.9,	3739945.3,	10.9,	10.9,	0.0);	(384903.9,	3739945.3,	10.9,	10.9,	0.0);
(	384913.9,	3739945.3,	10.8,	10.8,	0.0);	(384783.9,	3739955.3,	11.3,	11.3,	0.0);
(	384793.9,	3739955.3,	11.3,	11.3,	0.0);	(384803.9,	3739955.3,	11.3,	11.3,	0.0);
(	384813.9,	3739955.3,	11.2,	11.2,	0.0);	(384823.9,	3739955.3,	11.2,	11.2,	0.0);
(	384833.9,	3739955.3,	11.2,	11.2,	0.0);	(384843.9,	3739955.3,	11.1,	11.1,	0.0);
(	384853.9,	3739955.3,	11.0,	11.0,	0.0);	(384863.9,	3739955.3,	11.0,	11.0,	0.0);
(	384873.9,	3739955.3,	11.0,	11.0,	0.0);	(384883.9,	3739955.3,	11.0,	11.0,	0.0);
(	384893.9,	3739955.3,	11.0,	11.0,	0.0);	(384903.9,	3739955.3,	11.0,	11.0,	0.0);
(	384913.9,	3739955.3,	11.0,	11.0,	0.0);	(384923.9,	3739955.3,	10.8,	10.8,	0.0);
(	384717.2,	3739782.4,	10.1,	10.1,	0.0);	(384727.2,	3739782.4,	10.0,	10.0,	0.0);
(	384737.2,	3739782.4,	9.9,	9.9,	0.0);	(384747.2,	3739782.4,	9.8,	9.8,	0.0);
(	384757.2,	3739782.4,	9.8,	9.8,	0.0);	(384767.2,	3739782.4,	9.8,	9.8,	0.0);
(	384777.2,	3739782.4,	9.6,	9.6,	0.0);	(384787.2,	3739782.4,	9.6,	9.6,	0.0);
(	384797.2,	3739782.4,	9.6,	9.6,	0.0);	(384807.2,	3739782.4,	9.5,	9.5,	0.0);

(384817.2, 3739782.4, 9.5, 9.5, 0.0); (384827.2, 3739782.4, 9.5, 9.5, 0.0);
(384717.2, 3739792.4, 10.2, 10.2, 0.0); (384727.2, 3739792.4, 10.2, 10.2, 0.0);
(384737.2, 3739792.4, 10.1, 10.1, 0.0); (384747.2, 3739792.4, 10.0, 10.0, 0.0);
(384757.2, 3739792.4, 9.9, 9.9, 0.0); (384767.2, 3739792.4, 9.9, 9.9, 0.0);
(384777.2, 3739792.4, 9.8, 9.8, 0.0); (384787.2, 3739792.4, 9.8, 9.8, 0.0);
(384797.2, 3739792.4, 9.8, 9.8, 0.0); (384807.2, 3739792.4, 9.6, 9.6, 0.0);
(384817.2, 3739792.4, 9.6, 9.6, 0.0); (384827.2, 3739792.4, 9.6, 9.6, 0.0);
(384717.2, 3739802.4, 10.4, 10.4, 0.0); (384727.2, 3739802.4, 10.4, 10.4, 0.0);
(384737.2, 3739802.4, 10.2, 10.2, 0.0); (384747.2, 3739802.4, 10.2, 10.2, 0.0);
(384757.2, 3739802.4, 10.1, 10.1, 0.0); (384767.2, 3739802.4, 10.1, 10.1, 0.0);
(384777.2, 3739802.4, 10.0, 10.0, 0.0); (384787.2, 3739802.4, 9.9, 9.9, 0.0);
(384797.2, 3739802.4, 9.8, 9.8, 0.0); (384807.2, 3739802.4, 9.8, 9.8, 0.0);
(384817.2, 3739802.4, 9.8, 9.8, 0.0); (384827.2, 3739802.4, 9.8, 9.8, 0.0);
(384837.2, 3739802.4, 9.8, 9.8, 0.0); (384717.2, 3739812.4, 10.5, 10.5, 0.0);
(384727.2, 3739812.4, 10.4, 10.4, 0.0); (384737.2, 3739812.4, 10.4, 10.4, 0.0);
(384747.2, 3739812.4, 10.4, 10.4, 0.0); (384757.2, 3739812.4, 10.2, 10.2, 0.0);
(384767.2, 3739812.4, 10.2, 10.2, 0.0); (384777.2, 3739812.4, 10.1, 10.1, 0.0);
(384787.2, 3739812.4, 10.1, 10.1, 0.0); (384797.2, 3739812.4, 10.0, 10.0, 0.0);
(384807.2, 3739812.4, 9.9, 9.9, 0.0); (384817.2, 3739812.4, 9.9, 9.9, 0.0);
(384827.2, 3739812.4, 9.9, 9.9, 0.0); (384837.2, 3739812.4, 9.8, 9.8, 0.0);
(384847.2, 3739812.4, 9.8, 9.8, 0.0); (384717.2, 3739822.4, 10.7, 10.7, 0.0);
(384727.2, 3739822.4, 10.6, 10.6, 0.0); (384737.2, 3739822.4, 10.5, 10.5, 0.0);
(384747.2, 3739822.4, 10.4, 10.4, 0.0); (384757.2, 3739822.4, 10.4, 10.4, 0.0);
(384767.2, 3739822.4, 10.4, 10.4, 0.0); (384777.2, 3739822.4, 10.2, 10.2, 0.0);
(384787.2, 3739822.4, 10.1, 10.1, 0.0); (384797.2, 3739822.4, 10.1, 10.1, 0.0);
(384807.2, 3739822.4, 10.1, 10.1, 0.0); (384817.2, 3739822.4, 10.1, 10.1, 0.0);
(384827.2, 3739822.4, 10.1, 10.1, 0.0); (384837.2, 3739822.4, 10.0, 10.0, 0.0);
(384847.2, 3739822.4, 9.9, 9.9, 0.0); (384717.2, 3739832.4, 10.7, 10.7, 0.0);

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(384727.2, 3739832.4, 10.7, 10.7, 0.0); (384737.2, 3739832.4, 10.7, 10.7,

0.0);
(384747.2, 3739832.4,   10.6,   10.6,   0.0);   (384757.2, 3739832.4,   10.4,   10.4,
0.0);
(384767.2, 3739832.4,   10.4,   10.4,   0.0);   (384777.2, 3739832.4,   10.4,   10.4,
0.0);
(384787.2, 3739832.4,   10.2,   10.2,   0.0);   (384797.2, 3739832.4,   10.1,   10.1,
0.0);
(384807.2, 3739832.4,   10.1,   10.1,   0.0);   (384817.2, 3739832.4,   10.1,   10.1,
0.0);
(384827.2, 3739832.4,   10.1,   10.1,   0.0);   (384837.2, 3739832.4,   10.1,   10.1,
0.0);
(384847.2, 3739832.4,   10.1,   10.1,   0.0);   (384857.2, 3739832.4,   10.1,   10.1,
0.0);
(384717.2, 3739842.4,   10.7,   10.7,   0.0);   (384727.2, 3739842.4,   10.7,   10.7,
0.0);
(384737.2, 3739842.4,   10.7,   10.7,   0.0);   (384747.2, 3739842.4,   10.7,   10.7,
0.0);
(384757.2, 3739842.4,   10.4,   10.4,   0.0);   (384767.2, 3739842.4,   10.4,   10.4,
0.0);
(384777.2, 3739842.4,   10.4,   10.4,   0.0);   (384787.2, 3739842.4,   10.4,   10.4,
0.0);
(384797.2, 3739842.4,   10.2,   10.2,   0.0);   (384807.2, 3739842.4,   10.1,   10.1,
0.0);
(384817.2, 3739842.4,   10.1,   10.1,   0.0);   (384827.2, 3739842.4,   10.1,   10.1,
0.0);
(384837.2, 3739842.4,   10.1,   10.1,   0.0);   (384847.2, 3739842.4,   10.1,   10.1,
0.0);
(384857.2, 3739842.4,   10.1,   10.1,   0.0);   (384717.2, 3739852.4,   10.9,   10.9,
0.0);
(384727.2, 3739852.4,   10.7,   10.7,   0.0);   (384737.2, 3739852.4,   10.7,   10.7,
0.0);
(384747.2, 3739852.4,   10.7,   10.7,   0.0);   (384757.2, 3739852.4,   10.6,   10.6,
0.0);
(384767.2, 3739852.4,   10.4,   10.4,   0.0);   (384777.2, 3739852.4,   10.4,   10.4,
0.0);
(384787.2, 3739852.4,   10.4,   10.4,   0.0);   (384797.2, 3739852.4,   10.4,   10.4,
0.0);
(384807.2, 3739852.4,   10.2,   10.2,   0.0);   (384817.2, 3739852.4,   10.2,   10.2,
0.0);
(384827.2, 3739852.4,   10.2,   10.2,   0.0);   (384837.2, 3739852.4,   10.1,   10.1,
0.0);
(384847.2, 3739852.4,   10.1,   10.1,   0.0);   (384857.2, 3739852.4,   10.1,   10.1,
0.0);
(384867.2, 3739852.4,   10.1,   10.1,   0.0);   (384847.2, 3739862.4,   10.2,   10.2,
0.0);
(384857.2, 3739862.4,   10.2,   10.2,   0.0);   (384867.2, 3739862.4,   10.2,   10.2,
0.0);
(384877.2, 3739862.4,   10.2,   10.2,   0.0);   (384744.0, 3739711.2,   9.1,   9.1,
0.0);
(384754.0, 3739711.2,   9.0,   9.0,   0.0);   (384764.0, 3739711.2,   9.0,   9.0,
0.0);
(384774.0, 3739711.2,   8.9,   8.9,   0.0);   (384784.0, 3739711.2,   8.8,   8.8,
0.0);
(384744.0, 3739721.2,   9.1,   9.1,   0.0);   (384754.0, 3739721.2,   9.1,   9.1,
0.0);
(384764.0, 3739721.2,   9.1,   9.1,   0.0);   (384774.0, 3739721.2,   9.1,   9.1,
0.0);
(384784.0, 3739721.2,   9.0,   9.0,   0.0);   (384724.0, 3739731.2,   9.2,   9.2,
0.0);
(384734.0, 3739731.2,   9.1,   9.1,   0.0);   (384744.0, 3739731.2,   9.1,   9.1,
0.0);
(384754.0, 3739731.2,   9.1,   9.1,   0.0);   (384764.0, 3739731.2,   9.1,   9.1,
0.0);
(384774.0, 3739731.2,   9.1,   9.1,   0.0);   (384784.0, 3739731.2,   9.1,   9.1,
0.0);
(384794.0, 3739731.2,   9.1,   9.1,   0.0);   (384724.0, 3739741.2,   9.4,   9.4,
0.0);
(384734.0, 3739741.2,   9.3,   9.3,   0.0);   (384744.0, 3739741.2,   9.3,   9.3,
0.0);

(384754.0, 3739741.2, 9.2, 9.2, 0.0); (384764.0, 3739741.2, 9.1, 9.1, 0.0);
(384774.0, 3739741.2, 9.1, 9.1, 0.0); (384784.0, 3739741.2, 9.1, 9.1, 0.0);
(384794.0, 3739741.2, 9.1, 9.1, 0.0); (384724.0, 3739751.2, 9.5, 9.5, 0.0);
(384734.0, 3739751.2, 9.5, 9.5, 0.0); (384744.0, 3739751.2, 9.5, 9.5, 0.0);
(384754.0, 3739751.2, 9.4, 9.4, 0.0); (384764.0, 3739751.2, 9.3, 9.3, 0.0);
(384774.0, 3739751.2, 9.2, 9.2, 0.0); (384784.0, 3739751.2, 9.1, 9.1, 0.0);
(384794.0, 3739751.2, 9.1, 9.1, 0.0); (384804.0, 3739751.2, 9.1, 9.1, 0.0);
(384734.0, 3739761.2, 9.6, 9.6, 0.0); (384744.0, 3739761.2, 9.5, 9.5, 0.0);
(384754.0, 3739761.2, 9.5, 9.5, 0.0); (384764.0, 3739761.2, 9.5, 9.5, 0.0);
(384774.0, 3739761.2, 9.4, 9.4, 0.0); (384784.0, 3739761.2, 9.3, 9.3, 0.0);

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(384794.0, 3739761.2, 9.3, 9.3, 0.0); (384804.0, 3739761.2, 9.3, 9.3, 0.0);
(384814.0, 3739761.2, 9.3, 9.3, 0.0); (384800.2, 3739699.1, 8.8, 8.8, 0.0);
(384822.6, 3739698.3, 8.9, 8.9, 0.0); (384836.9, 3739697.5, 8.9, 8.9, 0.0);
(384946.1, 3739893.5, 10.4, 10.4, 0.0); (385150.0, 3739908.7, 10.4, 10.4, 0.0);
(385185.1, 3739994.7, 10.8, 10.8, 0.0); (385204.2, 3740061.6, 11.1, 11.1, 0.0);
(385213.8, 3740131.8, 11.5, 11.5, 0.0); (385201.8, 3740178.0, 12.2, 12.2, 0.0);
(385185.1, 3740215.4, 12.2, 12.2, 0.0); (385146.0, 3740273.6, 11.9, 11.9, 0.0);
(385130.9, 3740293.5, 11.6, 11.6, 0.0); (384935.7, 3739946.9, 10.7, 10.7, 0.0);
(384890.3, 3739869.6, 10.3, 10.3, 0.0); (384835.3, 3739778.0, 9.5, 9.5, 0.0);
(384797.9, 3739708.7, 8.8, 8.8, 0.0);

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

1 1 1

```
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1
1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1
1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1
1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1
1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA
FILE.


                                  *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                  (METERS/SEC)

                                                1.54,   3.09,   5.14,   8.23,  10.80,
*** AERMOD - VERSION 22112  ***   ***  KPAC COIL AVENUE FREEZER EXPANSION PROJECT                              ***
    05/19/25
 *** AERMET - VERSION  22112 ***   ***  1420 Coil Avenue, Wilmington, CA 90074                                 ***
   11:56:38

   PAGE  14
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  URBAN  ADJ_U*

                                    *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

   Surface file:   C:\Users\jclar\OneDrive\Clark and Associates\Project 316 - ABJC - KPAC Coil Aven   Met Version:
22112
   Profile file:   C:\Users\jclar\OneDrive\Clark and Associates\Project 316 - ABJC - KPAC Coil Aven
   Surface format: FREE

   Profile format: FREE

   Surface station no.:    23129                  Upper air station no.:     3190
                  Name: UNKNOWN                                     Name: UNKNOWN
                  Year:   2015                                      Year:   2015

 First 24 hours of scalar data
 YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA
  HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - -
 15 01 01   1 01   -5.1  0.092 -9.000 -9.000 -999.   67.     13.8  0.10   2.80   1.00    1.11   68.    7.9  278.1
 2.0
 15 01 01   1 02   -3.0  0.069 -9.000 -9.000 -999.   43.     10.0  0.04   2.80   1.00    0.97  292.    7.9  277.0
 2.0
 15 01 01   1 03   -6.3  0.106 -9.000 -9.000 -999.   83.     17.1  0.26   2.80   1.00    0.96   36.    7.9  277.0
 2.0
 15 01 01   1 04   -3.6  0.074 -9.000 -9.000 -999.   48.     10.1  0.03   2.80   1.00    1.14  327.    7.9  277.0
 2.0
 15 01 01   1 05   -5.3  0.089 -9.000 -9.000 -999.   63.     11.9  0.03   2.80   1.00    1.40  336.    7.9  275.9
 2.0
 15 01 01   1 06   -2.4  0.063 -9.000 -9.000 -999.   38.      9.2  0.03   2.80   1.00    0.91  331.    7.9  275.9
 2.0
 15 01 01   1 07   -5.5  0.091 -9.000 -9.000 -999.   66.     12.2  0.03   2.80   1.00    1.43  334.    7.9  275.9
 2.0
 15 01 01   1 08   -8.0  0.128 -9.000 -9.000 -999.  110.     23.9  0.32   2.80   0.54    1.06   19.    7.9  277.0
 2.0
 15 01 01   1 09   35.4  0.235  0.419  0.005   75.  273.    -33.3  0.26   2.80   0.31    1.72   34.    7.9  280.3
 2.0
 15 01 01   1 10  107.7  0.338  0.964  0.005  303.  472.    -32.7  0.26   2.80   0.24    2.47   49.    7.9  283.1
 2.0
 15 01 01   1 11  158.7  0.344  1.624  0.005  984.  483.    -23.3  0.10   2.80   0.21    3.22   69.    7.9  285.9
 2.0
 15 01 01   1 12  183.1  0.240  1.811  0.005 1180.  288.     -6.9  0.10   2.80   0.20    1.94   65.    7.9  285.9
 2.0
```

```
 15 01 01   1 13  182.2  0.203  1.892  0.005 1353.  220.     -4.2  0.10   2.80   0.20    1.52   64.    7.9  287.5
2.0
 15 01 01   1 14  154.0  0.343  1.832  0.005 1453.  482.    -23.7  0.22   2.80   0.21    2.55  199.    7.9  287.0
2.0
 15 01 01   1 15  101.0  0.367  1.614  0.005 1515.  534.    -44.6  0.37   2.80   0.24    2.45  212.    7.9  287.0
2.0
 15 01 01   1 16   27.2  0.330  1.046  0.005 1530.  455.   -119.6  0.22   2.80   0.33    2.78  202.    7.9  286.4
2.0
 15 01 01   1 17  -29.6  0.335 -9.000 -9.000 -999.  465.    123.4  0.37   2.80   0.60    2.45  214.    7.9  285.9
2.0
 15 01 01   1 18  -27.0  0.271 -9.000 -9.000 -999.  340.     80.6  0.40   2.80   1.00    1.94  245.    7.9  285.3
2.0
 15 01 01   1 19 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.18   2.80   1.00    0.00    0.    7.9  284.2
2.0
 15 01 01   1 20 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.18   2.80   1.00    0.00    0.    7.9  282.0
2.0
 15 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.18   2.80   1.00    0.00    0.    7.9  281.4
2.0
 15 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.18   2.80   1.00    0.00    0.    7.9  280.9
2.0
 15 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.18   2.80   1.00    0.00    0.    7.9  280.3
2.0
 15 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.18   2.80   1.00    0.00    0.    7.9  279.8
2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 15 01 01 01    7.9 1   68.    1.11   278.2   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION 22112  ***   ***  KPAC COIL AVENUE FREEZER EXPANSION PROJECT                          ***
     05/19/25
 *** AERMET - VERSION  22112 ***   ***  1420 Coil Avenue, Wilmington, CA 90074                              ***
   11:56:38

   PAGE  15
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  URBAN  ADJ_U*

                           *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL
***
                               INCLUDING SOURCE(S):     IA0AM1RA    ,

                                        *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                     ** CONC OF DPM      IN MICROGRAMS/M**3                        **

       X-COORD (M)   Y-COORD (M)        CONC                      X-COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - -
        384875.40    3739981.50       0.00230                     384885.40    3739981.50       0.00255

        384895.40    3739981.50       0.00283                     384905.40    3739981.50       0.00317

        384915.40    3739981.50       0.00357                     384925.40    3739981.50       0.00402

        384935.40    3739981.50       0.00457                     384875.40    3739991.50       0.00245

        384885.40    3739991.50       0.00274                     384895.40    3739991.50       0.00308

        384905.40    3739991.50       0.00348                     384915.40    3739991.50       0.00397

        384925.40    3739991.50       0.00459                     384935.40    3739991.50       0.00532

        384945.40    3739991.50       0.00627                     384875.40    3740001.50       0.00256

        384885.40    3740001.50       0.00289                     384895.40    3740001.50       0.00327

        384905.40    3740001.50       0.00374                     384915.40    3740001.50       0.00431
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384925.40	3740001.50	0.00503	384935.40	3740001.50	0.00596
384945.40	3740001.50	0.00718	384875.40	3740011.50	0.00264
384885.40	3740011.50	0.00298	384895.40	3740011.50	0.00339
384905.40	3740011.50	0.00390	384915.40	3740011.50	0.00454
384925.40	3740011.50	0.00532	384935.40	3740011.50	0.00634
384945.40	3740011.50	0.00769	384955.40	3740011.50	0.00951
384875.40	3740021.50	0.00266	384885.40	3740021.50	0.00302
384895.40	3740021.50	0.00344	384905.40	3740021.50	0.00396
384915.40	3740021.50	0.00462	384925.40	3740021.50	0.00542
384935.40	3740021.50	0.00646	384945.40	3740021.50	0.00783
384955.40	3740021.50	0.00967	384875.40	3740031.50	0.00265
384885.40	3740031.50	0.00300	384895.40	3740031.50	0.00342
384905.40	3740031.50	0.00394	384915.40	3740031.50	0.00457
384925.40	3740031.50	0.00536	384935.40	3740031.50	0.00639
384945.40	3740031.50	0.00773	384955.40	3740031.50	0.00958
384965.40	3740031.50	0.01237	384875.40	3740041.50	0.00259
384885.40	3740041.50	0.00293	384895.40	3740041.50	0.00334
384905.40	3740041.50	0.00383	384915.40	3740041.50	0.00444
384925.40	3740041.50	0.00521	384935.40	3740041.50	0.00620
384945.40	3740041.50	0.00752	384955.40	3740041.50	0.00937
384965.40	3740041.50	0.01230	384875.40	3740051.50	0.00251
384885.40	3740051.50	0.00283	384895.40	3740051.50	0.00321
384905.40	3740051.50	0.00368	384915.40	3740051.50	0.00426
384925.40	3740051.50	0.00500	384935.40	3740051.50	0.00595
384945.40	3740051.50	0.00723	384955.40	3740051.50	0.00906
384965.40	3740051.50	0.01193	384975.40	3740051.50	0.01656
384705.10	3739971.50	0.00064	384715.10	3739971.50	0.00067
384725.10	3739971.50	0.00071	384735.10	3739971.50	0.00076
384745.10	3739971.50	0.00081	384755.10	3739971.50	0.00086
384765.10	3739971.50	0.00091	384775.10	3739971.50	0.00098

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): IA0AM1RA ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
384785.10	3739971.50	0.00104	384795.10	3739971.50	0.00112
384805.10	3739971.50	0.00120	384815.10	3739971.50	0.00130
384825.10	3739971.50	0.00140	384835.10	3739971.50	0.00151
384845.10	3739971.50	0.00164	384855.10	3739971.50	0.00178
384705.10	3739981.50	0.00064	384715.10	3739981.50	0.00068
384725.10	3739981.50	0.00072	384735.10	3739981.50	0.00077
384745.10	3739981.50	0.00082	384755.10	3739981.50	0.00087
384765.10	3739981.50	0.00093	384775.10	3739981.50	0.00100
384785.10	3739981.50	0.00107	384795.10	3739981.50	0.00115
384805.10	3739981.50	0.00124	384815.10	3739981.50	0.00134
384825.10	3739981.50	0.00146	384835.10	3739981.50	0.00159
384845.10	3739981.50	0.00173	384855.10	3739981.50	0.00189
384865.10	3739981.50	0.00208	384705.10	3739991.50	0.00065
384715.10	3739991.50	0.00069	384725.10	3739991.50	0.00073
384735.10	3739991.50	0.00078	384745.10	3739991.50	0.00083
384755.10	3739991.50	0.00088	384765.10	3739991.50	0.00095
384775.10	3739991.50	0.00102	384785.10	3739991.50	0.00109
384795.10	3739991.50	0.00118	384805.10	3739991.50	0.00128
384815.10	3739991.50	0.00139	384825.10	3739991.50	0.00151
384835.10	3739991.50	0.00165	384845.10	3739991.50	0.00180
384855.10	3739991.50	0.00198	384865.10	3739991.50	0.00220
384705.10	3740001.50	0.00065	384715.10	3740001.50	0.00069
384725.10	3740001.50	0.00073	384735.10	3740001.50	0.00078
384745.10	3740001.50	0.00083	384755.10	3740001.50	0.00089
384765.10	3740001.50	0.00096	384775.10	3740001.50	0.00103
384785.10	3740001.50	0.00111	384795.10	3740001.50	0.00120
384805.10	3740001.50	0.00130	384815.10	3740001.50	0.00141
384825.10	3740001.50	0.00154	384835.10	3740001.50	0.00169
384845.10	3740001.50	0.00186	384855.10	3740001.50	0.00206

384865.10	3740001.50	0.00229	384705.10	3740011.50	0.00065
384715.10	3740011.50	0.00069	384725.10	3740011.50	0.00073
384735.10	3740011.50	0.00078	384745.10	3740011.50	0.00083
384755.10	3740011.50	0.00089	384765.10	3740011.50	0.00096
384775.10	3740011.50	0.00103	384785.10	3740011.50	0.00112
384795.10	3740011.50	0.00121	384805.10	3740011.50	0.00131
384815.10	3740011.50	0.00143	384825.10	3740011.50	0.00156
384835.10	3740011.50	0.00172	384845.10	3740011.50	0.00189
384855.10	3740011.50	0.00210	384865.10	3740011.50	0.00235
384705.10	3740021.50	0.00064	384715.10	3740021.50	0.00068
384725.10	3740021.50	0.00073	384735.10	3740021.50	0.00078

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): IA0AM1RA ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
384745.10	3740021.50	0.00083	384755.10	3740021.50	0.00089
384765.10	3740021.50	0.00095	384775.10	3740021.50	0.00103
384785.10	3740021.50	0.00111	384795.10	3740021.50	0.00121
384805.10	3740021.50	0.00131	384815.10	3740021.50	0.00143
384825.10	3740021.50	0.00157	384835.10	3740021.50	0.00173
384845.10	3740021.50	0.00191	384855.10	3740021.50	0.00212
384865.10	3740021.50	0.00236	384705.10	3740031.50	0.00064
384715.10	3740031.50	0.00068	384725.10	3740031.50	0.00072
384735.10	3740031.50	0.00077	384745.10	3740031.50	0.00082
384755.10	3740031.50	0.00088	384765.10	3740031.50	0.00095
384775.10	3740031.50	0.00102	384785.10	3740031.50	0.00110
384795.10	3740031.50	0.00119	384805.10	3740031.50	0.00130
384815.10	3740031.50	0.00142	384825.10	3740031.50	0.00155
384835.10	3740031.50	0.00171	384845.10	3740031.50	0.00189

384855.10	3740031.50	0.00210	384865.10	3740031.50	0.00235
384705.10	3740041.50	0.00063	384715.10	3740041.50	0.00067
384725.10	3740041.50	0.00071	384735.10	3740041.50	0.00076
384745.10	3740041.50	0.00081	384755.10	3740041.50	0.00087
384765.10	3740041.50	0.00093	384775.10	3740041.50	0.00100
384785.10	3740041.50	0.00108	384795.10	3740041.50	0.00118
384805.10	3740041.50	0.00128	384815.10	3740041.50	0.00139
384825.10	3740041.50	0.00153	384835.10	3740041.50	0.00168
384845.10	3740041.50	0.00185	384855.10	3740041.50	0.00206
384865.10	3740041.50	0.00230	384785.10	3740051.50	0.00106
384795.10	3740051.50	0.00114	384805.10	3740051.50	0.00124
384815.10	3740051.50	0.00135	384825.10	3740051.50	0.00148
384835.10	3740051.50	0.00163	384845.10	3740051.50	0.00180
384855.10	3740051.50	0.00200	384713.90	3739875.30	0.00047
384723.90	3739875.30	0.00048	384733.90	3739875.30	0.00050
384743.90	3739875.30	0.00052	384753.90	3739875.30	0.00053
384763.90	3739875.30	0.00055	384773.90	3739875.30	0.00057
384783.90	3739875.30	0.00058	384793.90	3739875.30	0.00060
384803.90	3739875.30	0.00062	384813.90	3739875.30	0.00064
384823.90	3739875.30	0.00066	384833.90	3739875.30	0.00068
384843.90	3739875.30	0.00069	384853.90	3739875.30	0.00071
384863.90	3739875.30	0.00073	384873.90	3739875.30	0.00075
384713.90	3739885.30	0.00050	384723.90	3739885.30	0.00051
384733.90	3739885.30	0.00053	384743.90	3739885.30	0.00055
384753.90	3739885.30	0.00057	384763.90	3739885.30	0.00059
384773.90	3739885.30	0.00061	384783.90	3739885.30	0.00063

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): IA0AM1RA ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC

384793.90	3739885.30	0.00065	384803.90	3739885.30	0.00067
384813.90	3739885.30	0.00069	384823.90	3739885.30	0.00072
384833.90	3739885.30	0.00074	384843.90	3739885.30	0.00076
384853.90	3739885.30	0.00079	384863.90	3739885.30	0.00081
384873.90	3739885.30	0.00083	384883.90	3739885.30	0.00086
384713.90	3739895.30	0.00052	384723.90	3739895.30	0.00054
384733.90	3739895.30	0.00056	384743.90	3739895.30	0.00058
384753.90	3739895.30	0.00061	384763.90	3739895.30	0.00063
384773.90	3739895.30	0.00065	384783.90	3739895.30	0.00068
384793.90	3739895.30	0.00070	384803.90	3739895.30	0.00073
384813.90	3739895.30	0.00075	384823.90	3739895.30	0.00078
384833.90	3739895.30	0.00081	384843.90	3739895.30	0.00084
384853.90	3739895.30	0.00087	384863.90	3739895.30	0.00090
384873.90	3739895.30	0.00093	384883.90	3739895.30	0.00096
384713.90	3739905.30	0.00055	384723.90	3739905.30	0.00057
384733.90	3739905.30	0.00060	384743.90	3739905.30	0.00062
384753.90	3739905.30	0.00064	384763.90	3739905.30	0.00067
384773.90	3739905.30	0.00070	384783.90	3739905.30	0.00073
384793.90	3739905.30	0.00076	384803.90	3739905.30	0.00079
384813.90	3739905.30	0.00082	384823.90	3739905.30	0.00085
384833.90	3739905.30	0.00088	384843.90	3739905.30	0.00092
384853.90	3739905.30	0.00095	384863.90	3739905.30	0.00099
384873.90	3739905.30	0.00103	384883.90	3739905.30	0.00107
384893.90	3739905.30	0.00111	384713.90	3739915.30	0.00057
384723.90	3739915.30	0.00060	384733.90	3739915.30	0.00063
384743.90	3739915.30	0.00065	384753.90	3739915.30	0.00068
384763.90	3739915.30	0.00071	384773.90	3739915.30	0.00074
384783.90	3739915.30	0.00078	384793.90	3739915.30	0.00081
384803.90	3739915.30	0.00085	384813.90	3739915.30	0.00089
384823.90	3739915.30	0.00093	384833.90	3739915.30	0.00097
384843.90	3739915.30	0.00101	384853.90	3739915.30	0.00105
384863.90	3739915.30	0.00110	384873.90	3739915.30	0.00115
384883.90	3739915.30	0.00120	384893.90	3739915.30	0.00125
384903.90	3739915.30	0.00130	384713.90	3739925.30	0.00060

384723.90	3739925.30	0.00063	384733.90	3739925.30	0.00066
384743.90	3739925.30	0.00069	384753.90	3739925.30	0.00072
384763.90	3739925.30	0.00076	384773.90	3739925.30	0.00079
384783.90	3739925.30	0.00083	384793.90	3739925.30	0.00087
384803.90	3739925.30	0.00092	384813.90	3739925.30	0.00096
384823.90	3739925.30	0.00101	384833.90	3739925.30	0.00106

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): IA0AM1RA ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
384843.90	3739925.30	0.00111	384853.90	3739925.30	0.00117
384863.90	3739925.30	0.00122	384873.90	3739925.30	0.00128
384883.90	3739925.30	0.00135	384893.90	3739925.30	0.00141
384903.90	3739925.30	0.00148	384713.90	3739935.30	0.00062
384723.90	3739935.30	0.00065	384733.90	3739935.30	0.00068
384743.90	3739935.30	0.00072	384753.90	3739935.30	0.00076
384763.90	3739935.30	0.00079	384773.90	3739935.30	0.00084
384783.90	3739935.30	0.00088	384793.90	3739935.30	0.00093
384803.90	3739935.30	0.00098	384813.90	3739935.30	0.00104
384823.90	3739935.30	0.00109	384833.90	3739935.30	0.00116
384843.90	3739935.30	0.00122	384853.90	3739935.30	0.00129
384863.90	3739935.30	0.00137	384873.90	3739935.30	0.00144
384883.90	3739935.30	0.00152	384893.90	3739935.30	0.00161
384903.90	3739935.30	0.00170	384913.90	3739935.30	0.00179
384713.90	3739945.30	0.00064	384723.90	3739945.30	0.00067
384733.90	3739945.30	0.00071	384743.90	3739945.30	0.00075
384753.90	3739945.30	0.00079	384763.90	3739945.30	0.00083
384773.90	3739945.30	0.00088	384783.90	3739945.30	0.00093
384793.90	3739945.30	0.00099	384803.90	3739945.30	0.00105

384813.90	3739945.30	0.00111	384823.90	3739945.30	0.00118
384833.90	3739945.30	0.00126	384843.90	3739945.30	0.00134
384853.90	3739945.30	0.00142	384863.90	3739945.30	0.00151
384873.90	3739945.30	0.00161	384883.90	3739945.30	0.00171
384893.90	3739945.30	0.00182	384903.90	3739945.30	0.00194
384913.90	3739945.30	0.00207	384783.90	3739955.30	0.00098
384793.90	3739955.30	0.00104	384803.90	3739955.30	0.00111
384813.90	3739955.30	0.00118	384823.90	3739955.30	0.00126
384833.90	3739955.30	0.00135	384843.90	3739955.30	0.00145
384853.90	3739955.30	0.00156	384863.90	3739955.30	0.00167
384873.90	3739955.30	0.00180	384883.90	3739955.30	0.00193
384893.90	3739955.30	0.00208	384903.90	3739955.30	0.00223
384913.90	3739955.30	0.00240	384923.90	3739955.30	0.00260
384717.20	3739782.40	0.00028	384727.20	3739782.40	0.00029
384737.20	3739782.40	0.00029	384747.20	3739782.40	0.00030
384757.20	3739782.40	0.00030	384767.20	3739782.40	0.00030
384777.20	3739782.40	0.00031	384787.20	3739782.40	0.00031
384797.20	3739782.40	0.00031	384807.20	3739782.40	0.00032
384817.20	3739782.40	0.00032	384827.20	3739782.40	0.00032
384717.20	3739792.40	0.00030	384727.20	3739792.40	0.00030
384737.20	3739792.40	0.00031	384747.20	3739792.40	0.00031

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): IA0AM1RA ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
384757.20	3739792.40	0.00032	384767.20	3739792.40	0.00032
384777.20	3739792.40	0.00033	384787.20	3739792.40	0.00033
384797.20	3739792.40	0.00033	384807.20	3739792.40	0.00034
384817.20	3739792.40	0.00034	384827.20	3739792.40	0.00035

384717.20	3739802.40	0.00032	384727.20	3739802.40	0.00032
384737.20	3739802.40	0.00033	384747.20	3739802.40	0.00033
384757.20	3739802.40	0.00034	384767.20	3739802.40	0.00034
384777.20	3739802.40	0.00035	384787.20	3739802.40	0.00035
384797.20	3739802.40	0.00036	384807.20	3739802.40	0.00036
384817.20	3739802.40	0.00037	384827.20	3739802.40	0.00037
384837.20	3739802.40	0.00038	384717.20	3739812.40	0.00033
384727.20	3739812.40	0.00034	384737.20	3739812.40	0.00035
384747.20	3739812.40	0.00035	384757.20	3739812.40	0.00036
384767.20	3739812.40	0.00037	384777.20	3739812.40	0.00037
384787.20	3739812.40	0.00038	384797.20	3739812.40	0.00038
384807.20	3739812.40	0.00039	384817.20	3739812.40	0.00039
384827.20	3739812.40	0.00040	384837.20	3739812.40	0.00041
384847.20	3739812.40	0.00041	384717.20	3739822.40	0.00035
384727.20	3739822.40	0.00036	384737.20	3739822.40	0.00037
384747.20	3739822.40	0.00038	384757.20	3739822.40	0.00038
384767.20	3739822.40	0.00039	384777.20	3739822.40	0.00040
384787.20	3739822.40	0.00041	384797.20	3739822.40	0.00041
384807.20	3739822.40	0.00042	384817.20	3739822.40	0.00042
384827.20	3739822.40	0.00043	384837.20	3739822.40	0.00044
384847.20	3739822.40	0.00045	384717.20	3739832.40	0.00037
384727.20	3739832.40	0.00038	384737.20	3739832.40	0.00039
384747.20	3739832.40	0.00040	384757.20	3739832.40	0.00041
384767.20	3739832.40	0.00042	384777.20	3739832.40	0.00043
384787.20	3739832.40	0.00043	384797.20	3739832.40	0.00044
384807.20	3739832.40	0.00045	384817.20	3739832.40	0.00046
384827.20	3739832.40	0.00047	384837.20	3739832.40	0.00047
384847.20	3739832.40	0.00048	384857.20	3739832.40	0.00049
384717.20	3739842.40	0.00039	384727.20	3739842.40	0.00040
384737.20	3739842.40	0.00041	384747.20	3739842.40	0.00042
384757.20	3739842.40	0.00044	384767.20	3739842.40	0.00045
384777.20	3739842.40	0.00046	384787.20	3739842.40	0.00047
384797.20	3739842.40	0.00048	384807.20	3739842.40	0.00049
384817.20	3739842.40	0.00050	384827.20	3739842.40	0.00051

384837.20	3739842.40	0.00052	384847.20	3739842.40	0.00053
384857.20	3739842.40	0.00054	384717.20	3739852.40	0.00042

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): IA0AM1RA ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
384727.20	3739852.40	0.00043	384737.20	3739852.40	0.00044
384747.20	3739852.40	0.00045	384757.20	3739852.40	0.00046
384767.20	3739852.40	0.00048	384777.20	3739852.40	0.00049
384787.20	3739852.40	0.00050	384797.20	3739852.40	0.00051
384807.20	3739852.40	0.00052	384817.20	3739852.40	0.00054
384827.20	3739852.40	0.00055	384837.20	3739852.40	0.00056
384847.20	3739852.40	0.00057	384857.20	3739852.40	0.00058
384867.20	3739852.40	0.00060	384847.20	3739862.40	0.00062
384857.20	3739862.40	0.00064	384867.20	3739862.40	0.00065
384877.20	3739862.40	0.00067	384744.00	3739711.20	0.00020
384754.00	3739711.20	0.00020	384764.00	3739711.20	0.00020
384774.00	3739711.20	0.00020	384784.00	3739711.20	0.00020
384744.00	3739721.20	0.00021	384754.00	3739721.20	0.00021
384764.00	3739721.20	0.00021	384774.00	3739721.20	0.00021
384784.00	3739721.20	0.00021	384724.00	3739731.20	0.00022
384734.00	3739731.20	0.00022	384744.00	3739731.20	0.00022
384754.00	3739731.20	0.00022	384764.00	3739731.20	0.00022
384774.00	3739731.20	0.00022	384784.00	3739731.20	0.00022
384794.00	3739731.20	0.00023	384724.00	3739741.20	0.00023
384734.00	3739741.20	0.00023	384744.00	3739741.20	0.00023
384754.00	3739741.20	0.00023	384764.00	3739741.20	0.00023
384774.00	3739741.20	0.00024	384784.00	3739741.20	0.00024
384794.00	3739741.20	0.00024	384724.00	3739751.20	0.00024

384734.00	3739751.20	0.00024	384744.00	3739751.20	0.00025
384754.00	3739751.20	0.00025	384764.00	3739751.20	0.00025
384774.00	3739751.20	0.00025	384784.00	3739751.20	0.00025
384794.00	3739751.20	0.00025	384804.00	3739751.20	0.00026
384734.00	3739761.20	0.00026	384744.00	3739761.20	0.00026
384754.00	3739761.20	0.00026	384764.00	3739761.20	0.00026
384774.00	3739761.20	0.00027	384784.00	3739761.20	0.00027
384794.00	3739761.20	0.00027	384804.00	3739761.20	0.00027
384814.00	3739761.20	0.00028	384800.20	3739699.10	0.00019
384822.60	3739698.30	0.00020	384836.90	3739697.50	0.00021
384946.10	3739893.50	0.00128	385150.00	3739908.70	0.00382
385185.10	3739994.70	0.00423	385204.20	3740061.60	0.00218
385213.80	3740131.80	0.00095	385201.80	3740178.00	0.00095
385185.10	3740215.40	0.00124	385146.00	3740273.60	0.00223
385130.90	3740293.50	0.00246	384935.70	3739946.90	0.00247
384890.30	3739869.60	0.00075	384835.30	3739778.00	0.00032
384797.90	3739708.70	0.00020			

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

NETWORK GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				OF TYPE GRID-ID
ALL	1ST HIGHEST VALUE IS	0.01656 AT	(384975.40,	3740051.50,	11.02,	11.02,	0.00) DC
	2ND HIGHEST VALUE IS	0.01237 AT	(384965.40,	3740031.50,	11.02,	11.02,	0.00) DC
	3RD HIGHEST VALUE IS	0.01230 AT	(384965.40,	3740041.50,	11.08,	11.08,	0.00) DC
	4TH HIGHEST VALUE IS	0.01193 AT	(384965.40,	3740051.50,	11.22,	11.22,	0.00) DC
	5TH HIGHEST VALUE IS	0.00967 AT	(384955.40,	3740021.50,	11.02,	11.02,	0.00) DC
	6TH HIGHEST VALUE IS	0.00958 AT	(384955.40,	3740031.50,	11.17,	11.17,	0.00) DC
	7TH HIGHEST VALUE IS	0.00951 AT	(384955.40,	3740011.50,	10.87,	10.87,	0.00) DC
	8TH HIGHEST VALUE IS	0.00937 AT	(384955.40,	3740041.50,	11.33,	11.33,	0.00) DC

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         9TH HIGHEST VALUE IS       0.00906 AT (  384955.40,  3740051.50,    11.48,    11.48,    0.00)  DC

        10TH HIGHEST VALUE IS       0.00783 AT (  384945.40,  3740021.50,    11.17,    11.17,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 22112  ***   ***  KPAC COIL AVENUE FREEZER EXPANSION PROJECT                          ***
     05/19/25
 *** AERMET - VERSION  22112 ***   ***  1420 Coil Avenue, Wilmington, CA 90074                             ***
   11:56:38

   PAGE  23
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  URBAN  ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            5 Warning Message(s)
 A Total of          916 Informational Message(s)

 A Total of        43824 Hours Were Processed

 A Total of          689 Calm Hours Identified

 A Total of          227 Missing Hours Identified (  0.52 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 CO W320      11       URBOPT: Input Parameter May Be Out-of-Range for Parameter       URB-POP
 ME W186    1143       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
 ME W187    1143       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
 OU W565    1147       PERPLT: Possible Conflict With Dynamically Allocated FUNIT     PLOTFILE
 OU W565    1148       PERPST: Possible Conflict With Dynamically Allocated FUNIT     POSTFILE

    ************************************
    *** AERMOD Finishes Successfully ***
    ************************************
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Exhibit C

Risk Calculations

Risk Calculations For Diesel Exhaust

$Risk_{inh\text{-}res} = Dose_{air} * CPF * ASF * ED/AT$

$Dose_{air} = C_{air} * \{BR/BW\} * A * EF * 10^{-6}$

Variable	Description	Units	Value
$Risk_{inh\text{-}air}$	Residential inhalation cancer risk	Unitless	Calculated
$Dose_{air}$	Daily inhalation dose	mg/kg-day	Calculated
CPF	Inhalation cancer potency factor	$(mg/kg\text{-}day)^{-1}$	Chemical Specific
ASF	Age sensitivity factor for a specified age group	Unitless	Calculated
ED	Exposure duration (in years) for a specified age group	years	Calculated
AT	Averaging time for lifetime caner risk	years	70
FAH	Fraction of time spent at home	Unitless	Calculated

Variable	Description	Units	Value
$Dose_{air}$	Daily inhalation dose	mg/kg-day	Calculated
C_{air}	Concentration in air	ug/m^3	**0.01656**
{BR/BW}	Daily Breathing rate normalized to body weight	L/kg body weight-day	Calculated
A	Inhalation absorption fraction	Unitless	1
EF	Exposure frequency (days/365 days)	Unitless	Calculated
10^{-6}	migrograms to milligrams conversion, liters to cubic meters conversion	Unitless	Calculated

1.07E+06

Residential Exposures

Age Group	Risk	Age Sensitivity	FAH	ED	CPF	Dose Air	Cair	BR/BW	A	EF
3rd Trimester	2.25E-01	10	1	0.25	1.1	5.73E-06	0.01656	361	1	0.958904
0-1	2.04E+00	10	1	0.75	1.1	1.73E-05	0.01656	1090	1	0.958904
1-2	0.00E+00	10	1	0	1.1	1.73E-05	0.01656	1090	1	0.958904
2-3	0.00E+00	3	0.72	0	1.1	9.08E-06	0.01656	572	1	0.958904
3-4	0.00E+00	3	0.72	0	1.1	9.08E-06	0.01656	572	1	0.958904
2<9	0.00E+00	3	0.72	0	1.1	1.37E-05	0.01656	861	1	0.958904
2<16	0.00E+00	3	0.72	0	1.1	1.18E-05	0.01656	745	1	0.958904
16<30	0.00E+00	1	0.73	0	1.1	5.32E-06	0.01656	335	1	0.958904
16-70	0.00E+00	1	0.73	0	1.1	4.61E-06	0.01656	290	1	0.958904

3rd trimeseter to 1	2.27
3rd trimester to 30	2.27
3rd trimester to 70	**2.27**

ATTACHMENT B

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #25-001.xx

May 22, 2025

Andrew J. Graf
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

SUBJECT: KPAC Coil Avenue Freezer Expansion Project
Wilmington, CA
Review and Comment on Noise Study

Dear Mr. Graf,

Per your request, Wilson Ihrig has reviewed the information and noise impact analysis in the following documents:

KPAC Coil Avenue Freezer Expansion Project
Initial Study/Negative Declaration (IS/ND)
Noise Study, 2024 (2024 Noise Study)
Noise Study, 2022 (2022 Noise Study)

The KPAC Coil Avenue Freezer Expansion (Project) would result in the expansion of the existing cold storage facility, which includes demolition and alteration of the existing cold dock for a new freezer. The improved facility would be expanding to the west and would result in the removal of the existing portion of a double rail spur. The project would also involve the expansion of mechanical and electrical rooms and the construction of a fire pump building. Following the expansion, the facility will add a Saturday work shift. The site is surrounded by industrial uses to the north, east, and south and single-family residences to the west across Drumm Avenue.

Wilson Ihrig, Acoustical Consultants, has practiced exclusively in the field of acoustics since 1966. During our almost 59 years of operation, we have prepared hundreds of noise studies for Environmental Impact Reports and Statements. We have one of the largest technical laboratories in the acoustical consulting industry. We also utilize industry-standard acoustical programs such as Roadway Construction Noise Model (RCNM), SoundPLAN, and CADNA. In short, we are well qualified to prepare environmental noise studies and review studies prepared by others.

Adverse Effects of Noise[1]

Although the health effects of noise are not taken as seriously in the United States as they are in other countries, they are real and, in many parts of the country, pervasive.

Noise-Induced Hearing Loss. If a person is repeatedly exposed to loud noises, he or she may experience noise-induced hearing impairment or loss. In the United States, both the Occupational Health and Safety Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) promote standards and regulations to protect the hearing of people exposed to high levels of industrial noise.

Speech Interference. Another common problem associated with noise is speech interference. In addition to the obvious issues that may arise from misunderstandings, speech interference also leads to problems with concentration fatigue, irritation, decreased working capacity, and automatic stress reactions. For complete speech intelligibility, the sound level of the speech should be 15 to 18 dBA higher than the background noise. Typical indoor speech levels are 45 to 50 dBA at 1 meter, so any noise above 30 dBA begins to interfere with speech intelligibility. The common reaction to higher background noise levels is to raise one's voice. If this is required persistently for long periods of time, stress reactions and irritation will likely result.

Sleep Disturbance. Noise can disturb sleep by making it more difficult to fall asleep, by waking someone after they are asleep, or by altering their sleep stage, e.g., reducing the amount of rapid eye movement (REM) sleep. Noise exposure for people who are sleeping has also been linked to increased blood pressure, increased heart rate, increase in body movements, and other physiological effects. Not surprisingly, people whose sleep is disturbed by noise often experience secondary effects such as cognitive decline, increased fatigue, depressed mood, and decreased work performance.

Cardiovascular and Physiological Effects. Human's bodily reactions to noise are rooted in the "fight or flight" response that evolved when many noises signaled imminent danger. These include increased blood pressure, elevated heart rate, and vasoconstriction. Prolonged exposure to acute noises can result in permanent effects such as hypertension and heart disease.

Impaired Cognitive Performance. Studies have established that noise exposure impairs people's abilities to perform complex tasks (tasks that require attention to detail or analytical processes) and it makes reading, paying attention, solving problems, and memorizing more difficult. This is why there are standards for classroom background noise levels and why offices and libraries are designed to provide quiet work environments.

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[1] More information on these and other adverse effects of noise may be found in *Guidelines for Community Noise*, eds B Berglund, T Lindvall, and D Schwela, World Health Organization, Geneva, Switzerland, 1999. (https://www.who.int/docstore/peh/noise/Comnoise-1.pdf)

Baseline Noise is Not Properly Established

The manner by which the IS/ND determined the existing noise environment is unsupported. The Project is surrounded by vehicle and rail traffic as well as existing residential and industrial uses. The noise analysis relies on six short-term measurements conducted on a Tuesday morning throughout the residential neighborhood across from the project. Sample time for the noise measurements was only 15 minutes, which does not capture the time-variable nature of traffic and rail noise, activity from the KPAC facility, or activity from other nearby industrial facilities. These 15 minutes represent less than 2% of both weekday allowable construction hours (7 A.M. – 9 P.M.) per the City of Los Angeles Municipal Code [2024 Noise Study, pg. 1] and of the 16 hours of weekday operation. The measurements also ignore the 24-hour cooling needs of a cold storage facility. Further, they do not address ambient levels during the new Saturday work shift. The 2024 Noise Study provides no evidence these measurements are typical and representative of the existing noise near the Project.

As shown in Figure 1, the reported existing noise levels along Drumm Avenue vary. The highest level was measured across from the existing cold dock. The Project should document the existing conditions at these homes throughout the operational hours of the facility, including Saturday.

The Project must conduct properly documented ambient measurements near sensitive receptors that fully capture the current baseline conditions during full daytime and nighttime hours to determine impact of construction and operational noise.



Figure 1: Noise Measurement Locations, Sensitive Receptors, and Measured Levels (dBA)

Construction Noise Levels Would be Potentially Significant

The IS/ND fails to disclose and mitigate the Project's potentially significant construction noise impacts. The predicted construction noise levels provided in the 2024 Noise Study appear to contain errors and lack documentation.

Table 2 of the 2024 Noise Study presents construction equipment by phase, including quantities and expected number of hours on site per day for each piece of equipment. The Table shows a calculated 1-hour Leq at 50 feet from the activity. The report states that these calculations were based on reference levels provided by the FHWA Roadway Construction Noise Model (RCNM) and refers to Attachment 2 for calculations [pg. 15]. The report claims that the 1-hour levels were inputted into a SoundPLAN model of the site, to generate levels at nearby sensitive receptors [pg. 16].

The 2024 Noise Study fails to present a Figure showing the SoundPLAN model. Attachment 2 contains result tables from SoundPLAN, which show the 1-hour Leq levels presented in Table 2 as reference levels for an area source representing each activity. Based on these tables, the closest receptor appears to be 59.26 meters (195 feet) from the area source modeled. The report text does not provide any explanation of how this distance was selected, nor does the IS/ND provide evidence verifying the actual distance between the Project site and nearby residential receptors. Of note, the distance of 195 feet conflicts with assumptions made as part of the 2024 Noise Study's evaluation of vibration impacts, where the analysis assumes that equipment would be operating within 85 feet of sensitive receptors. The IS/ND also reports that the nearest sensitive receptors are between 85 and 950 feet from the Project site.

Based on the activity levels shown in Table 2, adjusting for the distance shown in Attachment 2, demolition levels would be roughly 76 dBA at the closest residences, not accounting for any shielding or ground effects. The modeled demolition noise levels shown in Attachment 2 (79.6 dBA for Demolition at Site 1) don't match the levels shown in Table 3 (77.4 dBA for the same). Given these discrepancies, the 2024 Noise Study severely underestimated potential noise impacts to nearby residential receptors. Therefore, the underlying data does not support the 2024 Noise Study and ND's conclusion that impacts are less than significant.

The demolition levels presented by the 2024 Noise Study are 6 to 8 dB above the lowest ambient levels measured along Drumm Avenue. Per the 2006 City of Los Angeles CEQA Threshold Guide, construction activities lasting more than 10 days that exceed ambient noise levels by 5 dBA or more would be considered a significant impact.

The 2024 Noise Study argues "the City does not consider increase in daytime ambient levels resulting from construction activities as constituting significant environmental effects" [pg. 20], and instead relies on an absolute threshold of 80 dBA. However, construction noise levels may cause community annoyance, even if levels are below the 80-dBA absolute threshold. As shown in Figure 3-6 of the Federal Transit Authority Noise and Vibration Impact Assessment Manual Noise (FTA Manual)[2], which is based on actual case studies, community reaction to newly introduced noise gets stronger

[2] https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

as noise above existing levels increases. Reactions to increases between 5 to 10 dB varied from "widespread complaints" to "threats of legal action."

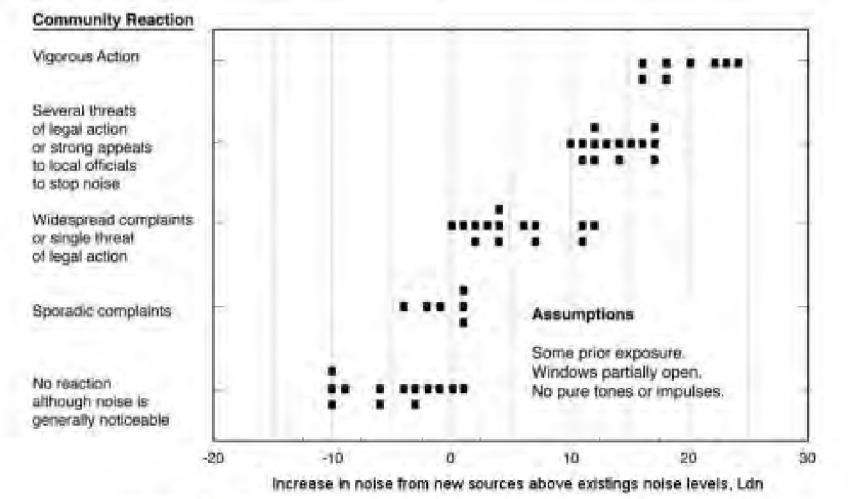


Figure 3-6 Community Reaction to New Noise, Relative to Existing Noise in a Residential Urban Environment

Figure 1 FTA Noise and Vibration Impact Assessment, Section on Construction Noise and Vibration (FTA page 18)

A previous version of the Noise Study dated December 2022 utilized a different significance threshold than 80 dBA to determine whether construction impacts are potentially significant. It cited Section 112.05 of the City of Los Angeles Municipal Code (LAMC), which prohibits construction equipment noise levels from exceeding 75 dBA at a distance of 50 feet between the hours of 7am and 10pm when in close proximity to any residential zone. Neither the IS/ND nor the 2024 Noise Study acknowledge the applicability of the ordinance to noise from construction equipment. Nor do they provide evidence demonstrating that the Project would comply with this requirement. However, the 2022 Noise Study acknowledges that the predicted demolition noise levels shown in Table 3 exceed this criterion.

In 2024 the City of Los Angeles adopted new construction noise and vibration thresholds, referenced in the 2024 Noise Study, titled "Construction Noise and Vibration – Updates to Thresholds and Methodology Report" [pg. 20]. This document provides no numerical threshold for daytime construction activities to assess "generation of a substantial temporary or permanent increase in ambient noise levels."[3] The 2024 Noise Study replaces the LAMC criteria with the 80-dBA threshold recommended in the updated guidelines. It does not reproduce the three noise questions set forth by Appendix G of the CEQA Guidelines, which were included in the 2022 Noise Study.

While the new City of Los Angeles guidance document ignores both the City Code and the CEQA Guidelines, it affirms the importance of protecting human health and it presents a methodology meant to take into account the distribution of construction equipment around a project site. The methodology outlined by the City is less conservative than the approach Wilson Ihrig would

[3] https://planning.lacity.gov/odocument/10d91dc4-da7d-493c-860e-9d0038cf1de2/Update%20CEQA%20Thresholds%20Memo_09.25.2024_Signed.pdf

recommend or that has been standard practice for CEQA analysis in the past. While the 2024 Noise Study adopts the City's 80 dBA threshold, it does not employ the recommended methodology for determining construction noise impacts,[4] which requires:

1. Calculating noise levels for each individual piece of equipment at the center of the site.
2. Calculating the noise level for the single noisiest piece of equipment at the perimeter of the site, using usage factors to adjust for power level *and* precent of time the equipment is used.
3. Combining the levels in Equations 1 and 2 to calculate a total level for the activity.

For the purposes of step 1 above, we will assume that the 195-foot distance shown in Attachment 2 is representative of the center of the site. The closest single-family residences appear to be 60 feet from the Project site. As noted above, the 2024 Noise Study evaluation of vibration impacts assumes that equipment would be operating within 85 feet of sensitive receptors. For the purposes of step 2, we show both 60 feet and 85 feet. Table 1 below shows a calculated 8-hour Leq of 82 dBA for the noisiest activity (demolition) based on the City of Los Angeles methodology. This level is 11 dB above the measured ambient level, above the 75-dBA LAMC criteria, and above the 80-dBA 8-hour Leq absolute threshold relied upon by the IS/ND.

Finally, the 2022 Noise Study shows information missing from Attachment 2 of the 2024 Noise Study regarding the RCNM reference levels used in the construction predictions. The Project arbitrarily selected "Actual Lmax" over "Spec Lmax" levels for some of the equipment on site, resulting in lower activity levels.

Table 1 Calculated 8-hour Leq for Demolition Activity at Single-family Residences

Equipment (Quantity)	**Lmax at 50 ft., dBA**	**Usage Factor, %**	**Hours per Day**	**Distance to Receptor, ft.**	**Leq (8-hr) at Receptor, dBA**
Equation 1					
concrete saw (1)	90	20		195	71
dozer (1)	82	40		195	66
tractor (3)	84	40		195	73
Equation 2					
concrete saw (1)	90	20	8	60	81
Equation 3					
				Total Demolition Noise:	**82**

[4] Although the City's updated guidelines permit the use of SoundPLAN as an alternative method, the deficiencies identified in this comment letter undermine the reliability of the conclusion presented in the 2024 Noise Study and ND.

Table 2 Calculated 8-hour Leq for Demolition Activity at Single-family Residences

Equipment (Quantity)	Lmax at 50 ft., dBA	Usage Factor, %	Hours per Day	Distance to Receptor, ft.	Leq (8-hr) at Receptor, dBA
Equation 1					
concrete saw (1)	90	20		195	71
dozer (1)	82	40		195	66
tractor (3)	84	40		195	73
Equation 2					
concrete saw (1)	90	20	8	85	78
Equation 3					
			Total Demolition Noise:		**80**

The errors and omissions in the underlying data render the construction noise analysis unreliable. Noise impacts must be re-evaluated utilizing a properly established ambient noise level. Mitigation measures such as enclosures, relocating staging areas and stationary equipment, temporary noise barriers, and noise monitoring should be considered to reduce potentially significant construction noise impacts.

Missing Operational Noise Analysis

The IS/ND fails to analyze mechanical noise. The Project includes expansion of mechanical and electrical rooms and the construction of a fire pump building. It also includes alteration of the existing cold dock for a new freezer and expanding the facility to the west, *closer to single-family homes.* The site plan provided in Figure 2 of the IS/ND [IS/ND pg. 14] is illegible and does not provide location of all new mechanical equipment. The Noise Study states that since "Section 112.02 of the LAMC, which prohibits equipment from causing more than a 5 dB increase in the ambient noise level. Therefore, operation of mechanical equipment on the Project building would not exceed the City's threshold of significance." This is a circular argument. The Project is not only adding new equipment on site but moving operations closer to nearby residences. The Noise Study does not present any empirical evidence demonstrating that the proposed Project would comply with the applicable ordinance. For example, it does not identify the type of equipment proposed or the decibel levels associated with the mechanical equipment.

The IS/ND also fails to analyze noise from truck activity on and off site. There is no discussion of increased traffic along Drumm Avenue, specifically from the extended hours of operation on Saturday. Further, there is no discussion of dock noise on site. The ambient measurements presented in the Noise Study indicate that noise levels are already higher at the homes near the existing cold dock, as shown in Figure 1 above. The dock is expected to move closer to the homes and extend operation into Saturday, both of which would result in an increased noise environment. As stated above, ambient noise levels were not properly established over the weekend.

The Project should provide a quantitative analysis of operational noise, including mechanical noise, traffic noise, and dock activity from the extension of the facility. If the increase is significant the Project must properly evaluate mitigation measures to reduce the impacts to less than significant.

Conclusion

The IS/ND fails to consider ambient-based significance criteria for noise impacts for construction and relies on an inadequate baseline, based on short-term measurements. The construction noise analysis contains errors which result in underestimating noise levels. Finally, the IS/ND fails to predict any operational noise on site.

Please feel free to contact me with any questions regarding this information.

Very truly yours,
Ani Toncheva, Senior Consultant, WILSON IHRIG

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION



ANI TONCHEVA

Senior Consultant

Since joining the firm in 2011, Ani has conducted analyses for transit systems, vibration-sensitive research facilities, public infrastructure, construction, and other environmental noise. She has contributed to literature reviews, including research on current practices of historical preservation. She has extensive experience working on construction projects in New York City and is well-versed in local noise codes.

Education

- B.A., Physics; Bard College, New York

Professional Associations

- *Member*, National Council of Acoustical Consultants (NCAC)
- *Member*, Acoustical Society of America (ASA)
- *Member*, WTS (Women's Transportation Seminar)
- *Board Member,* Transportation Research Forum (TRF), NY Chapter and International Board

Project Experience

National Academies of Sciences, NCHRP 25-25/Task 72, Current Practices to Address Construction Vibration and Potential Effects to Historic Buildings Adjacent to Transportation Projects
This report summarizes the results of the literature search and the survey of transportation agencies and provides a detailed discussion of seven informative case studies. A recommended guideline approach for addressing construction vibration effects on historic buildings has also been provided. Assisted with the literature review and case studies.

National Academies of Sciences, ACRP 07-14, Improving Intelligibility of Airport Terminal Public Address Systems
These guidelines are intended to be used by airport operators and design consultants. The research tasks included a literature review, questionnaire to airport operators, a sample passenger survey, acoustic measurements at six airports, and a presentation of best practices for acoustics, PA system design and specifications. Assisted with data analysis for acoustic measurements as part of this study.

101 Mass Avenue Mixed-Used Air Rights Project, Boston, MA
Responsible for developing a Finite Element model of mixed-use development, built over MBTA commuter railway tracks, and spanning I-90 to analyze predicted building response to ground-borne vibration.

180 Jones Street Affordable Housing and Mixed-Use Development, San Francisco, CA
Prepared a CCR Title 24 Noise Study Report for a new mixed-use building. The project included 70 residential units and on-site community facilities.

206th Street Theater Vibration Study, New York, NY
Analyzed ground vibration measurements at the site of the planned theater located near NYCT rail lines.

1801 Haight Street Mixed-Use Development, San Francisco, CA
Prepared a CCR Title 24 Noise Study Report for a new low-rise mixed-use building.

Analog (ArtX) Hotel, Palo Alto, CA
Prepared preliminary basis of design guidelines for a new five-story boutique hotel in a residential area. Work included evaluating exterior noise from a project that may affect guest areas and interior noise and vibration isolation measures.

Centene Corporation Theater, Clayton, MO
Conducted vibration measurements on the site to define and identify frequency and levels of vibration. The purpose of the study was to assess possible intrusion from trains and other sources into the proposed auditorium.

David Geffen Hall Renovation, Lincoln Center, New York, NY
Conducted vibration measurements on multiple levels of the existing David Geffen Hall structure to measure ground-borne vibration from subway trains. Performed background noise measurements inside the hall to determine ground-borne noise from subway trains.

Esther's Orbit Room, Oakland, CA
Prepared a CCR Title 24 Noise Study Report for the renovation of low-rise buildings near elevated train track. The project included a restaurant with live music, an artist gallery space, a wellness center, and two residential units.

First Congregational Church of Berkeley Pilgrim Hall Replacement, Berkeley, CA
Responsible for developing a 3D computer model of a new hall to prepare a basis of design guidelines for room acoustics and noise control and assist in developing acoustic specifications for various disciplines.

Gansevoort Cooperative, New York, NY
Conducted measurements inside several units in a mixed-use building to characterize commercial noise levels and recommend mitigation measures.

Hollis Life Science, Emeryville, CA
Conducted a drawing review regarding the new air handler units, exhaust fans, and related noise, and vibration-generating equipment, to recommend base isolation requirements to control vibration within the building, and to assess noise control requirements.

Sunnydale Block 3A & 3B Mixed-Use Residential Development, San Francisco, CA
Prepared a CCR Title 24 Noise Study Report for two, mixed-use, 5-story buildings. The project was part of the complete rebuild of the existing Sunnydale-Velasco Housing Authority site through the HOPE SF Program.

Pace University Performing Arts, New York, NY
Conducted a vibration feasibility study for the proposed fit-out in an existing mixed-use commercial/residential building to accommodate the university's dance program. The analysis

included vibration measurements of the existing space to characterize the floor response and determine vibration transmission between the dance spaces and residences on the upper floors. Estimated dance-induced vibration and provided recommendations on possible structural modifications to reduce vibration.

The Perelman Performing Arts Center at The World Trade Center, New York, NY
Conducted structure-borne vibration measurements as part of building vibration isolation design for the flexible performance space. Conducted quality control field visits during isolation pad installation.

Carroll Gardens, Citizen's Place, Brooklyn, NY
Conducted a baseline noise and vibration study in the vicinity of planned pilot test program. Observed pile operations and conducted short-term noise and vibration measurements during impact and vibratory pile driving tests.
Columbia University Medical Center Medical and Graduate Education Building, New York, NY
Conducted baseline noise survey and performed attended noise measurements during preliminary construction work. Installed long-term noise monitors and assisted with implementing a sophisticated remote noise monitoring system for a six-month construction phase, including building demolition.

East Side Coastal Resiliency Noise Monitoring Plan, New York, NY
Prepared noise monitoring plan for residences located near planned construction activities involving the use of pile driving methods for the installation of a flood protection system.

Fulton Municipal Manufactured Gas Plant Environment Remediation, New York, NY
Conducted a baseline noise and vibration study in the vicinity of planned Gowanus Canal remediation for the former MGP site, including long-term unattended and short-term noise and vibration measurements.

Former Citizens Gas Works MGP Site Pilot Test Program, New York, NY
Collected long-term baseline noise and vibration data. Conducted short-term attended noise and vibration measurements at during pile operations. Vibration measurements were conducted at nearby residences and at the MTA NYCT structure near the project site.

Gowanus Canal Remediation, New York, NY
Conducted baseline noise measurements and ongoing long-term noise and vibration monitoring in the vicinity of Gowanus Canal Superfund Site 4th Street turning basin dredging and capping pilot study.

Hudson Yards Tower C Foundations and Utilities, New York, NY
Conducted a baseline noise survey prior to construction work, including a combination of long-term unattended and short-term attended noise measurements.

Jewish Community Center of East Bay, Oakland, CA
Oversaw the preparation of a construction noise management plan, which included detailed predictions of noise levels from planned activities and mitigation recommendations. The project consisted of renovation of existing buildings and outdoor facilities.

MacArthur BART Garage and Residences TOD, Oakland, CA
Prepared monitoring reports for ongoing long-term vibration monitoring.

MSK 74th Street, New York, NY
Conducted baseline noise survey, assisted in developing construction noise control and mitigation plan, and implemented a long-term noise monitoring program at two locations. Provided weekly reports of monitoring data with on-going assessments of Contractor compliance with project noise limits and coordinated interior short-term measurements in nearby residential buildings.

NYMTA No. 7 Line Subway Extension, New York, NY
Performed long-term noise monitoring for the ventilation shaft construction site.

NYMTA No. 7 Line Subway Extension Site L Ventilation Facility Construction, New York, NY
The project involved the mining and lining of two shafts and the construction of a 2-story ventilation building at Site L near Dyer Avenue on West 41st Street. Assisted with long-term noise compliance monitoring and preparation of monthly noise monitoring reports.

NYMTA ESA/LIRR Grand Central Terminal Fit-Out, New York, NY
Prepared the Contractor's noise and vibration control plan updates for fit-out work conducted underground at the Grand Central Terminal Suburban Level. Performed field measurements of construction equipment noise and prepared noise emission certificates.

NYMTA Railcar Acceptance and Testing Facility, Brooklyn, NY
Prepared a construction noise control plan, which included predictions of noise levels from planned activities and mitigation recommendations. The project site was below grade and surrounded by residences and a school overlooking the work.

NYMTA Sandy Powers Repairs, New York, NY
Prepared a construction noise control, monitoring, and mitigation plan, which included detailed predictions of noise levels from planned activities and mitigation recommendations. The project included 18 sites and the plan contained site-specific calculations, monitoring locations, and noise control measures for each site.

PANYNJ Lincoln Tunnel Helix Structural Rehabilitation, NJ
Assisted in developing a construction noise control and mitigation plan and implementing a remote long-term noise monitoring program at three locations. Performed noise measurements of nighttime construction activities in the vicinity of sensitive receptors.

PANYNJ World Trade Center Vehicle Security Facility, New York, NY
Conducted baseline noise surveys, assisted in developing construction noise control plans, and implementing a remote long-term noise monitoring program at six locations around the perimeter of the site at noise sensitive receptors. Provided weekly reports of monitoring data with on-going assessments of Contractor compliance with project noise limits.

PANYNJ Midtown Bus Terminal Replacement Program – Dyer Deck-Overs, New York, NY
Prepared a construction noise control and mitigation plan, which included detailed predictions of noise levels from planned activities and mitigation recommendations. The site included eight work

areas, both at grade and on lower level and was surrounded by mid- and high-rise residential buildings overlooking the construction area.

PANYNJ Rehabilitation of Trans-Manhattan Expressway Overpasses, New York, NY
Developed construction noise monitoring criteria for the project based on background levels measured at each work area. The project consisted of the replacement of two bridge structures and the rehabilitation of four additional bridges. The anticipated work was surrounded by mid- and high-rise residential uses.

San Francisco Planning Department, Alameda Street Wet Weather Tunnel and Folsom Area Sewer Improvement, San Francisco, CA
Project Manager in charge of noise and vibration analysis for Folsom Area stormwater infrastructure improvements, as part of the San Francisco Public Utilities Commission's (SFPUC) flood resilience efforts under the Sewer System Improvement Program. Work included baseline noise survey, noise and vibration predictions, evaluation of applicable criteria and recommendations for noise and vibration control measures.

SLAC LCSS Construction Vibration Study, Menlo Park, CA
Generated a site-specific vibration propagation model and analyzed the potential for vibration impacts to ongoing scientific experiments during the construction of a new building on the SLAC campus. Testing included measuring transfer mobilities, determining the vibration response of particle beamline equipment, and vibration generated by construction equipment.

CEQA Peer Reviews, California
Peer review of noise and vibration analyses prepared per CEQA. These projects have primarily focused on the construction and operation of new facilities including residential in-fill, office and mixed-use projects, and educational buildings.

Chevron Oil Refinery, SNR Plant, El Segundo, CA
Development of three-dimensional acoustic model of project site for an environmental noise study to understand prevalence of noise created by the SNR plant located in the oil refinery, determination of regulatory compliance, development of noise criteria for tonal components observed in the adjacent communities and development of noise mitigation options for regulatory compliance and reduction of community annoyance.

Millennium Bulk Terminal, Longview, WA
Prepared noise analysis for the project's NEPA and SEPA environmental impact statements. Tasks included future rail traffic modeling using CadnaA and preparation of noise contours using GIS.

Peninsula Humane Society & SPCA Haskin Hill Sanctuary, Loma Mar, CA
Prepared an environmental study for a planned animal sanctuary in Loma Mar. Work included baseline noise measurements, predictions of expected noise from the completed project and a review of compliance with local regulations and CEQA.

ACTC I-680 Roadway Improvements and HOV Express Lanes, Contra Costa County, CA
Assisted with predictions for traffic noise study. The work included noise modelling and impact assessments consistent with FHWA and Caltrans procedures and methodology for multiple project alternatives.

ACTC I-880/Whipple Interchange, Hayward, CA
Project Manager for a traffic noise study. The work included noise modelling and impact assessments consistent with FHWA and Caltrans procedures and methodology for multiple project alternatives.

I-80/Ashby Avenue (SR-13) Interchange Improvements, Berkeley, CA
Project Manager for a traffic noise study. The work included noise modelling and impact assessments consistent with FHWA and Caltrans procedures and methodology for multiple project alternatives.

Junipero Serra Traffic Noise Study, South San Francisco, CA
Noise analysis of existing traffic noise and potential benefits of noise abatement measures such as sound walls and quieter pavement.

Riverstone Apartments, Seattle, WA
This street will serve the future Star Lake Station currently under construction for Sound Transit's Federal Way Link Extension. As part of the Federal Way project, improvements to the street include the addition of a turning lane and traffic light (currently in place) at the end of a roadway. The study provided an independent assessment of the potential for traffic noise impacts on the residents of Riverstone based on FTA project noise criterion.

50 Pine Street Condominiums, New York, NY
The project involved evaluating noise at residential dwelling units for NYC noise code compliance. Measured noise levels from mechanical equipment in an enclosed courtyard.

Uptown Newport, Newport Beach, CA
Evaluation of noise levels due to mechanical equipment at adjacent property. Assisted heavily with data analysis from long-term monitoring and data presentation for the legal team.

BART Berryessa Station Transit Noise Impact and Mitigation, San Jose, CA
Assisted with noise predictions and barrier design recommendations. Project is a 10.2-mile extension of a heavy rail transit system in the San Francisco Bay Area, and this is one of the stations along the new route.

California High-Speed Rail Fresno-Merced Corridor, Fresno-Merced, CA
Lead noise analyst for the project's environmental impact assessment. Tasks included characterizing the existing noise conditions and assessing noise impacts from transit operations and construction-related activities.

Caltrain Peninsula Corridor Electrification, San Francisco Peninsula, CA
Analyzed previous noise study. Assisted in developing current noise prediction model and GIS model for vibration. Helped prepare FEIR. This project included extensive ambient noise and vibration measurement surveys; the development of noise and vibration prediction models for HST operations; prediction of wayside noise and vibration levels for HST operations; evaluation of

environmental noise and vibration impacts using FRA procedures and criteria and determining the need for any type of noise mitigation.

LA Metro Purple (D) Line Subway Extension - Section 3, Los Angeles, CA
Responsible for developing detailed 3D computer models for two transit stations using EASE software.

Maryland Transit Administration (MTA) Purple Line LRT Final Design, Bethesda to New Carrollton, MD
Responsible for developing detailed 3D computer models for three transit stations using EASE software. Developed 3D models of TPSS sites to evaluate noise from mechanical equipment.

MBTA Green Line Extension Design/Build (GLX), Boston, MA
Lead analyst on noise predictions and barrier design. Work included planning field measurements, conducting data analysis, predicting noise impacts from project operations, and making barrier design recommendations.

Metrolinx Eglinton Crosstown LRT, Toronto, Ontario
Reviewed historic reports for relevant data, assisted with GIS model and preparation for noise and vibration measurements. The TTC is planning to construct the Eglinton Tunnel subway line and needed to address what mitigation could be necessary to reduce ground-borne noise and vibration impacts. The proposed study would determine the most likely range of ground-borne noise and vibration levels in residences and other sensitive buildings along the planned alignment.

Niagara Frontier Transportation Authority (NFTA) LRRT-LRV Midlife Rebuild, Buffalo, NY
Participated in vehicle noise qualification testing program for refurbished light rail transit vehicles.

RTD Eagle P3 Northwest Corridor Noise and Impacts, Denver, CO
Assisted with data analysis and helped prepare the final technical report. The project consists of 33 miles of EMU Commuter Rail connecting downtown Denver Union Station to the Denver International Airport. This project also includes a Commuter Rail Maintenance Facility with a capacity to store and service 100 EMU.

Santa Clara VTA, Vasona LRT Corridor Tire-Derived Aggregate (TDA) Underlayment Performance Testing, San Jose, CA
Project Manager in charge of planning a series of tests to document the performance of TDA ballast underlayment over time, as required by FTA. Previous tests were done in 2006, 2006, and 2009. Work will include documenting vibration isolation performance, rail strain, and rail deflection.

Sound Transit Northgate Link Vibration Attenuation Estimates, Seattle, WA
Provided general field support for all elements of testing. Tasks included moving equipment into/out of the tunnel, deploying sensors on campus, and attending to wireless antennas during testing. To derive the relationship between vibration measured in the Northgate link tunnel and building vibration at research facilities on the University of Washington campus, field tests were conducted using a shaker in the tunnel while simultaneously measuring the vibration response in UW buildings using a wireless data collection system.

TJPA San Francisco Downtown Rail Extension (The Portal), San Francisco, CA
Project Manager in charge of preliminary engineering noise and vibration analysis. The project consists of a 2.4-mile at-grade and tunnel alignment starting at the existing Caltrain terminal station and railyard and ending at the Salesforce Transit Center. Provided updated noise and vibration predictions for the project based on current design and abasement measure design recommendations based on new field testing and updated analysis. Provided an additional study and report of vibration impacts on a sensitive structure along the alignment and possible mitigation strategies.

Toronto Transit Commission (TTC) Scarborough Subway Extension, Toronto, ONT, Canada
Conducted force density level (FDL) measurements and analysis for the Toronto Rocket vehicles on TTC standard double ties on the Toronto-York Spadina Subway Extension. Predicted ground-borne noise and vibration levels at sensitive receptors along the Scarborough extension and prepared project memos.

VTA's BART Silicon Valley Extension Phase II (BSVII) (2020+)
Responsibilities included station acoustics and speech intelligibility design and evaluation of operational train noise and vibration. The largest single public infrastructure project ever constructed in Santa Clara County, this phase of VTA's BART to Silicon Valley project will extend BART service six miles from the Berryessa Transit Center into San Jose and ending in the City of Santa Clara.

WMATA On-Call Task: Green Line Noise and Vibration, Washington, DC
Conducted extensive field measurements inside homes and along tunnels to document ground-borne noise and vibration due to WMATA Green Line trains. Performed rail roughness measurements along sections of track within the study area. Analyzed recordings to determine train passby levels and plotted data to compare results for the different vehicle fleets and compare to applicable criteria.

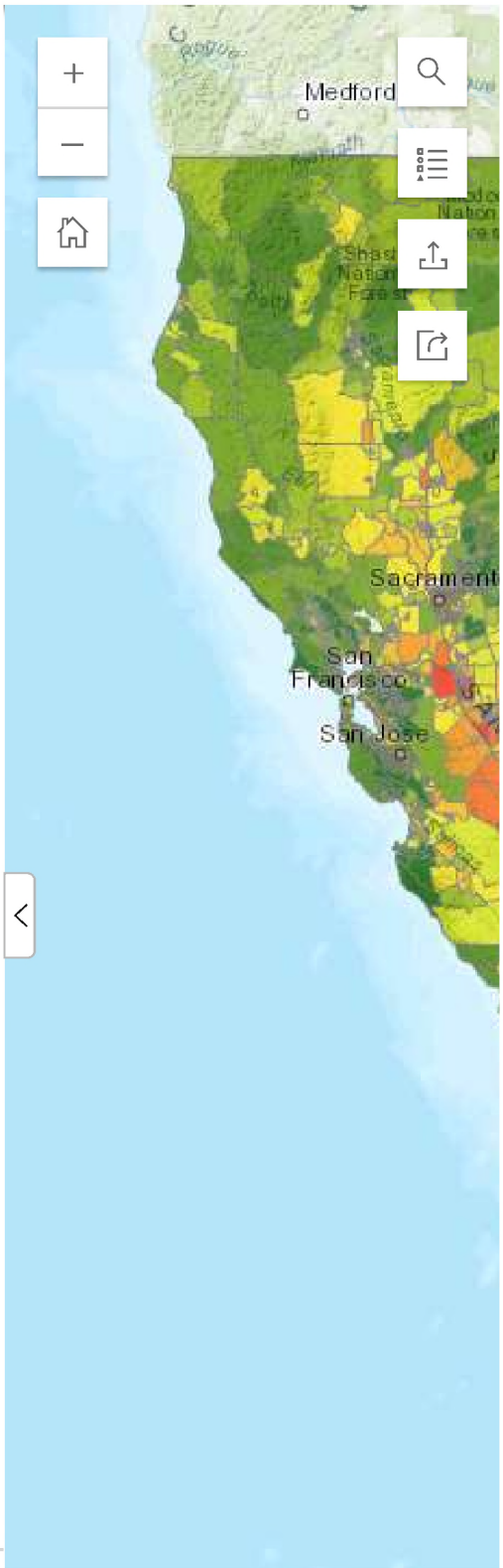
Washington Metropolitan Area Transit Authority (WMATA) Vehicles Out-of-Round Wheel Study, DC
Assisted with modal analysis on nine wheelsets of WMATA vehicles.

CalEnviroScreen 4.0

The CalEnviroScreen 4.0 tool shows cumulative impacts in California communities by census tract.

How to use this map

- Use your mouse or touchpad to pan around.
- Zoom in/out with a mouse wheel or the +/- icons.
- Search by location or census tract number with the **search icon**.
- Click on a census tract to view additional information in the pop-up window.
- Dock the pop-up window to the side of the screen by clicking the **dock** icon.
- Export a map view that includes the legend and popup using the **screenshot** widget.
- Learn more about CalEnviroScreen 4.0 and how this map was created **here**



Overall Percentile

CalEnviroScreen 4.0 Results

- >90 - 100 (Highest Scores)
- >80 - 90
- >70 - 80
- >60 - 70
- >50 - 60
- >40 - 50
- >30 - 40
- >20 - 30
- >10 - 20
- 0 - 10 (Lowest Scores)

CalEnviroScreen 4.0 High Pollution, Low Population

Esri, HERE, Garmin, ... Powered by Esri

Overview: Diesel Exhaust & Health

CATEGORIES

Topics Health, Air Pollution, Zero-Emission Transportation, Construction & Earthmoving Equipment, Environmental Justice, Oceangoing Vessels & Harbor Craft, Freight & Goods Movement, Trains & Railyards, Transit, VW Diesel Vehicles

Programs Exposure, Community Air Protection Program , Community Health, Zero-Emission Powertrain Certification, Alternative Diesel Fuels, In-Use Off-Road Diesel-Fueled Fleets Regulation, Study of Neighborhood Air near Petroleum Sources, School Buses

Type Information

CONTACT

Research Division

Email research@arb.ca.gov

Phone (916) 445-0753

Background

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material.The solid material in diesel exhaust is known as diesel particulate matter (DPM). More than 90% of DPM is less than 1 µm in diameter (about 1/70th the diameter of a human hair), and thus is a subset of particulate matter less than 2.5 microns in diameter (PM2.5). Most PM2.5 derives from combustion, such as use of gasoline and diesel fuels by motor vehicles, burning of natural gas to generate electricity, and wood burning. PM2.5 is the size of ambient particulate matter air pollution most associated with adverse health effects of the air pollutants that have ambient air quality standards. These health effects include cardiovascular and respiratory hospitalizations, and premature death. As a California statewide average, DPM comprises about 8% of PM2.5 in outdoor air, although DPM levels vary regionally due to the non-uniform distribution of sources throughout the state.

DPM is typically composed of carbon particles (“soot”, also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-



butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_X). NO_X emissions from diesel engines are important because they can undergo chemical reactions in the atmosphere leading to formation of PM2.5 and ozone.

Most major sources of diesel emissions, such as ships, trains, and trucks operate in and around ports, rail yards, and heavily traveled roadways. These areas are often located near highly populated areas. Because of this, elevated DPM levels are mainly an urban problem, with large numbers of people exposed to higher DPM concentrations, resulting in greater health consequences compared to rural areas. A large fraction of personal exposure to DPM occurs during travel on roadways. Although Californians spend a relatively small proportion of their time in enclosed vehicles (about 7% for adults and teenagers, and 4% for children under 12), 30 to 55% of total daily DPM exposure typically occurs during the time people spend in motor vehicles.

Diesel Particulate Matter and Health

The majority of DPM is small enough to be inhaled into the lungs. Most inhaled particles are subsequently exhaled, but some deposit on the lung surface. Although particles the size of DPM can deposit throughout the lung, the largest fraction deposits in the deepest regions of the lungs where the lung is most susceptible to injury.

In 1998, CARB identified DPM as a toxic air contaminant based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. In 2012, additional studies on the cancer-causing potential of diesel exhaust published since CARB's determination led the International Agency for Research on Cancer (IARC, a division of the World Health Organization) to list diesel engine exhaust as "carcinogenic to humans". This determination is based primarily on evidence from occupational studies that show a link between exposure to DPM and lung cancer induction, as well as death from lung cancer. Download the IARC report (external site).

Because it is part of PM2.5, DPM also contributes to the same non-cancer health effects as PM2.5 exposure. These effects include premature death, hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies. Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Estimated Health Effects of DPM in California

DPM has a significant impact on California's population. It is estimated that about 70% of total known cancer risk related to air toxics in California is attributable to DPM. Based on 2012 estimates of statewide exposure, DPM is estimated to increase statewide cancer risk by 520 cancers per million residents exposed over a lifetime. Non-cancer health effects associated with exposure to DPM (based on 2014 - 2016 air quality data) are shown in the table below.

Health Effect	**Estimated Annual Number of Cases***
Cardiopulmonary Death	730 (570 – 890)
Hospitalizations (Cardiovascular and Respiratory)	160 (20 – 290)
Emergency Room Visits for Asthma	370 (240 – 510)

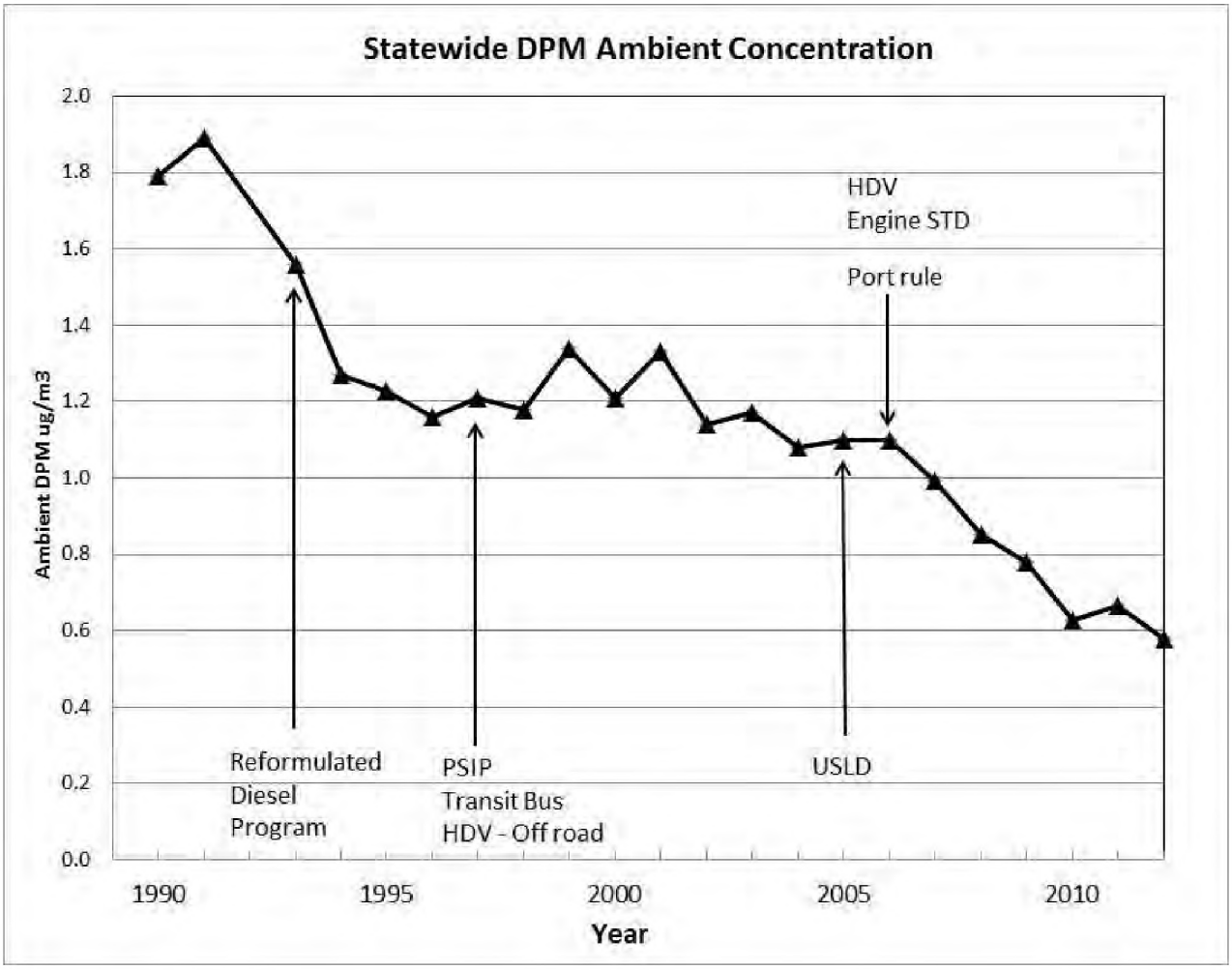
*Values in parenthesis indicate 95% confidence interval.

More Information

Trends in Outdoor Levels of DPM

The figure below shows the trend in ambient DPM. CARB regulations** of diesel engines and fuels have had a dramatic effect on DPM concentrations. Since 1990, DPM levels have decreased by 68%. The figure also shows which regulations have had the greatest impact on DPM.

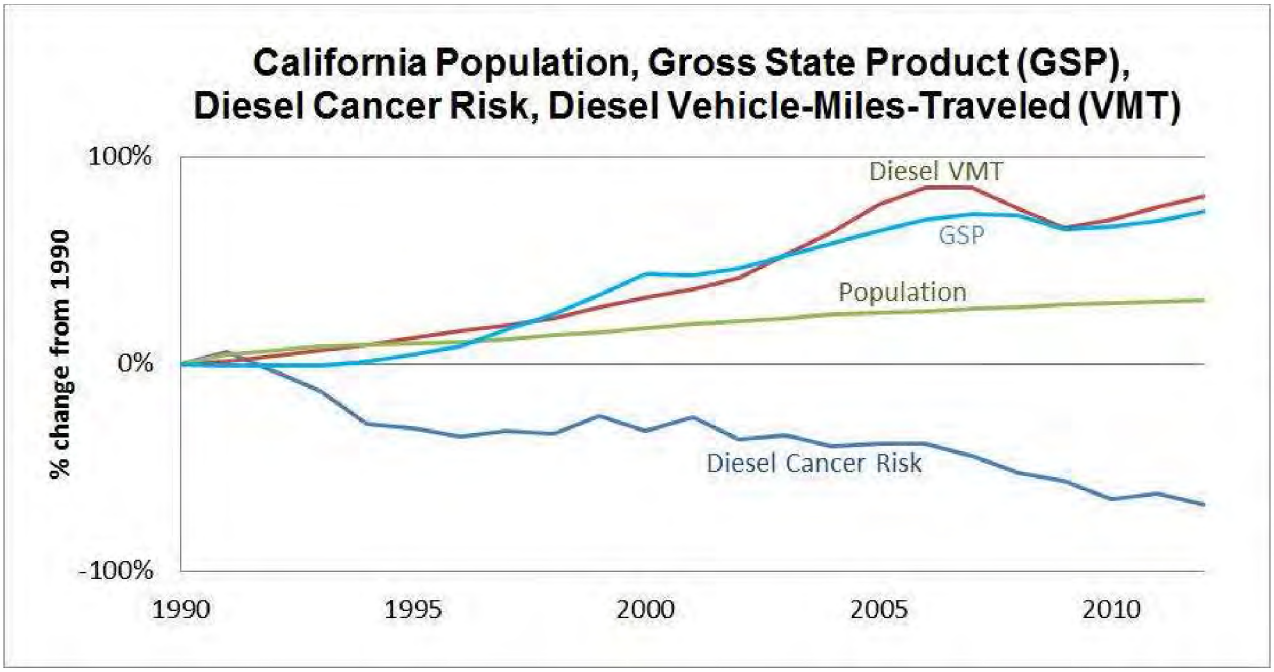
DPM levels are expected to continue declining as additional controls are adopted, and the number of new technology diesel vehicles increases.



**Abbreviations of CARB regulations used in table: HDV Engine STD = Heavy-duty diesel truck engine standard; HDV - Off road = Heavy-duty off-road diesel engines; Port rule = Port (drayage) trucks; PSIP = Periodic self-inspection program; Transit

bus = Urban transit buses; ULSD = Clean diesel fuel

The figure below shows that despite the increased number of vehicle miles traveled by diesel vehicles (VMT, red line), and despite increases in statewide population (green line) and gross state product (GSP, a measure of growth in the state's economy, light blue line), CARB's regulatory programs still led to a decline in statewide cancer risk (dark blue line).



Additional Information

- CARB's diesel programs
- CARB's diesel mobile vehicles and equipment activities
- CARB's freight transport, ports and rail programs
- California's diesel fuel program
- Other diesel-related programs
- Selected references on diesel-related health effects

Environmental Effects of Diesel Exhaust

In addition to its health effects, diesel exhaust significantly contributes to haze that reduces visibility by obscuring outdoor views and decreasing the distance over which one can distinguish features across the landscape. Researchers have reported that in the San Joaquin Valley and in southern California, diesel engines contribute to a reduction in visibility. This decrease in visibility is caused by scattering and absorption of sunlight by particles and gases present in diesel emissions.

DPM also plays an important role in climate change. A large proportion of DPM is composed of BC. Recent studies cited in the Intergovernmental Panel on Climate Change report estimate that emissions of BC are the second largest contributor to global warming, after carbon dioxide emissions. Warming occurs when BC particles absorb sunlight, convert it into infrared (heat) radiation, and emit that radiation to the surrounding air. A recent California-specific study showed that the darkening of snow and ice by BC deposition is a major factor in the rapid disappearance of the Sierra Nevada snow packs. Melting of the snow pack of the Sierra Nevada earlier in the spring is one of the contributing factors to the serious decline in California's water supply. As additional DPM controls are adopted, and the number of new technology diesel vehicles increases, BC emissions will continue to decline.

Conclusions

Although progress has been made over the past decade in reducing exposure to diesel exhaust, diesel exhaust still poses substantial risks to public health and the environment. Efforts to reduce DPM exposure through use of cleaner-burning diesel fuel, retrofitting engines with particle-trapping filters, introduction of new, advanced technologies that reduce particle emissions, and use of alternative fuels are approaches that are being explored and implemented. CARB anticipates that newly adopted diesel exhaust control measures will reduce population exposure even further, and that as the sustainable freight program expands, population

exposure to diesel exhaust pollution will decrease even further. It is estimated that emissions of DPM in 2035 will be less than half those in 2010, further reducing statewide cancer risk and non-cancer health effects.

RELATED RESOURCES

Final OGV2025 Emissions Inventory Output

Final OGV2025 Emissions Inventory Documentation

SNAPS IOF Communities Data Analysis Update and Community Meeting: January 2025

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Diesel engine exhaust; CASRN N.A.

Human health assessment information on a chemical substance is included in the IRIS database only after a comprehensive review of toxicity data, as outlined in the IRIS assessment development process. Sections I (Health Hazard Assessments for Noncarcinogenic Effects) and II (Carcinogenicity Assessment for Lifetime Exposure) present the conclusions that were reached during the assessment development process. Supporting information and explanations of the methods used to derive the values given in IRIS are provided in the guidance documents located on the IRIS website.

STATUS OF DATA FOR Diesel engine exhaust

File First On-Line 06/01/1993

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	message	02/28/2003
Inhalation RfC (I.B.)	yes	02/28/2003
Carcinogenicity Assessment (II.)	yes	02/28/2003

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

I.A. Reference Dose for Chronic Oral Exposure (RfD)

Substance Name — Diesel engine exhaust
CASRN — N.A.
Last Revised — 02/28/2003

The oral Reference Dose (RfD) is based on the assumption that thresholds exist for certain toxic effects such as hemolysis. It is expressed in units of mg/kg-day. In general, the RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Please refer to the Background Document for an elaboration of these concepts. RfDs can also be derived for the noncarcinogenic health effects of substances that are also carcinogens. Therefore, it is essential to refer to other sources of

information concerning the carcinogenicity of this substance. If the U.S. EPA has evaluated this substance for potential human carcinogenicity, a summary of that evaluation will be contained in Section II of this file.

An oral RfD for diesel engine exhaust is not provided. All available studies are focused on inhalation exposure.

I.B. Reference Concentration for Chronic Inhalation Exposure (RfC)

Substance Name — Diesel engine exhaust
CASRN — N.A.
Last Revised — 02/28/2003

The inhalation Reference Concentration (RfC) is analogous to the oral RfD and is likewise based on the assumption that thresholds exist for certain toxic effects such as cellular necrosis. The inhalation RfC considers toxic effects for both the respiratory system (portal-of-entry) and systems peripheral to the respiratory system. It is generally expressed in units of mg/m^3. In general, the RfC is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily inhalation exposure of the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Inhalation RfCs were derived according to the Interim Methods for Development of Inhalation Reference Doses (EPA/600/8-88/066F August 1989) and subsequently, according to Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry (EPA/600/8-90/066F October 1994). RfCs can also be derived for the noncarcinogenic health effects of substances that are carcinogens. Therefore, it is essential to refer to other sources of information concerning the carcinogenicity of this substance. If the U.S. EPA has evaluated this substance for potential human carcinogenicity, a summary of that evaluation will be contained in Section II of this file.

Diesel engine exhaust (DE) is a complex mixture of airborne particles and gases. Diesel particulate matter (DPM), composed of elemental carbon particles and adsorbed organic compounds, is the most frequently determined measure of DE and the measure reported in toxicological studies of diesel engine exhaust. The previous RfC of 5×10^{-3} mg DPM/m^3 was entered on IRIS 6/1/93. This updated RfC reflects the use of a revised model for lung deposition of DPM, and remains unchanged.

I.B.1. Inhalation RfC Summary

Critical Effect	Experimental Doses*	UF	MF	RfC
Pulmonary inflammation and histopathology **Rat chronic inhalation study Ishinishi et al. (1988)**	NOAEL: 0.46 mg/m³ $NOAEL_{HEC}$: 0.144 mg DPM/m³	30	1	5µg/m³

*Conversion Factors and Assumptions — Human equivalent concentrations were derived using a mathematical model of diesel particulate matter (DPM) deposition and clearance (Yu et al., 1991), assuming that equal pulmonary surface loadings (in mg DPM/cm²) in rats and humans would be associated with similar effects. First, the model was used to estimate the loading in rats corresponding to the NOAEL, administered 16 hr/day, 6 days/week, for 130 weeks. Then the model was used to estimate the continuous exposure conditions for humans which would lead to the loading estimated in rats. In performing the modeling, rats were taken to weigh 300g, with a total pulmonary surface area of 4090 cm². Human equivalent concentrations were derived using respiratory parameters for a 25 year-old human male having a total pulmonary surface area of 627,000 cm², tidal volume of 0.926 L, respiratory frequency of 15 breaths/min, and total daily pulmonary volume of 20 m³, with exposure assumed to last 70 years. For more details of the derivation of human equivalent concentrations, see the Support Document (U.S. EPA, 2002; Appendix A).

I.B.2. Principal and Supporting Studies (Inhalation RfC)

Chronic respiratory effects are the principal noncancer hazard to humans from long-term environmental exposure to diesel engine exhaust, or emissions (DE). Several occupational studies have evaluated the noncancer effects of chronic exposure to DE (U.S. EPA, 2002, Chapter 5.1.1.2). There is some evidence suggesting that exposure may impair pulmonary function, though the results are not robust. While the increased occurrence of mostly transient symptoms such as cough, phlegm, and chronic bronchitis is clear in noncancer occupational studies, the studies are deficient in exposure information.

Other effects (e.g., neurological, growth and survival, neurobehavioral, lowered resistance to respiratory infection, liver effects) are observed in animal studies at higher exposures than those producing the respiratory effects (U.S. EPA, 2002, Chapter 5.6). The human and animal data for the immunological effects of DE exposure (i.e., exacerbation of allergenicity, and

asthma symptomology) are currently inadequate for dose-response evaluation. Reproductive toxicity has been evaluated in six studies. No teratogenic, embryotoxic, fetotoxic or female reproductive effects have been observed in mice, rats, or rabbits at inhalation exposure levels lower than those where respiratory effects were observed. Respiratory effects are considered the "critical effect" for the derivation of a chronic RfC for DE.

The evidence for chronic respiratory effects is based mainly on animal studies showing consistent findings of inflammatory, histopathological (including fibrosis), and functional changes in the pulmonary and tracheobronchial regions of laboratory animals, including the rat, mouse, hamster, guinea pig, monkey, and cat. Of 17 studies covering these species, the rat is the most studied test animal, though positive responses are also seen in mice, guinea pigs, monkeys, and hamsters. Most are single dose studies, except for five multi-dose studies discussed below.

The multi-dose studies, by Ishinishi et al. (1986, 1988), Mauderly et al. (1987a), Heinrich et al. (1995), and Nikula et al. (1995), show exposure-response relationships based on chronic inhalation exposure to whole diesel exhaust in rats. The effects observed include inflammation, histopathology (including fibrosis), and functional changes in the pulmonary and tracheobronchial regions. An array of these key studies and their effect levels (NOAEL, LOAEL, $BMCL_{10}$, AEL) prior to conversion to human equivalent concentrations (HECs) is shown in Table I.B.1. This array provides an inter-study concentration-response continuum, normalized to human equivalent continuous diesel particulate matter (DPM) exposure levels, facilitating the choice of a concentration to use as a point of departure in deriving an RfC.

TABLE I.B.1: Human equivalent continuous concentrations: 70-year HECs calculated with the model of Yu et al. (1991) from key long-term studies of rats repeatedly exposed to DPM[a]

Study	Exposure concentration (mg/m^3)	Effect level[a]	Lung burden (modeled) (µg DPM /cm^2)[b]	HEC (mg/m^3)
Ishinishi et al. (1988) (LD)[c]	0.11	NOAEL	0.0587	0.032
Mauderly et al. (1987a)	0.35	NOAEL	0.0685	0.038
Ishinishi et al. (1988) (LD)[c]	0.41	NOAEL	0.245	0.128

Study	Exposure concentration (mg/m^3)	Effect level[a]	Lung burden (modeled) (µg DPM /cm^2)[b]	HEC (mg/m^3)
Ishinishi et al. (1988) (HD)[c]	0.46	NOAEL	0.281	0.144
Heinrich et al. (1995)	0.84	LOAEL	0.94	0.33
Nikula et al. (1995)	2.44 & 6.3[d]	$BMCL_{10}$ - inflam	1.34	0.37
Ishinishi et al. (1988) (HD)[c]	0.96	LOAEL	3.16	0.883
Ishinishi et al. (1988) (LD)[c]	1.18	LOAEL	4.50	1.25
Nikula et al. (1995)	2.44 & 6.3[d]	$BMCL_{10}$ - fibrosis	4.70	1.3
Mauderly et al. (1987a)	3.47	LOAEL	4.95	1.375
Nikula et al. (1995)	2.44	LOAEL	7.00	1.95
Ishinishi et al. (1988) (HD)[c]	1.84	AEL	7.63	2.15
Heinrich et al. (1995)	2.5	AEL	8.40	2.35
Ishinishi et al. (1988) (LD)[c]	2.32	AEL	9.75	2.75
Mauderly et al. (1987a)	7.08	AEL	10.9	3.05
Ishinishi et al. (1988) (HD)[c]	3.72	AEL	15.8	4.4

[a] Effect levels are based on the critical effects of pulmonary histopathology and inflammation as reported in the individual studies. NOAEL: no-observed-adverse-effect level; LOAEL: lowest-observed-adverse-effect level; AEL: adverse-effect level; $BMCL_{10}$: lower 95% confidence estimate of the concentration of diesel particulate matter (DPM) associated with a 10% incidence of chronic pulmonary inflammation (inflam) or fibrosis (see Appendices A and B for more specifics).
[b] Lung burdens were derived from data generated from the animal portion of the Yu model using the concentration and duration scenario of each study. The human portion of the Yu model was then used to estimate the continuous, 70-year exposures that would result in this same lung burden, i.e., the HEC. See Table A-4 in Appendix A and accompanying text for further specifics on derivation.
[c] LD/HD = light-duty/heavy-duty diesel engine.
[d] These values are the actual exposure levels used in the Nikula study. These values were converted into HEC and entered into bench mark concentration (BMC) equations to obtain the estimate of the $BMCL_{10}$ listed. The lung burdens for the two $BMCL_{10}$s listed here were derived by interpolation.

Among these five studies, the study with the highest NOAEL is Ishinishi et al. (1988). In this study, Fischer 344 rats (120 males and 95 females/exposure level) were exposed for 16 hours/day, 6 days/week for 30 months to 0.11, 0.41, 1.18, or 2.32 mg/m³ DPM from a light-duty (LD) engine, or to 0.46, 0.96, 1.84, or 3.72 mg/m³ DPM from a heavy-duty (HD) engine. Equivalent duration-adjusted concentrations were 0.063, 0.23, 0.67, or 1.3 mg/m³ DPM from LD engine exhaust and 0.26, 0.55, 1.05, or 2.13 mg/m³ DPM from HD engine exhaust. Hematology, clinical chemistry, urinalysis, and light and electron microscopic examinations of histopathology were performed. Findings included minor body weight changes and equivocal alterations in liver and kidney function. The body weight of female rats exposed to 3.72 mg/m³ was 15-20% less than controls throughout the study. A dose-dependent decrease in body weight of the other groups was mentioned, but neither data nor statistical analyses are reported. In addition, although impaired liver and kidney function were indicated by changes in serum measures (increased liver enzyme activities and increased urea nitrogen, electrolyte levels, gamma globulin concentration and reduced total blood proteins), neither was confirmed histopathologically.

More notably, while no histopathological changes were observed in the lungs of rats exposed to 0.46 mg/m³ DPM or less, at higher concentrations, severe morphological changes were observed, including shortened and absent cilia in the tracheal and bronchial epithelium, marked hyperplasia of the bronchiolar epithelium, and swelling of the Type II cellular epithelium. There was no difference in the degree of changes in pulmonary pathology at similar exposure concentrations between the LD and the HD series, however. This study

identifies LOAELs for chronically exposed rats at 1.18 and 0.96 mg/m³ (actual exposure) for LD and HD series and NOAELs at 0.41 and 0.46 mg/m³ (actual) for LD and HD engines.

Human equivalent concentrations corresponding to the animal NOAEL, LOAEL, AEL, and $BMCL_{10}$ values were computed using a dosimetry model developed by Yu et al. (1991), as described in the Support Document (U.S. EPA, 2002; Chapter 6.5.2, and Appendix A). The dosimetry model accounts for species differences (rat to human) in respiratory exchange rates, particle deposition efficiency, differences in particle clearance rates at high and low doses, and transport of particles to lymph nodes. Because the particle sizes are not reported for the NOAEL for the 0.41 mg/m³ LD group or the 0.46 mg/m³ HD group, the size distributions for these are assumed to be the same as the next highest group. Thus, for both LD and HD series, the LOAEL(HEC) and NOAEL(HEC) are estimated using the particle deposition and retention model developed by Yu and Yoon (1990) using the same MMAD and sigma g. The resulting LOAEL(HEC) for the LD and HD series are 1.25 and 0.883 mg/m³, respectively. The NOAEL(HEC) for the LD and HD series based on the retention model are 0.128 and 0.144 mg/m³, respectively.

The single-dose studies provide valuable supporting information for designation of the critical effect of pulmonary histopathology. These studies [Heinrich et al. (1982, 1986), in hamsters, mice, and rats; Iwai et al. (1986) in rats; Lewis et al. (1989) in monkeys; and Pepelko (1982a) in rats] are all single-dose analyses conducted to study mechanisms or the comparative responses of different species. For instance, the single-dose monkey study (Lewis et al., 1989) at 1.95 mg/m³ showed minor precursor symptoms consistent with airway and lung toxicity, but no fibrosis, inflammation or emphysema; the duration of exposure was also relatively short. The lack of any clear dose-response data, however, precludes consideration of these studies as a quantitative basis for RfC derivation. Likewise, studies of chronic, multiple-level exposure involving species other than rats, i.e., hamsters (Pepelko, 1982b), cats (Plopper et al., 1983), and guinea pigs (Barnhart et al., 1981, 1982), provide cross-species corroboration of the critical effects of pulmonary histopathology and inflammatory alteration.

I.B.3. Uncertainty and Modifying Factors (Inhalation RfC)

The highest human equivalent dose associated with no apparent effect ($NOAEL_{HEC}$) is 144 µg DPM/m³ from the Ishinishi et al. (1988) study; this becomes the point of departure for deriving an RfC. To obtain the RfC, this point of departure was divided by two types of uncertainty factors (UFs): a factor of 3 recognizes residual interspecies (i.e., rat to human) extrapolation uncertainties, and a factor of 10 reflects uncertainties about interindividual human variation in sensitivity.

Kinetic differences between rats and humans were addressed through the use of a dosimetry model. Although there is uncertainty in the dosimetry model, as in the application of most kinetic models, U.S. EPA guidance (U.S. EPA, 1994) recommends no further quantitative adjustment for uncertainty in the modeling results without chemical-specific data. In this case, the maximum default interspecies extrapolation UF is reduced from 10 to 3, due to the use of the dosimetry model to account for kinetic differences. The use of 3, the full amount of this UF addressing only interspecies differences in pharmacodynamics, is supported by several studies suggesting that humans may be as sensitive or somewhat more so than rats for respiratory tract inflammation.

In the absence of mechanistic or specific data, a default value of 10 is considered appropriate to account for possible human variability in sensitivity, particularly for children and people with preexisting respiratory conditions. The spectrum of the population that may have a greater susceptibility cannot be better characterized until there is additional knowledge about mode of action.

The point of departure was derived from a chronic study, therefore an UF for using a study of less than chronic duration of exposure is unnecessary. In addition, evaluation of chronic effects other than respiratory effects, as well as some aspects of reproductive and developmental toxicity, showed that none of these effects were expected to occur at DPM levels lower than the identified point of departure. While data demonstrating immunological and allergenic effects were suggestive, the available database specific to diesel engine exhaust does not support further adjustment of the RfC. Consequently, an UF for database adequacy was not judged necessary.

I.B.4. Additional Studies/Comments (Inhalation RfC)

There is no specific information in humans showing that children are more susceptible to DE's chronic respiratory effects. Limited data from studying children exposed to "black smoke" (presumed to be a surrogate for DPM), through attending schools near freeways, indicates that childrens' reactions (respiratory symptomology and reduced lung function) are no different than adult reactions (van Vliet et al., 1997; Brunekreef et al., 1997, 2000). One study in rats (Mauderly, 1987b) showed that DE did not affect the developing rat lung more severely than the adult rat lung, and in fact that particle clearance was faster in the younger lung.

While diesel exhaust is a mixture of gases and particles, health concerns have long focused on DPM, and the organics adhering to the particles. DPM is considered to be the prime etiologic agent of noncancer health effects when DE is sufficiently diluted to limit the concentrations of gaseous irritants (NO_2 and SO_2), irritant vapors (aldehydes), CO, or other systemic toxicants (U.S. EPA, 2002). The small size of DPM, combined with large surface area, likely enhances

the potential for subcellular interactions with important cellular components of respiratory tissues, once the particles are inhaled by humans or other species (Johnston et al., 2000; Oberdörster et al., 2000). Mode-of-action information about respiratory effects from DE exposure indicates that, at least in rats, the pathogenic sequence following the inhalation of DPM begins with the phagocytosis of diesel particles by alveolar macrophages (AMs). These activated AMs release chemotactic factors that attract neutrophils and additional AMs. As the lung burden of DPM increases, there are aggregations of particle-laden AMs in alveoli adjacent to terminal bronchioles, increases in the number of Type II cells lining particle-laden alveoli, and the presence of particles within alveolar and peribronchial interstitial tissues and associated lymph nodes. The neutrophils and AMs release mediators of inflammation and oxygen radicals, and particle-laden macrophages are functionally altered, resulting in decreased viability and impaired phagocytosis and clearance of particles. This series of events may result in pulmonary inflammation, fibrosis, and eventually lesions like those described in the chronic exposure rat studies. Although definitive information describing the possible pathogenesis of respiratory effects in humans is not available, the symptomology reported in studies of humans exposed to DE are not inconsistent with the findings in controlled laboratory animal studies. (See U.S. EPA, 2002, for more information.)

It also should be noted that diesel particles make up a portion of ambient particulate matter (PM). U.S. EPA has established an annual National Ambient Air Quality Standard (NAAQS) for fine particulate matter ($PM_{2.5}$), to provide protection against adverse health effects associated with both long- and short-term exposures to ambient fine PM. DPM is a typical constituent of ambient fine PM, generally about 6-10% of $PM_{2.5}$ with some examples up to 36% (U.S. EPA, 1996a, 1996b). Given the similarity of health concerns for respiratory inflammation and pulmonary health effects from both DPM and fine particles, it is reasonable to expect that DPM contributes to some of the health effects associated with $PM_{2.5}$. Current knowledge is insufficient, however, to describe the relative potencies of DPM and the other components of $PM_{2.5}$. As long as the percentage of DPM to total ambient $PM_{2.5}$ remains in similar proportion, protective levels for $PM_{2.5}$ would be expected to offer a measure of protection from effects associated with DPM.

I.B.5. Confidence in the Inhalation RfC

The confidence level in the RfC is considered medium in a range of low to high confidence. The critical effects, chronic inflammation and pathologic changes, which are well characterized in four animal species, are considered relevant to humans, though animal data are still being used to predict a human hazard. Although in general the rat is thought to be more sensitive to lung injury than humans to poorly soluble particles (ILSI, 2000), it is not clear that this is the case specifically for diesel exhaust particulates and the resulting inflammation effects. Since DE is a mixture of not just carbon particles but also various

organics, both on the particles and in gases, there is some concern that the full impact of DE has not been assessed. In addition, differences in particle deposition, retention, and clearance mechanisms have been largely but perhaps not completely addressed by the use of the rat-to-human dosimetry model. In terms of the potential for other critical health effects, there is growing evidence suggesting that DE can exacerbate allergenic effects to known sensitizers, while also evoking production of biochemical markers typically associated with asthma. While some work in this area indicates that humans may be as sensitive as rats and mice to the immunologic effects (U.S. EPA, 2002; Chapter 6.3.4), this database is currently lacking key exposure-response data. It also should be noted that the ambient PM health effects data show a broader array of adverse human health concerns (e.g., cardiovascular effects, as well as acute exposure effects).

I.B.6. EPA Documentation and Review of the Inhalation RfC

Source Document — U.S. EPA, 2002

The Health Assessment Document (HAD) on which this IRIS Summary is based was peer reviewed by EPA's Clean Air Science Advisory Committee (CASAC) in October 2000. Written comments from CASAC were received in December 2000. Their comments were evaluated carefully and incorporated in finalization of the HAD. A record of these comments is available with the HAD.

Agency Consensus Date - 1/31/03

I.B.7. EPA Contacts (Inhalation RfC)

Please contact the IRIS Hotline for all questions concerning this assessment or IRIS, in general, at (202)566-1676 (phone), (202)566-1749 (fax), or hotline.iris@epa.gov (E-mail address).

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Diesel engine exhaust
CASRN — N.A.
Last Revised — 02/28/2003

Section II provides information on three aspects of the carcinogenic assessment for the substance in question, the weight-of-evidence judgment of the likelihood that the substance is

a human carcinogen, and quantitative estimates of risk from oral exposure and from inhalation exposure. The quantitative risk estimates are presented in three ways. The slope factor is the result of application of a low-dose extrapolation procedure and is presented as the risk per (mg/kg)/day. The unit risk is the quantitative estimate in terms of either risk per µg/L drinking water or risk per µg/m³ air breathed. The third form in which risk is presented is a concentration of the chemical in drinking water or air associated with cancer risks of 1 in 10,000, 1 in 100,000, or 1 in 1,000,000. Users are referred to Section I of this IRIS file for information on long-term toxic effects other than carcinogenicity.

II.A. Evidence for Human Carcinogenicity

II.A.1. Weight-of-Evidence Characterization

Using U.S. EPA's revised draft 1999 Guidelines for Carcinogen Risk Assessment (U.S. EPA, 1999), diesel exhaust (DE) *is likely to be carcinogenic to humans* by inhalation from environmental exposures. The basis for this conclusion includes the following lines of evidence:

- strong but less than sufficient evidence for a causal association between DE exposure and increased lung cancer risk among workers in varied occupations where exposure to DE occurs;
- extensive supporting data including the demonstrated mutagenic and/or chromosomal effects of DE and its organic constituents, and knowledge of the known mutagenic and/or carcinogenic activity of a number of individual organic compounds that adhere to the particles and are present in the DE gases;
- evidence of carcinogenicity of DPM and the associated organic compounds in rats and mice by other routes of exposure (dermal, intratracheal, and subcutaneous and intraperitoneal injection); and
- suggestive evidence for the bioavailability of DE organic compounds from DE in humans and animals.

It is noted that there are also several well conducted studies in rats that show that inhalation exposure to diesel exhaust results in lung tumors, while results in other traditional rodent test species are equivocal or not positive for inhalation induced lung tumors. There is a substantial body of evidence showing that the rat is more responsive than other species to the induction of lung tumors by poorly soluble particles, with diesel exhaust particles being one example. While directly comparable human data are lacking, some human cohorts exposed to very high levels of poorly soluble particles (e.g., coal miners) do not show the sequence of events leading to lung tumors that has been seen in rats. This mode-of-action information for the rat, involving particle overload and consequent persistent inflammation and cell proliferation, supports a nonlinear mode of action for lung cancer in the rat (ILSI, 2000). The nonlinear

cancer response is further characterized as occurring at relatively high exposures of diesel exhaust (>3500 µg DPM/m³ DPM), which is far beyond the range of environmental levels. The rat tumor occurrences, thus, are not particularly influential in judging the hazards at environmental levels of exposure.

Support for a human cancer hazard at environmental levels of exposure comes from two considerations: (1) the evidence for a mutagenic mode of action, and (2) exposure comparisons. Concern for a human cancer hazard is consistent with EPA's science policy position that assumes a linear response for carcinogens with a mutagenic component, in the absence of definitive data demonstrating a nonlinear mechanism. Additional support for an environmental hazard also comes from a comparison of the estimated environmental levels to the estimated occupational exposure levels where risk is observed in many studies. Given that there is only a minimal margin between environmental and occupational exposure ranges, if not an overlap, the extrapolation of observable hazard from the occupational setting to the ambient environment is relatively confident.

Overall, the qualitative evidence for potential human carcinogenicity for DE is considered strong, even though inferences are involved and uncertainties are present. First, there has been a considerable scientific debate about the significance of the available human evidence for a causal association between occupational exposure and increased lung cancer risk. Some experts view the evidence as weak and/or inconsistent while others consider the evidence compelling, due to a lack of consensus about whether the effects of smoking and other potential confounders have been adequately accounted for in key studies, and the lack of agreed-upon historical DE exposure data for the key studies. These issues highlight the difficulty in delineating an exposure-based dose-response relationship. In addition, while the mode of action for lung tumors in rats at high DE exposures is sufficiently understood, the mode of action for the DE lung cancer risk in humans is not known. To date, available evidence for the role of both the adsorbed organics and the carbon core particle has only been shown under high-exposure experimental animal test conditions. There is virtually no information about the relative role of DE constituents in mediating carcinogenic effects at the low-exposure levels or in humans.

Data gaps also limit conclusions regarding the full extent of DE's carcinogenic potential. These limitations include lack of knowledge concerning the susceptibility of young animals to DE's carcinogenic effects relative to more mature animals, the human carcinogenic potential of DE by oral and dermal exposures, and the inconclusive epidemiologic evidence for DE being associated with other forms of cancer.

II.A.2. Human Carcinogenicity Data

A persistent association of risk for lung cancer associated with DE exposure has been observed in more than 30 epidemiologic studies published in the literature over the past 40 years. The majority of the epidemiologic studies evaluate distinct populations of occupational groups, including railroad workers, truck drivers, heavy-equipment operators, farm tractor operators, and professional diesel vehicle drivers. The remaining studies include reanalyses of specific studies, and three meta-analyses. The Support Document (U.S. EPA, 2002; Section 7.2) provides a review of this literature.

Increased lung cancer risk has been observed in 8 out of 10 cohort studies, 5 of which were statistically significant. Increased lung cancer risk has also been observed in 10 of 12 case-control studies, 8 of which were statistically significant. Overall, the increased lung cancer relative risks generally range from 1.2 to 1.5, although a few studies show overall relative risks as high as 2.6. Statistically significant increases in relative risk (RR), 1.33 to 1.47, are also shown in two independent meta-analyses of epidemiologic studies. The meta-analyses demonstrate the effect of pooling many studies and in this case show the positive relationship between DE exposure and lung cancer across a variety of DE-exposed occupations. The strongest studies are summarized below.

The most extensive study linking lung cancer and diesel engine exhaust is the case-control study by Brüske-Hohlfeld et al. (1999). These investigators conducted a pooled analysis of two case-control studies among male workers occupationally exposed in Germany (Jöckel et al., 1995, 1998; Wichmann et al., 1988). Lung cancer cases and controls matched for sex, age, and region of residence were selected randomly from compulsory municipal registries. The investigators collected data on demographic information, detailed smoking, and occupational history for 3,498 cases and 3,541 controls. Job titles and industries were classified in 33 and 21 categories, respectively. Job descriptions were written and verified to avoid misclassification of estimation of exposure to diesel engine exhaust. Individual cumulative exposures were estimated by categorizing the duration of exposure determined from complete work histories. Smoking information in pack-years was calculated from personal interview information. Asbestos exposures were estimated by certain job-specific supplementary questions.

This study shows increased risk for all DE-exposed job categories. Analyses yielded statistically significant ORs ranging from 1.25 (95% CI = 1.05, 1.47) for professional drivers, to 2.31 (95% CI = 1.44, 3.7) for heavy equipment operators, adjusted for smoking and asbestos exposure. These investigators presented analyses by various job categories, by total years of exposure, calendar year of first and end exposure and, when possible, separately for West and East Germany. Significantly higher risks were found among all four job categories.

For professional drivers (of trucks, buses, and taxis) ORs ranged from 1.25 to 2.53. For other traffic-related jobs (switchmen, diesel locomotive drivers, diesel forklift truck drivers), ORs ranged from 1.53 to 2.88. For heavy equipment operators (bulldozers, graders, and excavators), ORs ranged from 2.31 to 4.3, and for drivers of farming equipment the only significant excess (OR = 6.81, 95% CI = 1.17, 39.5) was for exposure for >30 years.

The professional drivers and the other traffic-related jobs also have some mixed exposures to gasoline exhaust in general traffic. On the other hand, it should be noted that exposure to DE among heavy equipment and farm tractor drivers is much higher and not as mixed as in professional drivers. The heavy equipment drivers usually drive repeatedly through their own equipment's exhaust. Therefore, the observed highest risk for lung cancer in this job category establishes a strong link with the DE. Only one other study found a significantly higher relative risk (RR) for heavy equipment operators, at 2.6 (Boffetta and Stellman, 1988). Although the only significant excess in the group was observed for farming tractor operators with more than 30 years of exposure, a steady increase in risk was observed for this job category with increasing exposure. The investigators stated that the working conditions and the DE of tractors remained fairly constant over the years. This increase may be due mainly to exposure to DE and PM_{10}.

The main strengths of the study are large sample size, resulting in good statistical power; inclusion of incident cases diagnosed not more than 3 months prior to the interview; use of only personal interviews, reducing recall bias; diagnoses ascertained by cytology or histology; and availability of lifelong detailed occupational and smoking history. Exposure estimation done for each individual was based on job codes and industry codes, which were validated by written job descriptions to avoid misclassification. The main limitation of the study is lack of data on actual exposure to DE. The cumulative quantitative exposures were calculated on the basis of time spent in each job with potential exposure to DE and the type of equipment used. Thus, this study provides strong evidence for causal association between exposure to diesel exhaust and occurrence of lung cancer.

In addition to the study by Brüske-Hohlfeld et al. (1999), evidence for a lung cancer hazard comes from several other case-control studies: among railroad workers by Garshick et al. (1987), and among truck drivers of the Teamsters Union by Steenland et al. (1990), among truck drivers, railroad workers. Garshick et al. (1987) found increased risk of lung cancer associated with increasing cumulative exposure to diesel engine exhaust. The investigators used US Railroad Retirement Board records to identify 1,319 lung cancer deaths and 2,385 matched controls. An analysis using number of years in a diesel-exposed job as a continuous variable, and adjustment for asbestos and smoking, yielded an odds ratio (OR) of 1.41 (95% CI = 1.06, 1.88) for ≥20 years of DE exposure in the <64 years of age group. When DE exposure was categorized as 0 to 4, 5 to 19, and ≥20 diesel years, the risk of lung cancer in the

same group increased when compared to the 0- to 4-year group, with an OR of 1.64 (95% CI = 1.18, 2.29). This appears to be a well-conducted and well-analyzed study with reasonably good power. Potential confounders were controlled adequately, and interactions between diesel exhaust and other lung cancer risk factors were tested. Some of the limitations of this study are inadequate latency period, misclassification of exposure because Interstate Commerce Commission job classifications were used as a surrogate for exposure, and use of death certificates for identification of cases and controls.

Steenland et al. (1990) also observed an increased risk of lung cancer with increasing years of exposure. The investigators studied lung cancer deaths in Teamsters Union truck drivers and support personnel, using death certificates from pension files to identify 1,058 cases and 1,160 controls. Information on work history and potential confounders were collected from next-of-kin interviews. Using duration of employment as a categorical variable and considering employment after 1959 (when presumed dieselization occurred for most trucking companies), the risk of lung cancer increased with increasing years of exposure, for both long-haul and short-haul drivers. Using 1964 as the cutoff, a similar trend was observed for long-haul drivers. Using 1964 as the cutoff (presumed dieselization for independent driver and non-trucking firms), long-haul drivers continued to show a significant positive trend, while short-haul drivers did not show a positive trend. For truck drivers who primarily drove diesel trucks and worked for 35 years, the OR was 1.89 (95% CI = 0.81, 2.22). The main strengths of the study are availability of detailed records from the Teamsters Union, a relatively large sample size, availability of smoking data, and measurements of exposure. The limitations of this study include possible misclassifications of exposure and smoking, lack of levels of diesel exposure, a smaller nonexposed group, and an insufficient latency period.

Substantive evidence from cohort studies linking diesel exhaust exposure to lung cancer comes from the Garshick et al. (1988) study of 55,407 railroad workers, conducted in the United States. Relative risks (RRs) of 1.57 (95% CI = 1.19, 2.06) and 1.34 (95% CI = 1.02, 1.76) were found for ages 40 to 44 and 45 to 49, respectively, after the exclusion of workers exposed to asbestos. The investigators reported that the risk of lung cancer increased with increasing duration of employment. As this was a large cohort study with a lengthy follow-up and adequate analysis, including dose response (based on duration of employment as a surrogate) as well as adjustment for other confounding factors such as asbestos, the observed association between increased lung cancer and exposure to diesel exhaust is more meaningful.

Reanalyses of the Garshick et al. (1988) study yielded varying conclusions. Crump et al. (1991) found that the relative risk could be positively or negatively related to duration of exposure depending on how age was controlled. Additional analysis by Garshick et al. (1991) found that the relationship between years exposed, when adjusted for the attained age, and calendar years was flat to negative, depending on the choice of the model. They also found

that deaths were under-reported by approximately 20% to 70% between 1977 and 1980, and their analysis based on job titles, limited to 1959-1976, showed that the youngest workers still had the highest risk of dying of lung cancer. An analysis of the same data by California EPA (Cal EPA, 1998) yielded a positive dose response, using age at 1959 and an interaction term of age and calendar year in the model. Crump (1999) reported that the negative dose-response continued to be upheld in his latest analysis when age was controlled more carefully and years of exposure quantified more accurately. Crump (1999) also asserted that the negative dose response trends for lung cancer observed either with the cumulative exposure or duration of exposure may be due to the under-ascertainment of deaths in last 4 years of follow-up of the Garshick et al. (1988) study, as well as to incomplete follow-up in earlier years.

A HEI special panel (HEI, 1999) conducted their own analyses of the Garshick et al. (1988) data to support quantitative risk assessment, and found similar results as Crump et al. (1991) and Garshick (1991). The HEI panel reported consistently elevated risk of lung cancer for train workers compared to clerks for each duration of employment, and an intermediate risk of lung cancer for shop workers; however, they found decreasing risk of lung cancer with increasing duration of employment. The panel discussed various possibilities for the negative dose response and advised against using the Garshick et al. (1988) data for quantitative risk assessment. These possible explanations included biases such as unmeasured confounding by smoking, exposure to other sources of pollution, previous occupations exposures, exposure misclassification, use of "duration of employment" as a surrogate measure for exposure, health worker survivor effect, and differential or incomplete ascertainment of lung cancer deaths. The panel also reported the strengths of Garshick et al. (1988) study, such as large population, control for asbestos and smoking, and concluded that the study was generally consistent with findings of weak association between exposure to diesel exhaust and occurrence of lung cancer. The divergent results of these recent analyses do not negate the positive evidence this study provides for the weight-of-evidence evaluation.

Three aggregate analyses of studies concerned with the relationship of diesel exhaust exposure and lung cancer risk are Cohen and Higgins (1995), Bhatia et al. (1998), and Lipsett and Campleman (1999). The Cohen and Higgins (1995) report is a qualitative review of 35 epidemiologic studies (16 cohort and 19 case-control) of occupational exposure to diesel engine exhaust published between 1957 and 1993. Control for smoking was identified in 15 studies. Six of the studies (17%) reported RR estimates less than 1, whereas 29 (83%) reported at least one RR greater than one, indicating a positive association. Twelve studies indicating a RR greater than 1 had 95% confidence intervals that excluded unity. The evidence suggests that occupational exposure to diesel exhaust from diverse sources increases the rate of lung cancer by 20% to 40% in exposed workers generally, and to a greater extent among workers with prolonged exposure. They also found that the results are not explicable by confounding due to cigarette smoking or other known sources of bias.

Bhatia et al. (1998) found a small but consistent increase in the risk for lung cancer among workers with exposure to DE, in a quantitative meta-analysis of 23 studies that met criteria for inclusion. The observed RR estimates were greater than 1 in 21 of these studies. The pooled RR weighted by study precision was 1.33 (95% CI= 1.24, 1.44), which indicated increased RR for lung cancer from occupational exposure to diesel exhaust. Subanalyses by study design (case-control and cohort studies) and by control for smoking produced results that did not differ from those of the overall pooled analysis. Cohort studies using internal comparisons showed slightly higher RRs than those using external comparisons.

Lipsett and Campleman (1999) is a quantitative meta-analysis which identified 39 independent estimates of RR among 30 eligible studies of diesel exhaust and lung cancer published between 1975 and 1995. Pooled RRs for all studies and for study subsets were estimated using a random effects model. A pooled smoking-adjusted RR was 1.47 (95% CI = 1.29, 1.67). Substantial heterogeneity was found in the pooled-risk estimates. Adjustment for confounding by smoking, having a lower likelihood of selection bias, and increased study power were all found to contribute to lower heterogeneity and increased pooled estimates of RR.

The three aggregate analyses conclude that the data support a causal association between lung cancer and diesel exhaust exposure. Further, the analyses find that smoking is unlikely to account for the observed effects. On the other hand, Stöber and Abel (1996), Muscat and Wynder (1995), and Cox (1997) call into question the assertions by Cohen and Higgins (1995), Bhatia et al. (1998), and Lipsett and Campleman (1999) that the associations seen for diesel exhaust and lung cancer are unlikely to be due to bias. They argue that methodologic problems are prevalent among the studies, especially in evaluation of diesel engine exposure and control of confounding by cigarette smoking, and thus the observed associations are more likely to be due to bias. The conclusions of the two quantitative meta-analyses report on magnitude of pooled RR estimates and evaluation of potential sources of heterogeneity in the estimates. Despite the statistical sophistication of the meta-analyses, the statistical models used cannot compensate for deficiencies in the original studies and will remain biased to the extent that bias exists in the original studies.

In view of the discussion of these studies, the body of epidemiologic evidence supports a causal association between exposure to DE and occurrence of lung cancer. The causality criteria of temporality, strength of association, consistency, and biological plausibility are generally satisfied. Temporality, that the exposure preceded the outcome, was established in all of the studies discussed above, including those in the meta-analyses. The strength of association was weak to modest (RRs/ORs between 1.2 and 2.6), with a dose-response relationship observed in several studies. Small increases in lung cancer relative risks (typically <2.0) potentially weaken the evidence of causality, because if confounders (e.g., smoking, asbestos exposure) were having an effect on the observed risk increases, then it could be

enough to account for the increased risk. With the strongest risk factor for lung cancer being smoking, there is a lingering uncertainty as to whether smoking effects may be influencing the magnitude of the observed increased RRs, in spite of the fact that in key studies the investigating epidemiologists assert that they have effectively controlled for smoking. In studies in which the effects of smoking were controlled, increased RRs for lung cancer prevailed. While some studies did not have information on smoking, confounding by smoking is judged unlikely to be significant if the comparison populations were from the same socioeconomic class (see the Support Document for more information).

The lung cancer increase observed with diesel exhaust exposure in a number of studies is unlikely to be due to chance or bias. The excess risk is observed in both cohort and case-control designs, which contradicts the concern that a methodologic bias specifically characteristic of either design (e.g., recall bias) might account for the observed effect. Selection bias is certainly present in some of the occupational cohort studies that use external population data in estimating RRs, but this form of selection bias (a healthy worker effect) would only obscure, rather than spuriously produce, an association between DE and lung cancer. In effect, the usual standard mortality ratios observed in cohort mortality studies are likely to be underestimations of true risk. Selection biases may be operating in some case-control studies, but it is not obvious how such a bias could be sufficiently uniform in effect, prevalent, and strong enough to lead to the consistent association seen in the aggregate data. Given the variety of designs used in studying the DE and lung cancer association and the number of studies in different populations, it is unlikely that routinely studying noncomparable groups is an explanation for the consistent association seen.

Moreover, various methodologic limitations of individual studies have been considered, such as small sample size, short follow-up period, lack of data on confounding variables, use of death certificates to identify the lung cancer cases, and lack of latency analysis. The studies with small sample sizes (i.e., not enough power) and short follow-up periods (i.e., not enough latent period) have been difficult to interpret due to these limitations. Some other uncertainties are methodologic bias specifically characteristic of either cohort or case-control design, nondifferential misclassification of exposure and/or outcome bias (i.e. use of inaccurate surrogates for diesel exposure and lung cancer incidence can lead to substantial bias), and confounding by smoking. Finally, exposure information bias is certainly a problem for almost all of the studies concerned. For detailed discussion about these uncertainties see the Support Document (U.S. EPA, 2002; Section 7.2.4.4).

II.A.3. Animal Carcinogenicity Data

Many animal studies have evaluated various aspects of the carcinogenic potential of whole diesel exhaust, including traditional chronic inhalation studies using rats, mice, hamsters, and

limited studies using cats and monkeys. Some of the studies used whole DE, while others used filtered DE (free of DPM) to differentiate gaseous phase effects from effects induced by the particle and its adsorbed organics. Other studies were designed to evaluate the relative importance of the carbon core of DPM versus that of the particle-adsorbed compounds, and a number of studies were carried out to determine the combined effects of inhaled DE and tumor initiators, promoters and cocarcinogens. The Support Document (U.S. EPA, 2002; Chapter 7.3) describes and discusses results from 27 studies.

It has been repeatedly shown that, with sufficient exposure, inhalation of DE is capable of inducing lung cancer in rats, several strains, males and females (Mauderly et al.,1987; Heinrich et al., 1986, 1995; Iwai et al., 1986, 1997; Ishinishi et al., 1988a; Takaki et al., 1989; Brightwell et al., 1986; Nikula et al., 1995). Although lung tumor responses correlate best with cumulative exposure (concentration x daily exposure duration x days of exposure), examination of rat data indicates a nonlinear trend, with increasing tumor incidence at exposures exceeding 1 x 10^4 mg hr/m^3, and more generally with experimental chronic exposure concentrations at or greater than 3500 µg/m^3. While tumorigenic responses were not observed at exposures less than those demonstrating particle overload exposure, thus supporting a hypothesis of a nonlinear response, the rat studies lack the sensitivity statistically to confirm the absence of response at lower doses. If low-dose effects do occur, it can be hypothesized that the organic constituents on the particle or in the gases, are playing a role. Notably, several reports (Wong et al., 1985; Bond et al., 1990) also make comment on a possible mode of action by providing evidence for DNA damage in rats. Exposures at or greater than 3500 µg/m^3 are shown to result in lung particle overload, characterized by slowed particle clearance, lung tissue inflammation, lung pathology and eventually a tumorigenic response (ILSI, 2000). The rats develop adenomas, adenocarcinomas, and adenosquamous cell carcinomas, as well as squamous keratinizing lesions. This latter lesion appears for the most part to be unique to the rat, and may not have relevance for human safety evaluation (Boorman et al., 1996).

Studies in rats of particles (e.g., carbon black, titanium dioxide) such as those reported by Driscoll et al. (1996, 1997) support the existence of a nonlinear response if it is assumed that inflammation is a prerequisite for lung tumor induction. Evidence for the importance of DPM's carbon core was initially provided by studies of Kawabata et al. (1986), which showed induction of lung tumors in F344 rat following intratracheal instillation of carbon black that contained no more than traces of organics, and studies of Heinrich (1990) that indicated that exposure via inhalation to carbon black (Printex 90) particles induced rat lung tumors at concentrations similar to those effective in DPM studies. Additional studies by Heinrich et al. (1995) and Nikula et al. (1995) confirmed the capability of carbon particles to induce rat lung tumors. Rittinghausen et al. (1997) reported an increase in cystic keratinizing epitheliomas

following intratracheal instillation of rats with either original DPM or DPM extracted to remove the organic fraction, with the unextracted particles inducing a slightly greater effect.

The evidence for a lung tumor response in other common strains of laboratory animals exposed to DE under standard inhalation protocols is equivocal. Inhalation of DE induced significant increases in lung tumors in female NMRI mice (Heinrich et al., 1986b; Stöber, 1986) and in female Sencar mice (Pepelko and Peirano, 1983). An apparent increase was also seen in female C57BL mice (Takemoto et al., 1986). However, in a repeat of their earlier study, Heinrich et al. (1995) failed to detect lung tumor induction in either NMRI or C57BL/6N mice. No increases in lung tumor rates were reported in a series of inhalation studies using strain A mice (e.g., Orthoefer et al., 1981). Mauderly et al. (1996) reported no tumorigenic responses in CD-1 mice exposed under conditions resulting in positive responses in rats. The successful induction of lung tumors in mice by Ichinose et al. (1997a,b) via intratracheal instillation may have been the result of local deposition of larger doses. Positive effects in Sencar mice may be due to use of a strain sensitive to tumor induction in epidermal tissue by organic agents, as well as exposure from conception, although proof for such a hypothesis is lacking.

Attempts to induce significant increases in lung tumors in Syrian hamsters by inhalation of whole DE were unsuccessful (Heinrich et al., 1982, 1986b, 1989; Brightwell et al., 1986). Intratracheal instillation did not induce lung tumors in Syrian hamsters (Kunitake et al., 1986; Ishinishi et al., 1988b). However, hamsters are considered to be relatively insensitive to lung tumor induction (e.g., Dontenwill et al., 1973). Neither cats (Pepelko and Peirano, 1983) nor monkeys (Lewis et al., 1989) developed tumors following 2-year exposure to DE. These studies are less definitive, however, due to inadequate duration of these exposures for these longer-lived species, small group sizes, and exposure levels below the maximum tolerated dose (MTD).

Studies of filtered DE in laboratory animal species have been carried out to differentiate gaseous phase effects from effects induced by the particle and its adsorbed organics. Long-term exposure to DE filtered to remove particulate matter failed to induce lung tumors in rats (Heinrich et al., 1986a; Iwai et al., 1986; Brightwell et al., 1989), or in Syrian hamsters (Heinrich et al., 1986a; Brightwell et al., 1989). A significant increase in lung carcinomas was reported by Heinrich et al. (1986a) in NMRI mice exposed to filtered exhaust. However, in a more recent study the authors were unable to confirm earlier results in either NMRI or C57BL/6N mice (Heinrich et al., 1995). Although filtered exhaust appeared to potentiate the carcinogenic effects of DEN (Heinrich et al., 1982), because of the lack of positive data in rats and equivocal or negative data in mice it can be concluded that filtered exhaust is either not carcinogenic or has a low cancer potency.

Dermal exposure and subcutaneous (s.c.) and intraperitoneal (i.p.) injection in mice provided additional evidence for tumorigenic effects of DPM. Particle extracts applied dermally to mice have been shown to induce significant skin tumor increases in two studies (Kotin et al., 1955; Nesnow et al., 1982). Kunitake et al. (1986) also reported a marginally significant increase in skin papillomas in ICR mice treated with an organic extract from an HD diesel engine. Negative results were reported by Depass et al. (1982) for skin-painting studies using mice and acetone extracts of DPM suspensions. However, in this study the exhaust particles were collected at temperatures of 100 °C, which would minimize the condensation of vapor-phase organics and, therefore, reduce the availability of potentially carcinogenic compounds that might normally be present on DE particles. A significant increase in the incidence of sarcomas in female C57Bl mice was reported by Kunitake et al. (1986) following s.c. administration of LD DPM extract at doses of 500 mg/kg. Takemoto et al. (1988) provided additional data for this study and reported an increased tumor incidence in the mice following injection of LD engine DPM extract at doses of 100 and 500 mg/kg. Results of i.p. injection of DPM or DPM extracts in strain A mice were generally negative (Orthoefer et al., 1981; Pepelko and Peirano, 1983), suggesting that the strain A mouse may not be a good model for testing diesel engine exhaust.

Results of experiments using tumor initiators such as DEN (diethylnitrosamine), B[a]P (benzo[a]pyrene, DPN (dipentylnitrosamine), or DBA (dibenz[a,h]anthracene) (Brightwell et al., 1986; Heinrich et al., 1986b; Takemoto et al., 1986) were generally inconclusive regarding the tumor-promoting potential of either filtered or whole DE. A report by Heinrich et al. (1982), however, indicated that filtered exhaust may promote the tumor-initiating effects of DEN in hamsters.

In summary, a number of intratracheal instillation studies in rats and mice exposed to high doses of whole diesel exhaust, and a variety of skin painting studies using extracts (organic fraction of whole diesel exhaust), provide animal evidence for carcinogenicity or the potential for carcinogenicity of DE or fractions of the DE mixture, in addition to the many chronic inhalation rats studies showing a positive lung cancer at high exposures. The rat evidence, however, is not relevant for human hazard characterization that is focused on environmental levels of exposure, where a human lung particle overload is not expected (note that a preliminary 75th percentile nationwide estimate of DE human environmental exposure for 1996 is about 1.7 µg/m^3). The contribution of the various fractions of DE to the carcinogenic response is uncertain beyond that which can been seen in rats. Inhalation exposure to filtered exhaust generally failed to induce lung tumors in animal species. The presence of known carcinogens and mutagens adsorbed to diesel particles and the demonstrated tumorigenicity of particle extracts in a variety of injection, instillation, and skin-painting studies indicates a carcinogenic potential for the organic fraction.

II.A.4. Supporting Data for Carcinogenicity

For the human, it is not clear what constituent(s) of DPM or the whole diesel exhaust could be responsible for the observed lung cancer. DNA adduct formation and/or mutations in blood cells following exposure to DE, especially at levels insufficient to induce lung overload, can be presumed to be the result of organics diffusing into the blood. Hemminki et al. (1994) reported increased levels of DNA adducts in lymphocytes of bus maintenance and truck terminal workers. Österholm et al. (1995) studied mutations at the hprt-locus of T-lymphocytes in bus maintenance workers. Although they were unable to identify clear-cut exposure-related differences in types of mutations, adduct formation was significantly increased in the exposed workers. Nielsen et al. (1996) reported significantly increased levels of lymphocyte DNA adducts, hydroxyvaline adducts in hemoglobin, and 1-hydroxypyrene in urine of garage workers exposed to DE.

An extensive array of studies with DPM and gaseous fractions of diesel exhaust has demonstrated mutagenic activity in *Salmonella* and several vitro mammalian cell lines, and structural chromosome aberrations and increased sister chromatid exchanges (SCE) in mammalian cells. On the other hand, dilutions of whole diesel exhaust did not induce sex-linked recessive lethals in *Drosophila* or specific-locus mutations in male mouse germ cells. Whole exhaust induced micronuclei but not SCE or structural aberrations in bone marrow of male Chinese hamsters exposed to whole diesel engine exhaust for 6 mo. In a shorter exposure (7 weeks), neither micronuclei nor structural aberrations were increased in bone marrow of female Swiss mice. Likewise, whole diesel exhaust did not induce dominant lethals or heritable translocations in male mice exposed for 7.5 and 4.5 weeks, respectively. All of these studies are discussed in the Support Document (U.S. EPA, 2002).

The application of mutagenicity data to the question of the potential carcinogenicity of diesel engine exhaust is based on the premise that genetic alterations are found in all cancers and that several of the chemicals found in diesel engine exhaust possess mutagenic activity in a variety of genetic assays. These genetic alterations can be produced by gene mutations, deletions, translocations, aneuploidy, or amplification of genes, hence no single genotoxicity assay should be expected to either qualitatively or quantitatively predict rodent carcinogenicity. With diesel engine exhaust or other mixtures, additional complications arise because of the complexity of the material being tested.

In addition to the toxicological evidence associating lung tumors with DPM, many of the other constituents of DE are known to have mutagenic and carcinogenic properties. California EPA (Cal EPA, 1998) identified at least 19 hydrocarbons present in DE that are known or suspected carcinogens, according to evaluations by the International Agency for Research on Cancer (IARC, 1989). The organic compounds present in the DE gases and adsorbed onto the

particles include a wide spectrum of compounds which originate from unburned diesel fuel, lube oil, low levels of partial combustion, and pyrolysis products, including: alkanes, alkenes, aldehydes, monocyclic aromatic compounds, and polycyclic aromatic hydrocarbons (PAHs). The principal aldehydes are formaldehyde, acetaldehyde and acrolein. Other gaseous components of DE include benzene, 1,3-butadiene, and nitro-PAHs (including those with ≤4 rings and nitro-PAHs with 2 and 3 rings). PAHs and their derivatives comprise <1% of the DPM mass. See the Support Document (U.S. EPA, 2002) for more details.

II.A.5. Additional Comments

Several organizations have reviewed available relevant data and evaluated the potential human carcinogenicity of DE or DPM, and have concluded that DE is probably carcinogenic to humans (IARC, 1989; IPCS, 1996), or is reasonably anticipated to be a carcinogen (NTP, 2000).

The relevance of this hazard characterization to current ambient DE exposures hinges on recognizing that the health effects data are derived from engine technologies and fuels that existed in the past, and that some changes in the DE exhaust mixture have occurred and can be expected in the future (see the Support Document (U.S. EPA, 2002), Section 2). Although decreases in amount and changes in composition of DE engine exhaust have occurred over time for on-road engines, a change is slow to manifest in the environment because vehicular fleet turnover is slow. Available studies have not focused on the potential toxicological effect of the emission changes. There is no compelling evidence at present to show that past and present exhaust characteristics are so toxicologically dissimilar as to render the current use of the assessment's findings outdated. It is clear that with the implementation of U.S. EPA's regulations affecting 2007 model year on-road diesel engines, the exhaust from these engines will be notably different and thus the hazard potential for this exhaust would need to be re-evaluated.

II.A.6. Discussion of Confidence

While the weight-of-evidence indicates that DE has the potential to pose a lung cancer hazard to humans at anticipated levels of environmental exposure, as shown by occupational epidemiology studies, a confident dose-response relationship based on occupational exposure levels is currently lacking. Among the occupational studies, the railroad worker studies (Garshick et al., 1987, 1988) and the Teamsters Union truck driver studies (Steenland et al., 1990) are considered to have the best available combination of response and surrogate exposure information (based on worker years in a job category) for possible use in establishing exposure-response relationships and thereafter deriving a cancer unit risk. There have been different views on the suitability of the railroad workers and Teamster Union truck drivers set

of studies for estimating environmental cancer risks (e.g., Cal EPA, 1998; Cohen and Higgins, 1995; HEI, 1999). Given the equivocal evidence for the presence or absence of an exposure-response relationship for the studies of railroad workers, and current exposure uncertainties for the study of truck drivers, it is judged that available data are too uncertain at this time for a confident quantitative dose-response analysis and subsequent derivation of cancer unit risk for DE.

Even though occupational data are considered most relevant for use in dose-response assessment, the following data gaps and uncertainties must be critically evaluated before a confident dose-response can be recommended:

- the lack of actual DE exposure data for workers in the available epidemiologic studies;
- the lack of DE exposure data for controls in the available epidemiologic studies, owing to the presence of diesel engine exhaust in ambient air for non-occupational settings;
- possible confounders (smoking and asbestos exposure) that could contribute to the observed lung cancer risk in occupational studies of DE if the control for these confounders is not adequate;
- whether or not an exposure-response relationship for occupational lung cancer risk can be estimated for DE:
- the use of DPM (expressed as $\mu g/m^3$) as a surrogate dosimeter for DE exposure, given that the relative roles of various constituents in mediating carcinogenic effects and the carcinogenic mode of action are still not known, and
- the representativeness of occupational populations for the general population and vulnerable subgroups, including infants and children and individuals with preexisting diseases, particularly respiratory conditions.

Use of animal data to develop dose-response based unit cancer risk values was judged inappropriate, since the only animal model with direct inhalation exposure and lung tumor responses was the rat, and the rat results were discounted because of mode-of-action information showing that the high exposure rat responses would not be a suitable basis for human dose-response analysis at environmental levels of exposure.

II.B. Quantitative Estimate of Carcinogenic Risk from Oral Exposure

N.A. There are no chronic data from which to estimate carcinogenic risk from oral exposure. All available studies are focused on inhalation exposure.

II.C. Quantitative Estimate of Carcinogenic Risk from Inhalation Exposure

N.A. The absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk.

II.D. EPA Documentation, Review, and Contacts (Carcinogenicity Assessment)

II.D.1. EPA Documentation

Source Document — U.S. EPA, 2002

The Health Assessment Document (HAD) (U.S. EPA, 2002) on which this IRIS Summary is based was peer reviewed by EPA's Clean Air Science Advisory Committee (CASAC) in October 2000. Written comments from CASAC were received in December 2000. Their comments were evaluated carefully and incorporated in finalization of the HAD. A record of these comments is available with the HAD.

II.D.2. EPA Review (Carcinogenicity Assessment)

Agency Consensus Date -1/31/03

II.D.3. EPA Contacts (Carcinogenicity Assessment)

Please contact the IRIS Hotline for all questions concerning this assessment or IRIS, in general, at (202)566-1676 (phone), (202)566-1749 (FAX) or hotline.iris@epa.gov (email address).

III. [reserved]
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VI. Bibliography

VI.A. Oral RfD References

N.A.

VI.B. Inhalation RfC References

Barnhart, MI; Chen, S-T; Salley, SO; et al. (1981) Ultrastructure and morphometry of the alveolar lung of guinea pigs chronically exposed to diesel engine exhaust: six month's experience. J Appl Toxicol 1:88-103.

Barnhart, MI; Salley, SO; Chen, S-T; et al. (1982) Morphometric ultrastructural analysis of alveolar lungs of guinea pigs chronically exposed by inhalation to diesel exhaust (DE). In: Toxicological effects of emissions from diesel engines: proceedings of the Environmental Protection Agency diesel emissions symposium; October, 1981; Raleigh, NC. Lewtas, J., ed. New York: Elsevier Biomedical; pp. 183-200. (Developments in toxicology and environmental science: v. 10).

Brunekreef, B; Janssen, NA; de Hartog, J; et al. (1997) Air pollution from truck traffic and lung function in children living near motorways. Epidemiology 8(3):298-303.

Brunekreef, B; Janssen, NA; van Vliet, P; et al. (2000) Traffic related air pollution and its effect on respiratory health of children living near motorways. Presented at: PM 2000: Particulate matter and health-the scientific basis of regulatory decision-making. Sponsored by the Air and Waste Management Association, January 24-28, 2000.

Heinrich, U; Peters, L; Funcke, W; et al. (1982) Investigation of toxic and carcinogenic effects of diesel exhaust in long-term inhalation exposure of rodents. In: Toxicological effects of emissions from diesel engines: proceedings of the Environmental Protection Agency diesel emissions symposium; October 1981; Raleigh, NC. Lewtas, J., ed. New York: Elsevier Biomedical; pp. 225-242. (Developments in toxicology and environmental science: v. 10).

Heinrich, U; Muhle, H; Takenaka, S; et al. (1986) Chronic effects on the respiratory tract of hamsters, mice, and rats after long-term inhalation of high concentrations of filtered and unfiltered diesel engine emissions. J Appl Toxicol 6:383-395.

Heinrich, U; Fuhst, R; Rittinghausen, S; et al. (1995) Chronic inhalation exposure of Wistar rats and two different strains of mice to diesel engine exhaust, carbon black, and titanium dioxide. Inhal Toxicol 7:533-556.

International Life Sciences Institute (ILSI). (2000) ILSI Risk Science Institute workshop: The relevance of the rat lung response to particle overload for human risk assessment. Gardner, DE, ed. Inhal Toxicol:12(1-2):1-17.

Ishinishi, N; Kuwabara, N; Nagase, S; et al. (1986) Long-term inhalation studies on effects of exhaust from heavy and light duty diesel engines on F344 rats. In: Carcinogenic and mutagenic effects of diesel engine exhaust: proceedings of the international satellite symposium on toxicological effects of emissions from diesel engines; July; Tsukuba Science City, Japan. Ishinishi, N; Koizumi, A; McClellan, RO; et al., eds. Amsterdam, Holland: Elsevier Science Publishers B. V.; pp. 329-348. (Developments in toxicology and environmental science: v. 13).

Ishinishi, N; Kuwabara, N; Takaki, Y; et al. (1988) Long-term inhalation experiments on diesel exhaust. In: Diesel exhaust and health risks: Results of the HERP studies. Ibaraki, Japan: Japan Automobile Research Institute, Inc., Research Committee for HERP Studies; pp. 11-84.

Iwai, K; Udagawa, T; Yamagishi, M; et al. (1986) Long-term inhalation studies of diesel exhaust on F344 SPF rats. Incidence of lung cancer and lymphoma. In: Carcinogenic and mutagenic effects of diesel engine exhaust: proceedings of the international satellite symposium on toxicological effects of emissions from diesel engines; July; Tsukuba Science City, Japan. Ishinishi, N; Koizumi, A; McClellan, RO; et al., eds. Amsterdam, Holland: Elsevier Science Publishers B. V.; pp. 349-360. (Developments in toxicology and environmental science: v. 13).

Johnston, CJ; Finkelstein, JN; Mercer, P, et al. (2000) Pulmonary effects induced by ultrafine PTFE particles. Toxicol Appl Pharmacol 168:208-215.

Lewis, TR; Green, FHY; Moorman, WJ; et al. (1989) A chronic inhalation toxicity study of diesel engine emissions and coal dust, alone and combined. J Am. Coll Toxicol 8:345-375.

Mauderly, JL; Jones, RK; Griffith, WC; et al. (1987a) DE is a pulmonary carcinogen in rats exposed chronically by inhalation. Fundam. Appl Toxicol 9:208-221.

Mauderly, JL; Jones, RK; Griffith, WC; et al. (1987b) Effects of inhaled nitrogen dioxide and diesel exhaust on developing lung. Cambridge, MA: Health Effects Institute; research report no. 8.

Nikula, KJ; Snipes, MB; Barr, EB; et al. (1995) Comparative pulmonary toxicities and carcinogenicities of chronically inhaled diesel exhaust and carbon black in F344 rats. Fundam Appl Toxicol 25:80-94.

Oberdörster, G; Finkelstein, JN; Johnston, CJ; (2000) Ultrafine particles as inducers of acute lung injury; mechanisms and correlation with disease and age. Health Effects Institute 96:1-88.

Pepelko, WE. (1982a) Effects of 28 days exposure to diesel engine emissions in rats. Environ Res 27:16-23.

Pepelko, WE. (1982b) EPA studies on the toxicological effects of inhaled diesel engine emissions. In: Toxicological effects of emissions from diesel engines: proceedings of the Environmental Protection Agency diesel emissions symposium; October 1981; Raleigh, NC. Lewtas, J, ed. New York: Elsevier Biomedical; pp. 121-142. (Developments in toxicology and environmental science: v. 10).

Plopper, CG; Hyde, DM; Weir, AJ. (1983) Centriacinar alterations in lungs of cats chronically exposed to diesel exhaust. Lab Invest 49:391-399.

U.S. Environmental Protection Agency (U.S. EPA). (1994) Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry, EPA/600/8-90/066F October 1994.

U.S. EPA. (1996a) Air quality criteria for particulate matter. Research Triangle Park, NC: National Center for Environmental Assessment - RTP Office; report nos. EPA/600/P-95/001aF-cF. 3v. Available from: NTIS, Springfield, VA; PB96-168224.

U.S. EPA. (1996b) Review of the national ambient air quality standards for particulate matter: policy assessment of scientific and technical information. OAQPS staff paper. Research Triangle Park, NC: Office of Air Quality Planning and Standards; report no. EPA/452/R-96-013. Available from: NTIS, Springfield, VA; PB97-115406REB.

U.S. EPA. (2002) Health assessment document for diesel engine exhaust. May 2002. National Center for Environmental Assessment - Office of Research and Development. Washington, DC. EPA/600/8-90/057F. Available from http://www.epa.gov/iris.

van Vliet, P; Knape, M; de Hartog, J; et al. (1997) Motor vehicle exhaust and chronic respiratory symptoms in children living near freeways. Environ Res 74(2):122-132.

Yu, CP; Yoon, KJ. (1990) Retention modeling of DE particles in rats and humans. Amherst, NY: State University of New York at Buffalo (Health Effects Institute research report no. 40).

Yu, CP; Yoon, KJ; Chen, YK. (1991) Retention modeling of DE particles in rats and humans. J Aerosol Med 4:79-115.

VI.C. Carcinogenicity Assessment References

Bhatia, R; Lopipero, P; Smith, A. (1998) Diesel exhaust exposure and lung cancer. Epidemiology 9(1):84-91.

Boffetta, P; Stellman, SD. (1988) Association between diesel exhaust exposure and multiple myeloma: an example of confounding. Prev Med 17:236-237.

Bond, JA; Johnson, NF; Snipes, MB; et al. (1990) DNA adduct formation in rat alveolar type II cells: cells potentially at risk for inhaled diesel exhaust. Environ Mol Mutagen 16:64-69.

Boorman, GA; Brockman, M; Carlton, WW; et al. (1996) Classification of cystic keratinizing squamous lesions of the rat lung: report of a workshop. Toxicol Pathol 24:564-572.

Brightwell, J; Fouillet, X; Cassano-Zoppi, AL; et al. (1986) Neoplastic and functional changes in rodents after chronic inhalation of engine exhaust emissions. In: Carcinogenic and mutagenic effects of diesel engine exhaust: proceedings of the international satellite symposium on toxicological effects of emissions from diesel engines; July; Tsukuba Science City, Japan. Ishinishi, N; Koizumi, A; McClellan, RO; et al., eds. Amsterdam, Holland: Elsevier Science Publishers B. V.; pp. 471-485. (Developments in toxicology and environmental science: v. 13).

Brightwell, J; Fouillet, X; Cassano-Zoppi, AL; et al. (1989) Tumors of the respiratory tract in rats and hamsters following chronic inhalation of engine exhaust emissions. J Appl Toxicol 9:23-31.

Brüske-Hohlfeld, I; Mohner, M; Ahrens, W; et al. (1999) Lung cancer risk in male workers occupationally exposed to diesel motor emissions in Germany. Am J Ind Med 36:405-414.

California Environmental Protection Agency (Cal EPA). (1998) Part B: Health risk assessment for diesel exhaust, Public and Scientific Review Draft. February 1998.

Cohen, AJ; Higgins, MWP. (1995) Health effects of diesel exhaust: epidemiology. In: Diesel exhaust: a critical analysis of emissions, exposure, and health effects. Cambridge, MA: Related HEI Publications; pp. 251-292.

Cox, LA. (1997) Does diesel exhaust cause human lung cancer? Risk Anal 17(6):807-829.

Crump, KS; Lambert, T; Chen, C; et al. (1991) Assessment of risk from exposure to diesel engine emissions. Clement International Corporation. Prepared for U.S. EPA under contract no. 68-02-4601; 56.

Crump, KS. (1999) Lung cancer mortality and diesel exhaust: reanalysis of a retrospective cohort study of U.S. railroad workers. Inhal Toxicol 11:1-17.

Depass, LR; Chen, KC; Peterson, LG. (1982) Dermal carcinogenesis bioassays of diesel particulates and dichloromethane extract of diesel particulates in C3H mice. In: Toxicological effects of emissions from diesel engines. Lewtas, J, ed. Amsterdam: Elsevier; pp. 321-326.

Dontenwill, W; Chevalier, H-J; Harke, H-P; et al. (1973) Investigations on the effects of chronic cigarette smoke inhalation in Syrian golden hamsters. J Natl Cancer Inst 51:1681-1832.

Driscoll, KE; Carter, JM; Howard, BW; et al. (1996) Pulmonary inflammatory, chemokine, and mutagenic responses in rats after subchronic inhalation of carbon black. Toxicol Appl Pharmacol 136:372-380.

Driscoll, KE; Deyo, KC; Carter, JM; et al. (1997) Effects of particle exposure and particle-elicited inflammatory cells on mutation in rat alveolar epithelial cells. Carcinogenesis 18:423-430.

Garshick, E; Schenker, MB; Munoz, A; et al. (1987) A case-control study of lung cancer and diesel exhaust exposure in railroad workers. Am Rev Respir Dis 135:1242-1248.

Garshick, E; Schenker, MB; Munoz, A; et al. (1988) A retrospective cohort study of lung cancer and diesel exhaust exposure in railroad workers. Am Rev Respir Dis 137:820-825.

Garshick, E. (1991) Letter from E. Garshick, Harvard Medical School, to C. Chen, U.S. EPA, August 15, 1991.

Health Effects Institute (HEI). (1999) Diesel emissions and lung cancer: epidemiology and quantitative risk assessment. A special report of the Institute's Diesel Epidemiology Expert Panel. Cambridge, MA: Health Effects Institute.

Heinrich, U. (1990) Carcinogenicity of carbon black "Printex 90" in female Wistar rats. Presented at: U.S. Environmental Protection Agency Diesel Emissions Peer Review Workshop; July 18-19; Chapel Hill, NC.

Heinrich, U; Peters, L; Funcke, W; et al. (1982) Investigation of toxic and carcinogenic effects of diesel exhaust in long-term inhalation exposure of rodents. In : Lewtas, J, ed. Toxicological effects of emissions from diesel emissions. Amsterdam: Elsevier; pp. 225-242.

Heinrich, U; Muhle, H; Takenaka, S; et al. (1986a) Chronic effects on the respiratory tract of hamsters, mice, and rats after long-term inhalation of high concentrations of filtered and unfiltered diesel engine emissions. J Appl Toxicol 6:383-395.

Heinrich, U; Pott, F; Rittinghausen, S. (1986b) Comparison of chronic inhalation effects in rodents after long-term exposure to either coal oven flue gas mixed with pyrolized pitch or diesel engine exhaust. In: Carcinogenic and mutagenic effects of diesel engine exhaust: proceedings of the international satellite symposium on toxicological effects of emissions from diesel engines; July; Tsukuba Science City, Japan. Ishinishi, N; Koizumi, A; McClellan, RO; et al., eds. Amsterdam, Holland: Elsevier Science Publishers BV; pp. 441-457. (Developments in toxicology and environmental science: v. 13).

Heinrich, U; Mohr, U; Fuhst, R; et al. (1989) Investigation of a potential cotumorigenic effect of the dioxides of nitrogen and sulfur, and of diesel-engine exhaust, on the respiratory tract of Syrian golden hamsters. Research Report No. 26. Cambridge, MA: Health Effects Institute; pp. 27.

Heinrich, U; Fuhst, R; Rittinghausen, S; et al. (1995) Chronic inhalation exposure of Wistar rats and two different strains of mice to diesel engine exhaust, carbon black, and titanium dioxide. Inhal Toxicol 7:553-556.

Hemminki, K; Söderling, J; Ericson, P; et al. (1994) DNA adducts among personnel servicing and loading diesel vehicles. Carcinogenesis 15:767-769.

Ichinose, T; Yajima, Y; Nagashima, M; et al. (1997a) Lung carcinogenesis and formation of 8-hydroxy-deoxyguanosine in mice by diesel exhaust particles. Carcinogenesis 18:185-192.

Ichinose, T; Yamanushi, T; Seto, H; et al. (1997b) Oxygen radicals in lung carcinogenesis accompanying phagocytosis of diesel exhaust particles. Int J Oncol 11:571-575.

International Agency for Research on Cancer (IARC). (1989) Diesel and gasoline engine exhausts and some nitroarenes. IARC monographs on the evaluation of carcinogenic risks to humans: v. 46. Lyon, France: World Health Organization; pp. 41-185.

International Life Sciences Institute (ILSI). (2000) ILSI Risk Science Institute workshop: The relevance of the rat lung response to particle overload for human risk assessment. Gardner, DE, ed. Inhal Toxicol:12(1-2):1-17.

International Program on Chemical Safety (IPCS). (1996) Environmental Health Criteria 171. Diesel fuel and exhaust emissions. Geneva: World Health Organization, pp. 172-176.

Ishinishi, N; Kuwabara, N; Takaki, Y; et al. (1988a) Long-term inhalation experiments on diesel exhaust. In: Diesel exhaust and health risks. Results of the HERP studies. Ibaraki, Japan: Japan Automobile Research Institute, Inc., Research Committee for HERP Studies; pp. 11-84.

Ishinishi, N; Inamasu, T; Hisanaga, A; et al. (1988b) Intratracheal instillation study of diesel particulate extracts in hamsters. In: diesel exhaust and health risk. Ibaraki, Japan: Research committee for HERP Studies; pp. 209-216.

Iwai, K; Udagawa, T; Yamagishi, M; et al. (1986) Long-term inhalation studies of diesel exhaust on F344 SPF rats. Incidence of lung cancer and lymphoma. In: Carcinogenic and mutagenic effects of diesel engine exhaust: proceedings of the international satellite symposium on toxicological effects of emissions from diesel engines; July; Tsukuba Science City, Japan. Ishinishi, N; Koizumi, A; McClellan, RO; et al., eds. Amsterdam, Holland: Elsevier Science Publishers B. V.; pp. 349-360. (Developments in toxicology and environmental science: v. 13).

Iwai, K; Higuchi, K; Udagawa, T; et al. (1997) Lung tumor induced by long-term inhalation or intratracheal instillation of diesel exhaust particles. Exp Pathol Toxicol 49:393-401.

Jöckel, KH; Ahrens, W; Jahn I; et al. (1995) Untersuchungen zu Lungenkrebs und Risiken am Arbeitsplatz (Schlussbericht). Berlin: Wirtschaftsverlag NW. Fb 01 HK 546.

Jöckel, KH; Ahrens, W; Jahn, I; et al. (1998) Occupational risk factors for lung cancer - a case-control study in West Germany. Int J Epidemiol 27:549-560.

Kotin, P; Falk, H; Thomas, M. (1955) Aromatic hydrocarbons. III. Presence in the particulate phase of diesel engine exhausts and the carcinogenicity of exhaust extracts. Arch Ind Health 11:113-120.

Kawabata, Y; Iwai, K; Udagawa, T; et al. (1986) Effects of diesel soot on unscheduled DNA synthesis of tracheal epithelium and lung tumor formation. In: Carcinogenic and mutagenic effects of diesel engine exhaust. Ishinishi, N; Koizumi, A; McClellan R; et al., eds. Amsterdam: Elsevier; pp. 213-232.

Kunitake, E; Shimamura, K; Katayama, H; et al. (1986) Studies concerning carcinogenesis of diesel particulate extracts following intratracheal instillation, subcutaneous injection, or skin application. In: Carcinogenic and mutagenic effects of diesel engine exhaust. Ishinishi, N; Koizumi, A; McClellan, R; et al., eds. Amsterdam: Elsevier; pp. 235-252.

Lewis, TR; Green, FHY; Moorman, WJ; et al. (1989) A chronic inhalation toxicity study of diesel engine emissions and coal dust, alone and combined. J Am. Coll Toxicol 8:345-375.

Lipsett, M; Campleman, S. (1999) Occupational exposure to diesel exhaust and lung cancer: a meta-analysis. Am J Public Health 80(7):1009-1017.

Mauderly, JL; Jones, RK; Griffith, WC; et al. (1987) Diesel exhaust is a pulmonary carcinogen in rats exposed chronically by inhalation. Fundam Appl Toxicol 9:208-221.

Mauderly, JL; Banas, DA; Griffith, WC; et al. (1996) Diesel exhaust is not a pulmonary carcinogen in CD-1 mice exposed under conditions carcinogenic to F344 rats. Fundam Appl Toxicol 30:233-242.

Muscat, JE; Wynder, EL. (1995) Diesel engine exhaust and lung cancer: an unproven association. Environ Health Perspect 103:812-818.

National Toxicology Program (NTP). (2000) 9th report on carcinogens. Public Health Service, U.S. Department of Health and Human Services, Research Triangle Park, NC. Available from: http://ntp-server.niehs.nih.gov.

Nesnow, S; Evans, C; Stead, A; et al. (1982) Skin carcinogenesis studies of emission extracts. In: Toxicological effects of emissions from diesel engines. Lewtas, J, ed. Amsterdam: Elsevier; pp. 295-320.

Nielsen, PS; Andreassen, A; Farmer, PB; et al. (1996) Biomonitoring of diesel exhaust-exposed workers. DNA and hemoglobin adducts and urinary 1-hydroxypyrene as markers of exposure. Toxiocol Lett 86:27-37.

Nikula, KJ; Snipes, MB; Barr, EB; et al. (1995) Comparative pulmonary toxicities and carcinogenicities of chronically inhaled diesel exhaust and carbon black in F344 rats. Fundam Appl Toxicol 25:80-94.

Orthoefer, JG; Moore, W; Kraemer, D. (1981) Carcinogenicity of diesel exhaust as tested in strain A mice. Environ Int 5:461-471.

Österholm, AM; Fält, S; Lambert, B; et al. (1995) Classification of mutations at the human hprt-locus in T-lymphocytes of bus maintenance workers by multiplex-PCR and reverse transcriptase-PCR analysis. Carcinogenesis 16:1909-1995.

Pepelko, WE; Peirano, WB. (1983) Health effects of exposure to diesel engine emissions: a summary of animal studies conducted by the U.S. Environmental Protection Agency's Health Effects Research Laboratories at Cincinnati, Ohio. J Am Coll Toxicol 2:253-306.

Rittinghausen, S; Mohr, U; Dungworth, DL. (1997) Pulmonary cystic keratinizing squamous cell lesions after inhalation/instillation of different particles. Exper Toxicol Pathol 49:433-446.

Steenland, K; Silverman, DT; Hornung, RW. (1990) Case-control study of lung cancer and truck driving in the Teamsters Union. Am J Public Health 80:670-674.

Stöber, W. (1986) Experimental induction of tumors in hansters, mice and rats after long-term inhalation of filtered and unfiltered diesel engine exhaust. Ishinishi, N; Koizumi, A; McClellan, R; et al., eds. Amsterdam: Elsevier; pp. 421-429.

Stöber, W; Abel, UR. (1996) Lung cancer due to diesel soot particles in ambient air? A critical appraisal of epidemiological studies addressing this question. Int Arch Occup Environ Health 68(Suppl):S3-S61.

Takaki, Y; Kitamura, S; Kuwabara, N; et al. (1989) Long-term inhalation studies of exhaust from diesel engine in F-344 rats: the quantitative relationship between pulmonary hyperplasia and anthracosis. Exp Pathol 37:56-61.

Takemoto, K; Yoshimura, H; Katayama, H. (1986) Effects of chronic inhalation exposure to diesel exhaust on the development of lung tumors in di-isopropanol-nitrosamine-treated F344 rats and newborn C57BL and ICR mice. In: Carcinogenic and mutagenic effects of diesel

engine exhaust. Ishinishi, N; Koizumi, A; McClellan, R; et al., eds. Amsterdam: Elsevier; pp. 311-327.

Takemoto, K; Katayama, H; Kuwabara, T; et al. (1988) Carcinogenicity by subcutaneous administration of diesel particulate extracts in mice. In: Diesel exhaust and health risks. Ibaraki, Japan: Research Committee for HERP Studies; pp. 227-234.

U.S. EPA. (1999) Guidelines for Carcinogen Risk Assessment. Review Draft. NCEA-F-0644, July. Risk Assessment Forum, Washington, DC. http://www.epa.gov/cancerguidelines/draft-guidelines-carcinogen-ra-1999.htm.

U.S. EPA. (2002) Health assessment document for diesel engine exhaust. May 2002. National Center for Environmental Assessment - Office of Research and Development. Washington, DC. EPA/600/8-90/057F. Available from http://www.epa.gov/iris.

Wichmann, HE; Kreienbrock, L; Kreuzer, M; et al. (1998) Lungenkrebrisiko durch Radon in der Bundesrepublik Deutschland (West). In: Fortschritte in der Unwelmedizin, ecomed Berlagsgesellschaft Landsberg/Lech. Wichmann, HE; Schliepköter, HW; Fulgraff, G; et al., eds.

Wong, O; Morgan, RW; Kheifets, L; et al. (1985) Mortality among members of a heavy construction equipment operators union with potential exposure to diesel exhaust emissions. Br J Ind Med 42:435-448.

Zaebst, DD; Clapp, DE; Blake, LM; et al. (1991) Quantitative determination of trucking industry workers' exposures to diesel exhaust particles. Am Ind Hyg Assoc J 52:529-541.

VII. Revision History

Substance Name — Diesel engine exhaust
CASRN — N.A.

Date	Section	Description
06/01/1993	I.B.	Inhalation RfC on-line

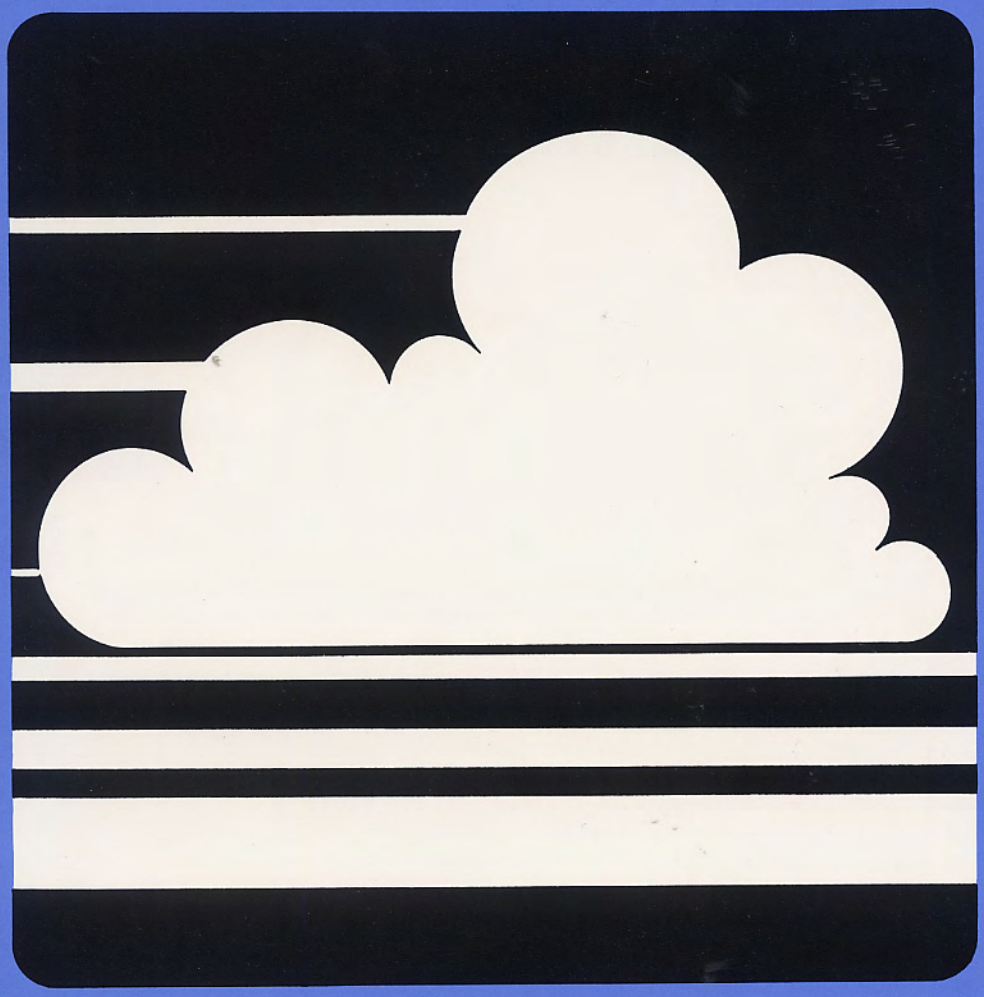
Date	Section	Description
02/28/2003	I.A., I.B., II.	All sections updated based on new health assessment document.

VIII. Synonyms

Substance Name — Diesel engine exhaust
CASRN — N.A.
Last Revised — 02/28/2003

- diesel soot
- diesel particulate matter
- dpm

AIR QUALITY ELEMENT



DEPARTMENT OF CITY PLANNING LOS ANGELES, CALIFORNIA

City Plan Cose No. 89 - 0034
Council File No. 91 - 2003

AIR QUALITY ELEMENT

AN ELEMENT OF THE GENERAL PLAN OF THE CITY OF LOS ANGELES

Approved by
the City Planning Commission
June 20, 1991

Adopted by
the City Council
November 24,1992

CERTIFICATION

STATE OF CALIFORNIA,

] ss.

COUNTY OF LOS ANGELES,

I, Elias Martinez, City Clerk of the City of Los Angeles and ex-officio Clerk of the City of Los Angeles, do hereby certify and attest the foregoing to be a full, true and correct copy of the Resolution attached to Council File 91-2003, adopted in Council on November 24, 1992, relative to the 1992 Air Quality Element of the General Plan to be the City of Los Angeles' Air Quality Policy Document, on file in my office, and that I have carefully compared the same with the original.

In Witness Whereof, I have hereunto set my hand and affixed the Seal of the City of Los Angeles, this 25th day of November, 1992.

City Clerk of the City of Los Angeles

By Barbara Rosales

Deputy

CITY OF LOS ANGELES
CALIFORNIA

ELIAS MARTINEZ
City Clerk

J. Michael Carey
Executive Officer

When making inquiries relative to this matter refer to File No.

91-2003

TOM BRADLEY
MAYOR

Office of
CITY CLERK
Council and Public Services
Room 395, City Hall
Los Angeles, CA 90012
Council File Information - 485-5703
General Information - 485-5705

Pat Letcher
Chief Legislative Assistant

November 25, 1992

✓Jimmy Liao - Planning Department
Stop 397, 3rd & Figueroa
(w/certified copy of resolution)

Planning Commission
Planning Department - PPR Unit
Department of Transportation,
Traffic\Planning Sections
Water and Power Department
City Attorney

Director of Planning
Planning Department,
Neighborhood Planning Section
Department of Building & Safety,
c/o Zoning Coordinator
Environmental Affairs Department

RE: THE 1992 AIR QUALITY ELEMENT OF THE GENERAL PLAN TO BE THE CITY OF LOS ANGELES' AIR QUALITY POLICY DOCUMENT

At the meeting of the Council held November 24, 1992, the following action was taken:

:tached resolution adopted	X
Ordinance adopted	
Motion adopted to approve attached report	
" " " " " communication	
To the Mayor for concurrence	
To Concerned Departments FORTHWITH	X
Mayor concurred	
Appointment confirmed	
Findings adopted	
Negative Declaration adopted	
Categorically exempt	
Generally exempt	
EIR certified	
Tract map approved for filing with the County Recorder	
Parcel map approved for filing with the County Recorder	
Bond approved is No. _____ of Contract	
Resolution of acceptance of future street to be known as _____ adopted	
Attach a copy of follow-up Department Report to file	
Agreement mentioned therein is/are No. _____ of contracts	

Elias Martinez

:ty Clerk
Dem

stenol912003

RESOLUTION No._____

A Resolution of the City Council of the City of Los angeles adopting the 1992 Air Quality Element of the General Plan.

WHEREAS, the existing Air Quality Management Plan, an Element of the General Plan, was adopted in 1979; and

WHEREAS, the City Council, in 1988, directed an updated Air Quality Element be prepared; and

WHEREAS, the South Coast Air Quality Management District and the Southern California Association of Governments adopted an Air Quality Management Plan (AQMP) in 1989 and a Revision to the AQMP in 1991; and

WHEREAS, both the 1989 AQMP and the 1991 Revision contain measures for local government implementation; and

WHEREAS, the 1991 agreement with the Southern California Association of Governments relative to the City's Wastewater Facilities Plan update required the City of Los Angeles to develop an Air Quality Element; and

WHEREAS, the 1992 Air Quality Element is the result of four years of work, public workshops and has been revised in response to other city Departments, public agencies and public comments; and

WHEREAS, the City of Los Angeles is committed to comply with the requirements of the California Clean Air Act; and

WHEREAS, the City of Los Angeles is committed to show a good faith effort to achieve clean air; and

WHEREAS, the City of Los Angeles is committed to assuming a leadership role in the efforts to attain clean air goals; and

WHEREAS, the City of Los Angeles finds and determines that the 1992 Air Quality Element is considered a "project" pursuant to the terms of the California Environmental Quality Act (CEQA); and

WHEREAS, the City of Los Angeles has prepared a tiered Program Environmental Assessment document, pursuant to CEQA; and

WHEREAS, the implementation programs and monitoring procedures are contained in the Clean Air Program (CAP);

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Los Angeles adopts the 1992 Air Quality Element of the General Plan to be the City of Los Angeles' air quality policy document.

RESOL.
ADOPTED

NOV 24 1992

LOS ANGELES CITY COUNCIL

forthwith to concerned Depts


CITY OF LOS ANGELES
FOUNDED 1781

AIR QUALITY ELEMENT - 1992

CITY OF LOS ANGELES
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Robert H. Sutton, Deputy Director
Kenneth C. Topping, Former Director of Planning

CITYWIDE PLANNING DIVISION

R. Ann Siracusa, Principal City Planner
Charles Montgomery, Senior City Planner
Michael Feldman, Former Senior City Planner
Alta Shigeta, Former Senior City Planner
Emily Gabel, Former Principal City Planner

PROJECT STAFF

Jimmy Liao, City Planner/Project Manager
Srimal Hewawitharana, Environmental Associate II
P.L. Ryland, Environmental Associate II

Former Project Staff

Glenn Blossom, City Planning Officer
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CITYWIDE GRAPHICS

Rey Hernandez, Graphic Designer III

Former Graphic Staff

Mort Meyerson, Planning Graphics Supervisor
Robert Sanchez, Graphic Designer III
Luis Quinones, Graphic Designer II

CHAPTER I - INTRODUCTION

PURPOSE OF THE GENERAL PLAN ____ I - 1

STATE REQUIREMENTS ____ I - 1

ORGANIZATION AND CONTENT OF THE PLAN ____ I - 1
Citywide General Plan Framework
Primary Citywide Elements
Secondary Citywide Elements

INTERNAL CONSISTENCY ____ I - 3

COUNCIL ADOPTION PROCEDURES ____ I - 3
Preparation
GPAB Review
Hearing-Date-Notice
Commission Approval
Action by Council and Mayor
Initiation of Amendments by Council
Council Adoption

CITIZEN PARTICIPATION ____ I - 4

REGIONAL CONTEXT ____ I - 5

RELATIONSHIP TO OTHER DOCUMENTS ____ I - 5

CHAPTER II - BACKGROUND

STATUTORY REQUIREMENTS ____ II - 1
Federal Clean Air Act
State Legislation
Regional Air Quality Management Plan

PLANNING AREA ____ II - 1

DEMOGRAPHICS ____ II - 1

EXISTING CONDITIONS ____ II - 2

HISTORICAL CONTEXT ____ II - 2

INTERGOVERNMENTAL COORDINATION ____ II - 3

CHAPTER III - ISSUES

AIR QUALITY STANDARDS ATTAINMENT PROBLEM ____ III - 1
Ambient Air Quality Standards
Attainment and Measurement Issues

HEALTH AND ECONOMIC EFFECTS OF POLLUTED AIR ..... III - 1

CURRENT STATUS OF THE AIR POLLUTION PROBLEMS ..... III - 2
Ozone
Carbon Monoxide
Nitrogen Dioxide
Particulate Matter

CONSTRAINTS IN ACHIEVING STANDARDS ..... III - 2
Environmental Settings
Emission Sources
Density and Land Use Patterns
Transportation System
Economic and Population Growth

CONGESTION MANAGEMENT PLAN ..... III - 3

PUBLIC PARTICIPATION AND IMPLEMENTATION ..... III - 4

EPA ENFORCEMENT AND LEGAL ISSUES ..... III - 4
EPA Sanctions
The Abramowitz Case
Coalition for Clean Air vs. EPA

CHAPTER IV - GOALS, OBJECTIVES, AND POLICIES ..... IV -1

CHAPTER V - IMPLEMENTATION PROGRAMS ..... V - 1

TABLES

TABLE 3.1 NATIONAL AND STATE AIR QUALITY STANDARDS ..... III -1

TABLE A LIST OF ACRONYMS USED IN THE AIR QUALITY ELEMENT ..... A -1

TABLE B MEMBERS OF THE AIR QUALITY COMMITTEE OF THE GENERAL PLAN ADVISORY BOARD ..... B - 1

CHAPTER I - INTRODUCTION

PURPOSE OF THE GENERAL PLAN

California state law requires each city and county to adopt a long-term comprehensive general plan which must be an integrated, internally consistent and compatible statement of goals, objectives, policies, and implementation programs which provides a basis for rational decision making regarding the City's long-term physicol development. Preparing, adopting, ond maintaining a general plan serves to:

- Identify the community's environmental, social, and economic goals.
- State the local government's policies on existing and future development needed to achieve community goals.
- Establish within local government the ability to respond to problems and opportunities concerning community development in a way consistent with local, regional, and state goals and policies.
- Inform citizens about their community and allow for opportunities to participate in the planning and decision-making process of local government.
- Identify the need for and methods of improving the coordination of community development activities among all units of government.
- Create a basis for subsequent planning efforts, such as the preparation of specific plans and special studies.

In 1971, a law was passed requiring zoning and subdivision approvals to be consistent with the General Plan, giving it more of a legal status and causing city officials to seriously consider the general plan when adopting policies.

Through use of short-term implementation programs, local governments have the ability to direct zoning and subdivision actions more closely without a need for constant monitoring and revision. Because of the socio-economic impacts certain programs may have, it is important to consider their effects while still in the developmental stage. The General Plan should be reviewed every five years.

The City's principal objectives in revising the Air Quality Element of the General Plan are to aid the region in attaining and maintaining the National and State Ambient Air Quality Standards while continuing economic growth and improvement in the quality of life afforded to City residents and to document how the City plans to implement local programs contained in the regional plan.

STATE REQUIREMENTS

Government Code Section 65302 and others establish a minimum list of issues a general plan must cover. While the general plan must meet the minimum requirements of the law, the individual elements need be oddressed only if it is relevant to the city's or county's planning area (Government Code Sections 65300.7 and 65302.1).

In assessing the relevance of the state-mandated issues, severol points should be kept in mind:

- When a state-mandated issue is eliminated due to irrelevance to a planning area, the basis of this action should be documented in the general plan.
- An issue which may seem irrelevant in the short term, but may be important in the long term should be addressed in the general plan.
- When a previously excluded issue becomes relevant, the general plan must be revised to include that issue.

ORGANIZATION AND CONTENT OF THE PLAN

The general plan expresses the community development goals and policies relative to the distribution of future land use, both public and private. The plan integrates the citywide elements, community plans and neighborhood plans, and gives policy direction to the planning regulatory and proactive implementation programs.

The Comprehensive General Plan consists of a hierarchy of components in which each component guides the subsequent level and makes the policy direction more specific.

The five components of the Comprehensive General Plan include: 1) Citywide General Plan Framework, 2) Primary Citywide Elements, 3) Secondary Citywide Elements, 4) Community Plans, and 5) Neighborhood Plans.

Citywide General Plan Framework

Increasing population and economic growth, if left unchecked, could have serious impacts on the environmental quality of the City.

The Citywide General Plan Framework is the first component of the Comprehensive General Plan. This component brings the demands on the urban systems into equilibrium with the systems' capacities and maintains that balance in the future.

In 1974, the Los Angeles City Council adopted the Concept Los Angeles Plan ("Centers Concept") to achieve balanced growth through a multi-centered urban form. This plan has yet to be implemented, but is a reference point for the development of the Citywide General Plan Framework.

The Citywide General Plan Framework is the umbrella concept of the General Plan which ties all of the components together by:

1. Establishing the inter-relationships between the many aspects of the urban ecological system;

2. Providing the policy framework for directing, achieving and maintaining balance between the parts; i.e. managing growth;

3. Balancing the City's growth potential with its growth constraints;

4. Providing the linkage between land use, transportation, infrastructure (utility systems, sewer systems) economic vitality, urban form, revitalization, and capital improvements (street improvements, public facilities) programming; and

5. Establishing guidelines and mechanisms for a) managing the timing, phasing, financing and location of growth, b) assuring the City's ability to serve development, in terms of infrastructure needs and human services, c) assuring the quality of development, and d) monitoring, evaluating and adjusting the processes so the system can be dynamic and responsive to change.

The Citywide General Plan Framework will address the following interrelated factors and their interaction: centers/urban form, jobs/housing balance, growth/infrastructure balance, economic strategy, revitalization strategy, and capital improvements programming strategy.

Primary Citywide Elements

The second component of the Comprehensive General Plan provides longrange citywide policy direction, taking into account citywide goals and needs. This component also guides the more detailed Community and Neighborhood Plans. The City of Los Angeles' Plan organizes the seven State-mandated elements and other optional elements into two categories, primary and secondary.

The Primary Citywide Elements interact to affect the type, location, and intensity of land uses and the timing and phasing of development. For example, the ability of any particular circulation system to move goods and people through the City sets limits on the amount and type of land uses that can be accommodated. Increasing the capacity of the system or changing its physical configuration can change the locations, amount, and type of land uses that can be served. Changes in land use distribution change the demands put on the circulation systems.

The elements in this component include: Air Quality, Transportation, Housing, Infrastructure Systems (such as water, sewer, and waste management systems), Conservation, Open Space, and unique plans with citywide impacts (such as the LAX Master Plan and the Port of Los Angeles Master Plan).

Secondary Citywide Elements

The Secondary Citywide Elements, which comprise the third component of the plan, are those which respond to but do not dictate the type, location, and intensity of the land uses. The term secondary is not intended to describe the relative importance of these elements, but rather to describe the kind of interaction they have with other parts of the system.

For example, the amount and location of residential development dictate the need for schools to serve that development. Those schools are planned to serve the projected population based on criteria established in the Public Facilities Element of the Plan. However, the absence of school capacity in a particular area of the City will not by itself preclude residential development in that area. Similarly, the Design Element may establish the quality and design characteristics of commercial development, but will not determine where commercial development should occur or how much is appropriate.

The Secondary Elements include: Noise, Public Facilities, Cultural and Urban Design, and Safety.

INTERNAL CONSISTENCY

The internal consistency requirement (Government Code Section 65300.5) has several implications of importance to the structure and content of the general plan. First, it implies that all elements of the general plan have equal legal status. For instance, the land use element and the open space element cannot contain different land use intensity standards rationalized by statements such as "if in any instance there is a conflict between the land use element and open-space element, the land use element controls" (Sierra Club v. Board of Supervisors of Kern County (1981) 126 Cal. App. 3d 698). Any conflicts between elements must be resolved within the general plan itself. Similarly, all goals, objectives, policies, principles, standards, and plan proposals in the general plan must be consistent; the implementation programs set out in the plan must be true to and follow logically from the plan goals and policies.

Information, such as projections and assumptions, used between elements within the general plan must be consistent and uniform since neither is subordinate to the other. Population projections in the land use element, for example, must be consistent with population projections in the housing element. When a new element is adopted or a part of the plan amended, the rest of the plan must be changed to eliminate any inconsistencies created by the new element or amendment.

COUNCIL ADOPTION PROCEDURES

Preparation

The General Plan shall be prepared so that the City Planning Commission may approve it and the Council may adopt it as follows: as a whole; by complete subject elements; by substantial geographical areas; or by portions of subject elements, provided that any such area or portion has significant social, economic, or physical identity.

GPAB Review

Under Ordinance Number 150048, the General Plan Advisory Board was formed to be composed of the Director of Planning, the Mayor, a member of the Council (designated by the President of the Council), the City Administrative Officer, the City Engineer, the Executive Director of the Housing Authority, the Executive Director of the Community Redevelopment Agency, and the General Managers of each of the following departments: Building and Safety, Fire, Police (or the bureaus thereof), Public Utilities and Transportation, Recreation and Parks, Traffic, and Water and Power (or the bureaus thereof), together with such other officers of the City as the Mayor may from time to time designate.

The GPAB advises the Director of Planning on matters concerning the formulation of the General Plan and its various elements, as well as specific plans and other planning related issues prior to the preparation of the Planning Director's final recommendation to the Planning Commission.

Hearing - Date - Notice

Prior to the approval of the General Plan or any amendments to it, a public hearing shall be held before the Commission or an examiner designated by the Commission.

A notice to the public regarding the hearing will be published to protect public interest. A report of the hearing shall be submitted to the Commission within a period of time as dictated by the Commission.

Commission Approval

Upon approval of the General Plan by the City Planning Commission, or any amendments, the General Plan shall be presented to the Mayor and the City Council by the Director of Planning, together with the Commission's report and recommendations.

Action by Council and Mayor

After receipt of the General Plan, or any amendments as approved by the City Planning Commission, and upon receipt of the recommendations by the Mayor or the passage of 30 days, whichever first occurs, the Council shall conduct a public hearing before taking any action. Notice of the time and place of such hearing shall be given.

If the Council proposes any chonge from that which is approved by the City Planning Commission, the proposed change must be referred to the Director of Planning, the City Planning Commission and the Mayor for recommendation. The Commission and the Mayor must act within 60 days unless given an extention of time by the Council. Final action by the Council shall be taken within 90 days after conclusion of its public hearing if no changes are made, or within 120 days after the receipt of both the Mayor's and the City Planning Commission's recommendations on any proposed change, or upon the expiration of their time to act. Failure of the Council to act within such time limitations shall be deemed a disapproval of the plan or any amendments to it.

Initiation of Amendments by Council
The City Council may propose amendments to the General Plan and refer proposed amendment to the Director of Planning, the City Planning Commission and the Mayor for recommendation. The Director of Planning shall prepore and make recommendations on the proposed amendment to the Mayor, the City Council and the City Planning Commissian. After notice and a hearing, the Commission shall, within 180 days after receipt of said amendment, make and file its report and recommendations approving or disapproving the proposed amendment, during which time, the Mayor shall also approve or disapprove the proposed amendment. After approval or disapproval, the Commission and Mayor shall pass along the proposed amendment, together with their respective actions, to the City Council.

The Council shall then consider and act upon the proposed amendment in the manner set forth in Subsection D of this section, including the proposing of changes from the proposed amendment.

Council Adoption
The General Plan or any amendment shall be adopted by majority vote of the entire Council. A two-thirds vote shall be required if contrary to the recommendations of either the City Planning Commission or of the Mayor, and a three-fourths vote shall be required if action of the Council is contrary to the recommendations of both the City Planning Commission and the Mayor.

CITIZEN PARTICIPATION

State law specifies that in preparing a general plan, "the planning agency shall consult and advise with ... civic, educational, professional and other organizations, and citizens generally to the end that maximum coordination of plans may be secured and properly located sites for all public purposes may be indicated on the general plan" (Government Code Section 65304). Other sections of the Government Code require that, prior to adopting a general plan, element, or amendment, the planning commission and legislative body each hold at least one public hearing (Government Code Sections 65351 and 65355). In preparing the housing element, the law requires local governments to "moke o diligent effort to achieve public porticipotion of all economic segments of the community" (Government Code Section 65583). Following the adoption of the general plan, the plonning agency must also"consult and advise with ...civic, educational, professional and other organizations, and citizens generally with relation to carrying out the general plan" (Government Code Section 65400(d)). All these are minimum requirements. As a practical matter, the general plan will be an effective guide for future development only if it has been prepared with the active involvement of the public and adopted with their support.

A program designed to secure citizen participation should address at least four objectives:

- Identify community values and goals to use as the foundation of the plan.
- Educate the public about the major issues, problems, and opportunities to be addressed in the plan.
- Give the public opportunities to participate in evaluating and selecting alternatives.
- Create an atmosphere which resolves conflicts in demands for limited community resources.

In an attempt to satisfy the various objectives of the community, always keep in mind the following:

- Citizens should be involved, particularly when it is time to make important decisions, such as the selection of goals and objectives, the evaluation of alternatives, and the final approval of the plan.
- Work items and publicotions need to be scheduled carefully to maintain public interest.
- People will only porticipate to the extent they feel they will be affected. In small communities, citizen participation can usuolly be organized on a community wide basis. In larger or more populous jurisdictions, participation should be geared to smaller geographic areas, as well as to the entire jurisdiction.
- The extent of citizen involvement should reflect both the scole of the work undertaken and the amount of interest or controversy expected. Larger projects, such as preporing an entire general plan, call for more participation than smoller ones, for which only public hearings moy be necessary.
- The City Council or Board of Supervisors has to make its expectations cleor in its chorge to committees and must give the committees' recommendations careful consideration.

- It is important to identify early those groups expected to be most affected by the general plan.
- Select the mix of techniques that will be most effective in involving various income and ethnic groups, the handicapped, the elderly, and businesses.
- Maintain a program of public participation to monitor and evaluate the progress in implementing the General Plan.

REGIONAL CONTEXT

With increasing urbanization and the growing interdependence of local governments the concept of community, particularly in metropolitan areas, has expanded in recent years to include a regional perspective. The federal government has recognized that effective management of urban facilities and natural resources must transcend political boundaries by funding councils of governments and creating such regional programs as the 208 Water Quality Planning Program and the A-95 review process (revised in 1982 by Executive Order 12372). The State has similarly institutionalized the regional perspective by creating regional transportation planning agencies and water quality control boards and by designating regional air quality planning agencies.

Regional plans prepared by councils of governments and other designated regional agencies provide the legal basis for allocating state and federal funds, as in the case of transportation and water quality facilities. Other regional plans, such as air quality plans, spell out measures which local governments must institute in order for the region to meet state and federal standards. Still others, such as regional housing needs assessments, provide a measure of each local government's responsibility for satisfying a reasonable share of the region's needs.

When preparing or revising a general plan, cities and counties should carefully analyze the implications of regional plans for their planning area. Further, if regional needs are to be satisfied, federal and state standards met, and coordination achieved in the location of public facilities, local general plans should be consistent with adopted regional plans. Accordingly, general plans should include an analysis of the extent to which the general plan's policies, standards, and proposals conform to regional plans. Naturally, there will have to be some balancing of local and regional needs in the selection of policies. But, where the local general plan deviates from regional plans, the local government should carefully document the basis of this difference in policy.

RELATIONSHIP TO OTHER DOCUMENTS

The primary framework for addressing air quality issues in the South Coast Air Basin is the Regional Air Quality Management Plan (AQMP). The 1991 AQMP was prepared by the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) and adopted on July 12, 1991. State law requires that the AQMP identify how the state and national ambient air quality standards will be achieved and maintained.

In addition, transportation and land use control measures in the AQMP also appear in the Regional Mobility Plan (RMP). The RMP serves as the Federal and State required Regional Transportation Plan for a six-county region that includes the smaller South Coast Air Basin. (While the RMP covers all of Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial Counties, the AQMP covers all of Orange County and the most urbanized portions of Los Angeles, Riverside, and San Bernardino Counties.)

Land use measures in the AQMP are also implementation strategies included in the Regional Growth Management Plan (GMP). The AQMP, RMP, and GMP were developed on a cooperative basis and can be seen as individual components in a broader regional plan. A separate guidance document has been prepared for the implementation of the RMP and GMP in those areas of the six-county SCAG region outside the boundaries of the South Coast Air Basin.

CHAPTER II- BACKGROUND

STATUTORY REQUIREMENTS

Federal Clean Air Act

The Clean Air Act (Act) was first enacted in 1955 and has been amended in subsequent years - 1963, 1965, 1967, 1970, 1977, and 1990. The Act requires that each state submit to the Environmental Protection Agency (EPA) a State Implementation Plan (SIP) that describes the methods to be used to attain federal ambient air quality standards. The Act also establishes local air quality planning processes requiring separate plans for each local area that had not attained the standards. These plans, called nonattainment plans, were to be prepared by local agencies designated by the governor of each state and incorporated into the SIP. The City of Los Angeles was included in the South Coast Air Basin (Basin), a nonattainment area, which has the South Coast Air Quality Management District (AQMD) as its local air pollution control agency.

State Legislation

The AQMD was established by the Lewis Air Quality Act of 1976, which also mandated a planning process. In addition to requiring preparation of an Air Quality Management Plan (AQMP) consistent with federal planning requirements, the act alsa set up a process in which the AQMP was to be reviewed every two years and revised as necessary. This Plan was to be developed in a joint effort with the Southern California Association of Governments (SCAG). SCAG would prepare those portions of the plan dealing with demographics projections as well as regional land use, housing, employment, and transportation programs.

Before the passage of California Senate Bill 151 in 1978, the AQMD's authority was limited to stationary sources of pollution. Under SB 151, the AQMD may now adopt rules and regulations affecting mobile and area emissions sources. SB 151 also altered the governing board of the AQMD and strengthened the AQMD's regulatory powers over stationary sources.

The California Clean Air Act of 1988, alsa known as the Sher Bill (AB 2595), requires the AQMD to prepare a plan by the end of 1990 for attaining the state ambient air quality standards. State air standards are generally more stringent than their federal equivalents and attaining them will require encompassing and effective plan measures. Every three years the Basin Plan must be revised and updated.

Regional Air Quality Management Plan

On March 17, 1989, the AQMD and SCAG adopted a plan which would bring the region into compliance with the National Ambient Air Quality Standards (NAAQS) by December 31, 2007. This Plan was revised in 1991. The AQMP has recommended control measures categorized into three technological tiers, based upon their readiness for implementatian. The three categories are:

Tier I:
Full implementation of known control technologies and management practices.

Tier II:
Significant advancement of today's technological applications and vigorous regulatory intervention.

Tier III:
Development of new technology.

The Plan's control measures will reduce air emissions by altering travel, wark scheduling, surface coating and solvent use, petroleum and gas production, commercial and industrial processes, residential and public activity, agricultural processes, the use of off road vehicles, stationary sources, motor vehicle operation and inspection, transportation systems including airports and ports, and land use and zoning decisions.

PLANNING AREA

The planning area of the Air Quality Element covers the entire city of Los Angeles which encompasses an area of about 465 square miles, of which approximately 150 square miles are hills and mountains and 22 square miles are parklands. The City is bordered by the San Gabriel Mountains on the north, developed communities on the east, the Santa Monica Mountains on the northwest (which extend into the City), and Santa Monica Bay and the Pacific Ocean on the sauth and west.

DEMOGRAPHICS

According to the 1990 Federal Census of Population and Housing, the City of Los Angeles has a population of 3,485,398. Between 1980 and 1990, the population grew by 518,548 persons, or 17.5%, representing an annual growth of 1.7%.

Although per capita emissions have been brought down substantially in the past decade, increases in the population over that time have made substantial emission reductions more difficult. Many sources, such as automobiles, have been significantly controlled. However, increases in the number of such sources, particularly those growing proportionately to population, reduce the potential air quality benefits of new controls.

EXISTING CONDITIONS

Existing levels of ambient air quality and historical air quality trends in the City of Los Angeles are well documented by measurements made by the South Coast Air Quality Management District (SCAQMD) at a number of Los Angeles area air quality monitoring stations. There are six ambient air quality monitoring stations within the SCAQMD's system that cover most of the City's individual communities, although only three stations are within City limits. The six air quality monitoring stations representative of conditions in the City of Los Angeles are:

- Central Los Angeles (North Main Street)
- West Los Angeles (VA Hospital)
- South Central Los Angeles (Lynwood)
- LAX Airport Area (Hawthorne)
- East San Fernando Valley (Burbank)
- West San Fernando Valley (Reseda)

Small portions of East Los Angeles and Northeast Los Angeles (Sunland/Tujunga) are in adjacent SCAQMD Source-Receptor Areas (SRAs) in El Monte, Pico Rivera, and Pasadena.

Air Pollution Patterns

Ozone

Ozone levels are generally lowest near the coastline, increase toward the Civic Center, and then increase again toward the Valley. First stage smog alerts (1 hour ozone concentrations ≥ 0.20 ppm) follow the same general pattern as violations of the hourly standard. The fewest smog alerts occur around the LAX Airport area, San Pedro, and South Central Los Angeles. The number of smog alerts increases on the north side of the Santa Monica Mountains, with a moderate number of alerts in the downtown area, and a maximum number in the Eastern San Fernando Valley.

Although the number of days exceeding ozone standards increases as distance from the coast increases, the annual one-hour maximum concentrations do not necessarily follow a similar pattern. The maximum annual ozone concentrations in the last five years have occurred at a variety of locations in the City, including West Los Angeles.

While ozone concentrations are still well in excess of allowable levels, there has been a substantial improvement in summer air quality over the last 35 years. In 1955, the maximum hourly downtown ozone level was 0.68 ppm, or more than three times the maximum in 1987. From 1955 - 1965, downtown Los Angeles had the worst smog levels in the basin in 10 out of 11 years. In 1965, maximum smog levels were 0.58 ppm, still 2.6 times 1987 levels. Throughout the 1980's, Los Angeles area monitoring stations have shown continued improvement in ozone levels with the almost complete elimination of second stage alerts (1 hour ozone concentrations ≥ 0.35 ppm) and a significant reduction in first stage alerts.

Carbon Monoxide

While the coastal corridor is among the least polluted areas in summer, the offshore flow and low level trapping inversions in winter create unhealthful levels of carbon monoxide (CO) throughout the coastal plain. The area around South Central Los Angeles has the worst CO levels in the basin.

Nitrogen Dioxide

Nitrogen Dioxide (NO_2), which is emitted mainly as Nitric Oxide (NO) from automobiles, reaches a maximum in the downtown area after the NO has had time to convert to NO_2 during airborne transport.

HISTORICAL CONTEXT

The seriousness of the local air pollution problem was recognized in the early 1940' s. In 1946, the Los Angeles County Board of Supervisors established the first air pollution control district in the nation to address the problems of industrial air pollution. In the mid-1950s, California established the first state pollution agency to control motor vehicle emissions. Countywide

or regional air pollution districts were required throughout the state by 1970. Many of the controls originated in California became the basis for the federal control program which began in the 1960s.

Nearly all control programs developed to date have relied on development and application of cleaner technology and add-on emission control devices. Sources affected by this technology have been industrial and vehicular. Only recently have efforts been directed at how emission sources are used, e.g. the Inspection and Maintenance Program, HOV Lanes, and mandatory maintenance procedures on industrial sources.

In the 1970s it became apparent at both the state and federal levels that local programs were not enough to solve o problem that was regional in nature and did not stay within jurisdictional boundaries. Instead, air basins, defined by geographical boundaries, became the basis for regulatory programs.

In 1976, the California Legislature adopted the Lewis Air Quality Management Act which created the South Coast Air Quality Management District from a voluntary association of air pollution districts in Los Angeles, Orange, Riverside, and San Bernardino counties. The new agency was charged with developing uniform plans and programs for the region ta attain federal standards by the dates specified in federal law. It was also mandated to meet federal and state standards by the earliest date achievable, using reasonably available control measures.

INTERGOVERNMENTAL COORDINATION

State law requires local governments to work nat only with citizens, but also with other governmental agencies and public utility companies in preparing and implementing their general plans (Government Code Sections 65304 and 65400(d)). Intergovernmental coordination involves more than a formal exchange of information and plans. In the planning process, legitimate conflicts arise between agencies with different responsibilities, constituencies, and viewpoints. To resolve these conflicts, cities and counties shauld vigorously pursue a full understanding of the other agencies' positions and be prepared to negotiate on the issues at conflict.

Because so many planning issues transcend political boundaries, state law requires cooperation among neighboring cities and counties. Jurisdictions must send copies of their propased general plans to their neighbors: a city to adjoining cities and counties and to the county in which it is located; a county to adjoining cities and counties and to cities within the county (Government Code Sections 65305 and 65306). The same must be done upon adoption of a general plan or other general plan document (Government Code Section 65360). Further, when a city or county propases a public works project (including acquisition and disposal of land) within another city's or county's jurisdiction, it must submit the proposed project ta the appropriate planning agency for review of its canformity to the adopted general plan (Government Code Section 65402(b)).

CHAPTER III- ISSUES

AIR QUALITY STANDARDS ATTAINMENT PROBLEM

Ambient Air Quality Standards

The Environmental Protection Agency (EPA) was given the authority to formulate National Ambient Air Quality Standards (NAAQS) by the Clean Air Act. The State of California has set standards for the six federal criteria pollutants and also for ethylene, hydrogen sulfide, sulfates, benzene, and vinyl chloride. The State has also set a visibility standard. These standards are periodically reviewed and adjusted according to developing scientific knowledge. The National and State Ambient Air Quality Standards are listed in Table 3.1.

Attainment and Measurement Issues

Air basins are the geographical units used for the purpose of measuring air quality. These air basins often cross local political boundaries; because of this, the states were required to establish regional air quality management districts whose boundaries reflect the air basin in question. The City of Los Angeles lies within the South Coast Air Basin where air quality is monitored by the South Coast Air Quality Management District (SCAQMD).

In spite of decades of efforts to manage air quality, the South Coast Air Basin continues to exceed the NAAQS for ozone, carbon monoxide, oxides of nitrogen, and particulate matter, and also violates state standards for sulfates and visibility. Since the AQMD began to monitor ambient pollutant levels, the South Coast Air Basin has had the highest ozone and nitogen levels in the nation.

HEALTH AND ECONOMIC EFFECTS OF POLLUTED AIR

A multitude of scientific studies have documented the adverse human health effects of smog. Minor health effects include: eye irritation, shortness of breath, headache, increased fatigue, and chest tightness or pain. Major health effects are: worsening of cardiopulmonary disorders, more respiratory tract infections, changes in the rate of lung growth and function in children, accelerated decline in lung function in adults and chronic lung disease. The AQMD has indicated that the continuation of present air quality levels will expose more than 9 million people to air pollution at levels 200% to 300% above the federal clean air standards each year. The AQMD has also estimated that the medical expenses for the various respiratory ailments caused or aggravated by smog alone run

The National and State Ambient Air Quality Standards
TABLE 3.1

POLLUTANT	NAAQS STANDARD	STATE STANDARD	AVERAGING PERIOD
Ozone (O_3)	0.12ppm	0.09 ppm	1hour
Carbon Monoxide (CO)	9.00 ppm	9.00 ppm	8 hours
Particulate Matter (PM_{10})	50 ug/m^3 150 ug/m^3	30 ug/m^3 50 ug/m^3	annual 24 hours
Nitrogen Dioxide (NO_2)	0.05 ppm	0.25ppm	annual 1 hour
Sulfur Dioxide (SO_2)	0.03 ppm 365 ug/m^3	0.053 ppm 0.25 ppm	annual 24 hours 1 hour
Lead (Pb)	1.5 ug/m^3	1.5 ug/m^3	30 day 3 month

ppm = parts per million
ug/m^3 = micrograms per cubic meter

upwards of $11 billion annually or over two dollars per capita daily in the basin. The levels of air pollution occurring in the South Coast Air Basin also cause hundreds of millions of dollars in damage to agriculture and property each year.

Some of the benefits of cleaner air cannot have a dollar value placed upon them, for instance: visibility is only one half to one third of what it should be in the absence of pollution; ornamental horticulture around homes, buildings and parks would benefit greatly from reduced ozone levels; and forests and animal life in nearby recreation areas would be more robust. Some minor medical effects of smog such as headaches and burning eyes are not associated with high dollar costs, but the elimination or reduction of such symptoms would have high value to anyone who must endure them.

CURRENT STATUS OF THE AIR POLLUTION PROBLEMS

Ozone levels in the basin are nearly three times the federal standard. Ozone is formed by photochemical reactions between directly emitted oxides of nitrogen and reactive organic gases. Oxides of nitrogen are produced by combustion at high temperatures and reactive organic gases are formed from combustion of fuels as well as the evaporation of organic solvents.

Carbon Monoxide

Carbon monoxide is formed by incomplete combustion of fossil fuels in vehicles and tends to be an acute problem near major highways and intersections. Despite the localized nature of the problem, ambient levels of carbon monoxide still reach over two times the federal and state standards.

Nitrogen Dioxide

Nitrogen dioxide in addition to being a precursor to ozone, is also a pollutant in its own right. Nitrogen dioxide decreases lung function and may reduce resistance to infection. It also gives polluted air its brown color, reduces visibility and contributes to acid deposition. Although the federal nitrogen dioxide standard was exceeded by only 2 percent in 1987, the South Coast Air Basin is the only region in the United States that has not attained the standard.

Particulate Matter (PM10)

Particulates are small suspended particles less than 10 microns in diameter (a micron is one-millionth of a meter in length), which can bypass the body's defenses and enter the lungs. Particles may carry carcinogens and other toxic compounds, which adhere to the particle surfaces and cause damage once in the lungs. These are created as a byproduct of fuel combustion, wear on tires or brake linings or through wind erosion of soil. The basin has particulate levels about 80 percent above the federal standard.

CONSTRAINTS IN ACHIEVING STANDARDS

Environmental Setting

Los Angeles' air pollution is largely due to the mixture of physical attributes that makes the city so attractive: the warm desert climate, the cool sea breezes, and the surrounding mountains. Cool air flows into the basin from the ocean and underlies the warmer desert air above it. This forms an "inversion layer," which prevents pollutants from rising and being dispersed into the upper atmosphere. The mountains, and the winds associated with them, form a similar barrier which prevents the diluting of pollutants along the horizontal surface. Emissions from both mobile and industrial sources are trapped beneath generally warm, clear skies which allow photochemical reactions to occur. The resulting pollutants remain in the basin until the inversion lifts sufficiently to allow adequate mixing of clean and polluted air. This generally does not occur until the late afternoon.

Emission Sources

For each of the criteria pollutants, the source of responsible emissions varies. For some pollutants, such as carbon monoxide, the emissions are overwhelmingly due to mobile sources. For other pollutants, such as reactive organic gases and oxides of nitrogen (the precursors of ozone), the sources of emissions are more diverse.

The major contributors to Los Angeles smog include passenger cars, trucks and other mobile sources, and large stationary sources such as landfills, power plants, manufacturing and petroleum industries. A considerable amount of smog also derives from the cumulative effect of much smaller stationary sources, such as construction, dry cleaners, bakeries, paints, solvents, spray deodorant, gas-powered garden equipment, or barbecues. Emissions from mobile sources represent the largest source, approximately 60%, of emissians in the South Coast Air Basin. Much progress has been made in controlling stationary sources of pollution, but they nevertheless contribute 40% of all emissions in the basin.

Ozone, the key component of smog, is formed through complex chemical reactions between reactive organic gases (ROG' s) and oxides of nitrogen (NOx) in the

presence of sunlight. NOx is emitted as a result of high-temperature fuel combustion and its sources are primarily of transportational and industrial origin. ROG's originate from sources as diverse as automobiles, construction equipment, dry cleaning establishments, bakeries, auto body paint shops, and other users of solvents.

Carbon monoxide (CO) is a by-product of incomplete combustion of hydrocarbon based fuels. CO is a health threat because of its ability to successfully compete with oxygen in the bloodstream. CO tends to concentrate in the early mornings when a meteorological phenomena known as a "surface inversion" exists. This inversion is a very shallow layer of cold air which exists before sunlight can heat the surface of the earth. This layer of colder air traps pollutants so that CO levels around busy intersections or freeways can rise to twice the federal standard. Los Angeles currently has the fourth highest number of violation days in the nation for CO.

Particulates are a more localized form of air pollution. Some areas of the air basin are fifty to one hundred percent above the federal standard. The pollutants causing these violations are sulfates, nitrates, and carbon particulates originating from the same mobile and stationary sources which emit NOx, CO and ROG's. Particulates of less than 10 microns (PM_{10}) in diameter are of most concern because they bypass the lung's defensive mechanisms. Particulates are also responsible for the bulk of the visibility reductions experienced in the basin.

Density and Land Use Patterns

Presently, the land use patterns in the basin make efficient travel difficult. The high cost of housing near employment centers forces employees to locate long distances from their work. Unbalanced distribution of housing and jobs within the region contributes to increased transportation demand. Each year more people travel long distances from their residences in areas such as San Bernardino, Riverside and Northern Los Angeles Counties to their place of work in Southern Los Angeles and Orange Counties. This also contributes to highway congestion, slower average speeds and, therefore, greater amounts of emissions.

Transportation System

The current transportation system relies heavily upon single-occupant autos as the primary form of travel. This also causes far more air pollution than would be by a system which would use high occuponcy vehicles/cleaner fuels. Perhaps, the cleanest transportation system would use some form of mass transit, but such a modern system is only now starting to evolve in the basin and is not expected to draw significant patronoge, thereby reducing emissions, until the turn of the century. Greater numbers of drivers using the current system will result in higher congestion, thereby slowing down travel rates and increasing emissions until viable alternatives are fully operational. In the interim a combination of trip reduction incentives and disincentives have been developed.

Economic and Population Growth

The air pollution problem is further compounded by the explosive regional economic and population growth of Southern California, and its impact on increased air emissions from motor vehicles and industrial growth. The area's growth in business and industry has resulted in increased employment opportunities, which has been a key factor in attracting people to Los Angeles. The population in the Southern California air basin is now approaching 12 million people. From 1980 to 1990, the population growth of the City of Los Angeles alone increased 17.5 percent. Due to the lack of affordable housing, many residents have chosen to purchase homes at a great distance from their place of employment. This jobs/housing imbalance increases pollutant emissions by lengthening commutes and slowing down traffic region wide.

Efforts to reduce air pollution can be overwhelmed by continued regional growth. Almost all the emission reductions expected through the year 2010 as a result of the air quality rules currently in effect will be lost to the impact of the projected increase in population in the air basin and the related increases in jobs, housing and traffic.

CONGESTION MANAGEMENT PLAN

The CMP is a state mandated countywide program to reduce traffic congestion and improve air quality in California's urbanized areas. The CMP was established by the state to: increase the effectiveness of all transportation modes; increase the responsiblity of local jurisdictions for the impact of their land use decisions on the regional transportation system; promote transportation solutions that are also good air quality measures; and to better coordinate transportation and land use planning. The CMP is State statutory recognition that transportation, air quality and land use decisions have interactive impacts, and that to the extent that planning efforts can be integrated, the goals of mobility, clean air and appropriate land uses

can be achieved. The Los Angeles County Metropolitan Transportation Authority (MTA) is the designated Congestion Management Agency (CMA) for Los Angeles County.

For Air Quality purposes, the CMP will assist in achieving the transportation performance standards of the California Clean Air Act, which include reduced trips, reduced vehicle miles traveled, decreases in vehicle emissions, and increases in average vehicle ridership. Like the comprehensive and regional emphosis of the AQMP, the CMP is based on regional air quality objectives and the interactive relationship among the control measures. Air quality measures must be consistent with the AQMP and local compliance is mandatory.

The integration of land use, transportation, and air quality objectives and strategies prepared by distinct regional agencies, and coordination for implementation at the local level, are a complex undertaking. Many of the control measures outlined in the regional plans reflect the overlapping objectives of separate regulatory requirements. In recognition of this concern, the AQMD created a Transportation Control Working Group to review measures contained in the AQMP and CMP. For regional and City efforts to be effective and expedient, they must be coordinated and collectively assessed for cumulative impacts.

PUBLIC PARTICIPATION AND IMPLEMENTATION

The air pollution challenge in Los Angeles needs to be supported with every possible type of emission-reduction tool available, including the kinds of education programs which increase public awareness and result in behavior modification. Implementation of local air quality control measures can be accomplished through adoption of ordinances, regulations, laws, market incentives and/or other techniques which are legally enforceable. However, in order to achieve clean air standards, the residents of the City must understand the true costs of air pollution and reflect clean air goals in their choices and behavior. The citizens of Los Angeles must be willing to participate voluntarily in implementation of local measures above and beyond what may legally be required. Measures such as energy conservation, recycling, trip reduction and teleshopping can be enhanced through public education. This eduction process must reflect the cultural diversity of the City and reach all citizens in order to be effective. Public participation can be a powerful low-cost implementation tool within the City of Los Angeles, and it must be a priority.

EPA ENFORCEMENT AND LEGAL ISSUES

EPA Sanctions

The EPA may impose a number of sanctions on regions that do not attain clean air standards. Some of these sanctions include:

- discretionary withholding of sewage treatment grants for failure to implement an approved State Implementation Plan (SIP) which demonstrates compliance with the NAAQS;
- construction bans for new sources and major modification bans for existing sources if a state fails to implement its SIP;
- a ban on federal Department of Transportation grants for highway projects;
- a ban on federal EPA grants for air quality programs.

The EPA has already banned the construction of major air pollution sources in the basin.

The Abramowitz Case

Mark Abramowitz, the Executive Director of the Coalition for Clean Air, sued the EPA for approving the 1982 AQMP for the South Coast Air Basin. It was reasoned that the EPA had no authority to approve any air quality plan which did not show attainment of NAAQS by December 31, 1987. In November 1987, the 9th Circuit U.S. Court of Appeals agreed with Mr. Abramowitz and ordered the EPA to disapprove the plan. This decision compelled both AQMD and SCAG to formulate a new plan which would show attainment of all federal standards.

Coalition for Clean Air vs. EPA

The Coalition for Clean Air brought suit again to force the U.S. Environmental Protection Agency (EPA) to prepare a Federal Implementation Plan for the South Coast Air Basin. It was the Coalition's contention that since a portion of the SIP was rejected (the 1982 AQMP), the EPA was charged with preparing an attainment plan for the air basin. On July 31, 1990, the EPA proposed a federal plan to clean up the air in the Los Angeles area that builds on local and state efforts to reduce these staggering levels of air pollutants and to achieve healthy air.

The implementation of either additional sanctions or a federal implementation plan will hopefully be prevented by an adequate regional AQMP showing attainment of NAAQS by a new deadline determined by Congress.

CHAPTER IV - GOALS, OBJECTIVES AND POLICIES

The Air Quality Element of the City of Los Angeles sets forth the goals, objectives and policies which will guide the City in the implementation of its air quality improvement programs and strategies. Numerous efforts are underway at the regional, county, and city levels addressing clean air concerns. Coordination of these various efforts, and the involvement of the area's residents, are crucial to the achievement of state and federal air quality standards.

The Air Quality Element and the Clean Air Program acknowledge the interrelationships among transportation and land use planning in meeting the City's mobility and clean air goals. Mutually reinforcing strategies need to be developed which work to reduce the use of single occupant vehicles, and which work to reduce vehicle trips and vehicle miles traveled. It is recognized that air quality strategies must be integrated into land use and transportation decisions. With adoption of the Air Quality Element and the Clean Air Program, the City is seeking to achieve consistency with regional Air Quality, Growth Management, Mobility and Congestion Management Plans.

To accommodate State General Plan Guidelines and provide flexibility in the implementation of clean air strategies within the City of Los Angeles, the following objectives specify performance based standards, i.e. actions to be taken, rather than target emission reductions.

GOAL 1

Good air quality and mobility in an enviromnent of continued population growth and healthy economic structure.

Objective1.1

It is the objective of the City of Los Angeles to reduce air pollutants consistent with the Regional Air Quality Management Plan (AQMP), increase traffic mobility, and sustain economic growth citywide.

Policies

1.1.1 Encourage demonstration projects which involve creative and innovative uses of market incentive mechanisms to achieve air quality objectives.

Objective 1.2

It is the objective of the City of Los Angeles to demonstrate the City's commitment to air quality improvement through the development and revision of the City's General Plan Elements as appropriate, and to work cooperatively with federal, state, regional, and other local jurisdictions in attaining clean air.

Policies

1.2.1 Implement the Air Quality Element policies set forth in this Chapter through adoption of the Clean Air Program which shall be amended as Council sees necessary without General Plan Amendment.

1.2.2 Pursue the City's air quality objectives in cooperation with regional and other local jurisdictions.

1.2.3 Monitor and assess the progress of the City's air quality improvement programs.

Objective 1.3

It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas, parking lots, and construction sites.

Policies

1.3.1 Minimize particulate emissions from construction sites.

1.3.2 Minimize particulate emissions from unpaved roads and parking lots which are associated with vehicular traffic.

GOAL 2

Less reliance on single-occupant vehicles with fewer commute and non-work trips.

Objective 2.1

It is the objective of the City of Los Angeles to reduce work trips as a step towards attaining trip reduction objectives necessary to achieve regional air quality goals.

Policies

2.1.1 Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling related facilities in order to reduce Vehicle Trips and/or Vehicle Miles Traveled (VMT) as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.

2.1.2 Facilitate and encourage the use of telecommunications (i.e. telecommuting), in both the public and private sectors, in order to reduce work trips.

Objective 2.2

It is the objective of the City of Los Angeles to increase vehicle occupancy for non-work trips by creating disincentives for single passenger vehicles, and incentives for high occupancy vehicles.

Policies

2.2.1 Discourage single-occupant vehicle use through a variety of measures such as market incentive strategies, mode-shift incentives, trip reduction plans and ridesharing subsidies.

2.2.2 *Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel* by instituting parking management practices.

2.2.3 Minimize the use of single-occupant vehicles associated with special events or in areas and times of high levels of pedestrian activities.

GOAL 3

Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand-management techniques.

Objective 3.1

It is the objective of the City of Los Angeles to increase the portion of work trips made by transit to levels that are consistent with the goals of the Air Quality Management Plan and the Congestion Management Plan.

Policies

3.1.1 Implement programs to finance and improve public transit facilities and service.

3.1.2 Address public safety concerns as part of transit improvement programs, such as guarded and/or well lit transit facilities, emergency equipment and safe-driving training for operators, in order to increase transit ridership.

3.1.3 Cooperate with regional transportation agencies in expediting the development and implementation of regional transit systems.

Objective 3.2
It is the objective of the City of Los Angeles to reduce vehicular traffic during peak periods.

Policies
3.2.1 Manage traffic congestion during peak hours.

Objective 3.3
It is the objective of the City of Los Angeles to install Automated Traffic Surveillance and Control Systems, utilize channelization of streets and other capital programs commensurate with the City's portion of regional goals.

Policies
3.3.1 Implement the best available system management techniques, and transportation management and mobility action plans to improve the efficiency of existing transportation facilities, subject to availability of funding.

GOAL 4

Minimal impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.

Objective 4.1
It is the objective of the City of Los Angeles to include the regional attainment of ambient air quality standards as a primary consideration in land use planning.

Policies
4.1.1 Coordinate with all appropriate regional agencies the implementation of strategies for the integration of land use, transportation, and air quality policies.

4.1.2 Ensure that project level review and approval of land use development remain at the local level.

Objective 4.2
It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.

Policies
4.2.1 Revise the City's General Plan/Community Plans to achieve a more compact, efficient urban form and to promote more transit-oriented development and mixed-use development.

4.2.2 Improve accessibility for the City's residents to places of employment, shopping centers and other establishments.

4.2.3 Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.

4.2.4 Require that air quality impacts be a consideration in the review and approval of all discretionary projects.

4.2.5 Emphasize trip reduction, alternative transit and congestion management measures for discretionary projects.

Objective 4.3
It is the objective of the City of Los Angeles to ensure that land use plans separate major sources of air pollution from sensitive receptors such as schools, hospitals and parks.

Policies

4.3.1 Revise the City's General Plan/Community Plans to ensure that new or relocated sensitive receptors are located to minimize significant health risks posed by air pollution sources.

4.3.2 Revise the City's General Plan/Community Plans to ensure that new or relocated major air pollution sources are located to minimize significant health risks to sensitive receptors.

GOAL 5

Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implementation of conservation measures including passive methods such as site orientation and tree planting.

Objective 5.1
It is the objective of the City of Los Angeles to increase energy efficiency of City facilities and private developments.

Policies

5.1.1 Make improvements in Harbor and airport operations and facilities in order to reduce air emissions.

5.1.2 Effect a reduction in energy consumption and shift to non-polluting sources of energy in its buildings and operations.

5.1.3 Have the Department of Water and Power make improvements at its in-basin power plants in order to reduce air emissions.

5.1.4 Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.

Objective 5.2
It is the objective of the City of Los Angeles to have a portion of the City's service fleet be comprised of alternative fuel powered vehicles, subject to availability of funding, and practical feasibility.

Policies

5.2.1 Reduce emissions from its own vehicles by continuing scheduled maintenance, inspection and vehicle replacement programs; by adhering to the State of California's emissions testing and monitoring programs; by using alternative fuel powered vehicles wherever feasible, in accordance with regulatory agencies and City Council policies.

Objective 5.3
It is the objective of the City of Los Angeles to reduce the use of polluting fuels in stationary sources.

Policies

5.3.1 Support the development and use of equipment powered by electric or low-emitting fuels.

GOAL 6

Citizen awareness of the linkages between personal behavior and air pollution, and participation in efforts to reduce air pollution.

Objective 6.1

It is the objective of the City of Los Angeles to make air quality education and citizen participotion a priority in the City's effort to achieve clean air standards.

Policies

6.1.1 Raise awareness through public information and education programs of the actions that individuals can take to reduce air emissions.

CHAPTER V - IMPLEMENTATION PROGRAMS

The City of Los Angeles has developed a Clean Air Program (CAP). The CAP is the City's blueprint for achieving federal, state, regional and local air quality goals and serves as the implementing document for the Air Quality Element.

The CAP presents over 100 implementation programs. These programs are categorized into four major areas: energy, land use, transportation, and dust suppression. Many of the programs are already ongoing, others are being recommended for implementation, and still others require more definition prior to further action.

Coordination of the City's CAP will be under the leadership of the Environmental Affairs Department. Twice each year the Environmental Affairs Department, in cooperation with the various lead city departments, will provide a progress report to the Mayor and City Council on CAP activities. These reports will include recommended changes to the CAP based on evaluations of program effectiveness, feasibility, equity, and the changing regulatory and legislative framework.

It is the intent that the AQE address broad air quality policies and goals and that specific implementation program be housed in a document outside the AQE, such as the CAP, which can be amended much more efficiently and allow the City flexibility in meeting its air quality goals. As such, the CAP can be amended as frequently as Council sees necessary without a General Plan amendment to respond to local needs and to comply with state and federal law.

The attached CAP lists the programs to implement the Goals, Objectives, and Policies contained in Chapter IV of the Air Quality Element. CAP references to the AQE include the AQE policy addressed by the program and the program Environmental Impact Report (EIR) for the Regional AQMP, or other environmental clearance/mitigation, where applicable, to provide CEQA compliance.

Each CAP program contains the following information:

AQE Policy Addressed

This notation cross references the CAP implementation measure with the major Air Quality Element policy addressed by that measure. More than one policy may be addressed by a given measure, but only the major policy addressed is noted.

Lead Agency

The City agency, department or bureau designated as having responsibility for the implementation of a given measure. In some instances more than one department may act as co-lead agencies. The lead agency works with other co-lead agencies and/or other City departments towards the implementation of the measure. The lead agency shall have the responsibility of considering effects, both individual and collective, of all activities involved in the implementation of the measure.

Financing

The designation of a financing source represents the lead agency's best recommendation for funds to implement the measure. This designation does not imply that funds have been offically allocated for the measure from the source(s) cited.

Time Frame

The time frame noted for each measure represents the City's best estimate or target for implementation of the measure. These time frames are based on deadlines promulgated by the SCAQMD and/or the California Air Resources Board (CARB) as well as recommendations from the various lead agencies. Thus, the time frames may be revised based on the changing regulatory framework, program effectiveness, feasibility, and equity of the measure.

AQMP Reference

This notation allows the reader to correlate the 1991 AQMP strategy addressed by a given CAP measure. A CAP measure may address mare than one AQMP strategy, but only the major strategy is noted. Same CAP measures are based on initiatives from various

TABLE A

LIST OF ACRONYMS USED IN THE AIR QUALITY ELEMENT

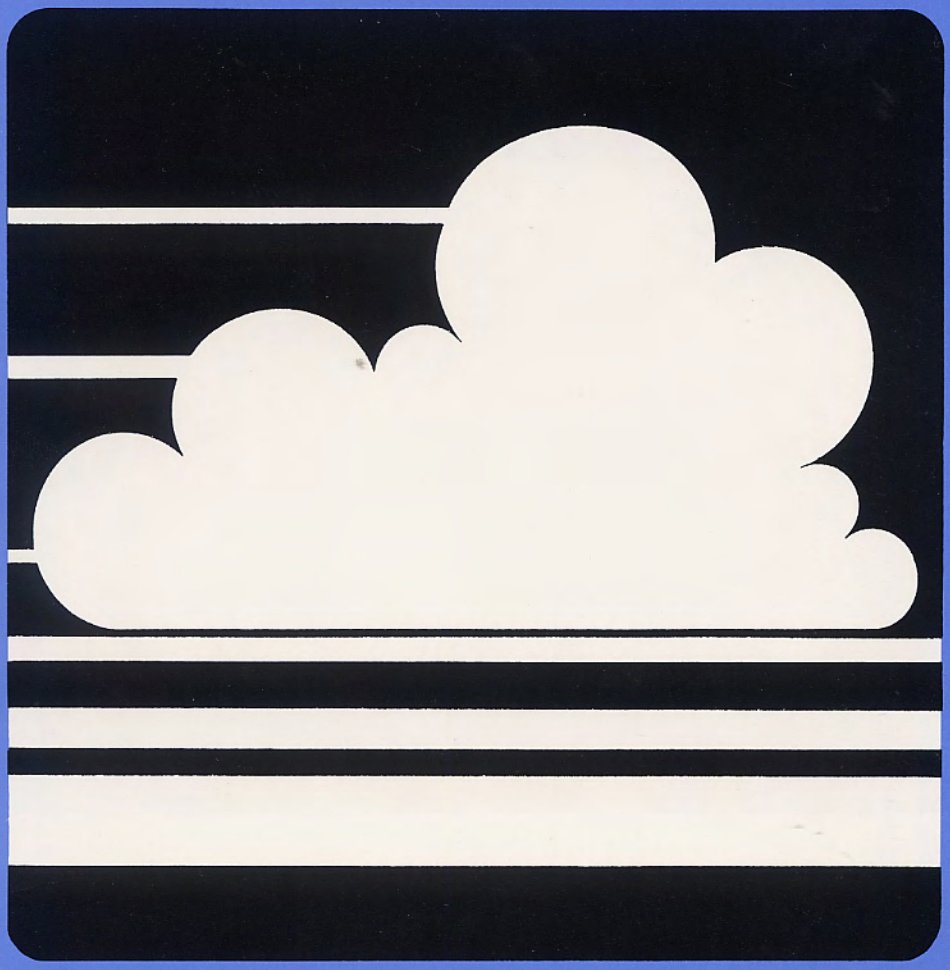
AB	Assembly Bill
AQE	Air Quality Element
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
CAP	Clean Air Programs
CARB	California Air Resource Board
CEQA	California Environmental Quality Act
CMA	Congestion Management Agency
CMP	Congestion Management Plan
CO	Carbon Monoxide
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GMP	Growth Management Plan
GPAB	General Plan Advisory Board
HOV	High Occupancy Vehicle
LAX	Los Angeles International Airport
MTA	Metropolitan Transportation Authority
NAAQS	National Ambient Air Quality Standards
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
O_3	Ozone
PM_{10}	Particulate Matter
PPM	Parts Per Million
RMP	Regional Mobility Plan
ROG	Reactive Organic Gases
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SRA	Source-Receptor Areas
VMT	Vehicle Miles Traveled

TABLE B

Members of the Air Quality Committee of the General Plan Advisory Board

Department	Representative	Alternate	Office Room No.	Mail Stop	Phone No. Extension
General Services	Joe Trevgoda		800 CHE	508	5-5811
		Jim Mergens	2310 E. 7th	900	5-4992
		Bill Creitz	800 CHE	900	5-5846
CLA	Ron F. Deaton	Chris O'Donnell	255 CH	136	5-6622
		Paul Smith			5-6618
Building & Safety	Tim Taylor	Bob Harder	406 CH	115	346-7718
Harbor	Donald Rice			260	519-3675
Environmental Affairs	Lillian Kawasaki	Dee Allen	2403 CH	177	7-0462
Telecommunications	Dora Marshall			131	5-7963
Engineering	Ara Kasparian		807 CH	490	5-6556
Transportation	Allyn Rifkin	Phil Aker	1200 CH	725	5-7201
Airports	Maurice Laham	Steve Crowther		101	646-7614
CAO	Dee Carey		300 CHE	130	5-2831
DWP	Charles Chang	Jodean Igawa		800	481-3235
CRA	Richard Rowe	Kipp Rudd		182	977-1747
Planning	Ann Siracusa	Chick Montgomery	3rd/Fig.	397	7-0124
		Jimmy Liao			7-0127
Mayor's Office	Cecillia Estolano		M-1 CH	370	5-6301
Fire	Norman Pate		990B CH	250	5-7001
SCAG	Glenn Blossom	818 W. 7th St. 12th floor Los Angeles, CA 90017			236-1876
SCAQMD	Barry Wallerstein	21865 E. Copley Drive, Diamond Bar, CA 91765-4182			(909)396-2000

ENVIRONMENTAL ASSESSMENT
For the Air Quality Element



DEPARTMENT OF CITY PLANNING LOS ANGELES, CALIFORNIA

COUNTY CLERK'S USE
ORIGINAL REC'D
DEC 15 1992
COUNTY CLERK
BY _____ DEPUT

CITY OF LOS ANGELES
CALIFORNIA ENVIRONMENTAL QUALITY ACT

NOTICE OF DETERMINATION

(Article V, Section 7; Article VI, Section 11
City CEQA Guidelines)

CITY CLERK'S USE
DOCUMENT FILED
City Clerk's Office
No: 92-157
NOV 30 1992
Certified by

Public Resources Code Section 21152(a) requires local agencies to submit this information to the County Clerk. The filing of the notice starts a 30-day statute of limitations on court challenges to the approval of the project pursuant to Public Resources Code Section 21167. Failure to file the notice results in the statute of limitations being extended to 180 days.

LEAD CITY AGENCY AND ADDRESS (Bldg, Street, City, State)	COUNCIL DISTRICT
Los Angeles City Planning Department 200 North Spring Street, Los Angeles, CA 90012	All
PROJECT TITLE (INCLUDING ITS COMMON NAME, IF ANY)	**CASE NO.**
Air Quality Element - An Element of the General Plan	ND-90-0925-CW

PROJECT DESCRIPTION AND LOCATION

Update of City's Air Quality Element to comply with the Regional Air Quality Management Plan

CONTACT PERSON	STATE CLEARING HOUSE NUMBER	TELEPHONE NUMBER
Jimmy C. Liao	SCH 91031022	(213) 237-0127

This is to advise that on 11/24/92 the City Council of the City of Los Angeles has approved the above described project and has made the following determinations:

SIGNIFICANT EFFECT	☐ Project **will** have a significant effect on the environment. ☐ Project **will not** have a significant effect on the environment.
MITIGATION MEASURES	☐ Mitigation measures **were** made a condition of project approval. ☐ Mitigation measures **were not** made a condition of project approval.
OVERRIDING CONSIDERATION	☐ Statement of Overriding Considerations **was** adopted. ☐ Statement of Overriding Considerations **was not** adopted. ☐ Statement of Overriding Considerations **was not** required.
ENVIRONMENTAL IMPACT REPORT	☐ An Environment Impact Report **was** prepared for project and may be examined at the Office of the City Clerk.* ☐ An Environmental Impact Report **was not** prepared for the project.
NEGATIVE DECLARATION	☒ A Negative Declaration or Mitigated Negative Declaration **was** prepared for the project and may be examined at the Office of the City Clerk.* ☐ A Negative Declaration or Mitigated Negative Declaration **was not** prepared for the project.

SIGNATURE	TITLE	DATE OF PREPARATION
R. Ann Siracusa	Principal City Planner	11/30/92

DISTRIBUTION:
Part 1 — County Clerk
Part 2 — City Clerk
Part 3 — Agency Record
Part 4 — Resp. State Agency (If any)

* **OFFICE OF THE CITY CLERK**
Room 395, City Hall
200 N. Main Street
Los Angeles, California 90012

Form Gen. 156 (Rev. 6-83) (Appendix D)

CITY CLERK'S USE

CITY OF LOS ANGELES
OFFICE OF THE CITY CLERK
ROOM 395, CITY HALL
LOS ANGELES, CALIFORNIA 90012

CALIFORNIA ENVIRONMENTAL QUALITY ACT

NEGATIVE DECLARATION

(Article V — City CEQA Guidelines)

LEAD CITY AGENCY	COUNCIL DISTRICT
LOS ANGELES CITY PLANNING DEPARTMENT	All
PROJECT TITLE	**CASE NO.**
ND-90-0925-CW	CPC 89-0034

PROJECT LOCATION

City of Los Angeles; Citywide

PROJECT DESCRIPTION:

Update of City's Air Quality Element to comply with the Regional Air Quality Management Plan.

NAME AND ADDRESS OF APPLICANT IF OTHER THAN CITY AGENCY

FINDING:

▶ The City Planning Department Environmental Review Committee of the City of Los Angeles has proposed that a mitigated negative declaration be adopted for this project because the mitigation measure(s) outlined on the attached page(s) will reduce any potential significant adverse effects to a level of insignificance.

The adoption of the revised Air Quality Element does not have any environmental impacts of potential significance that can not be mitigated. The project could have a significant effect on the environment when the individual programs are adopted and implemented. However, there will not be a significant effect in this case, because only the revised Air Quality Element is being adopted. (See attached Air Quality Element Environmental Assessment for full explanation).

The ERC initial study indicates that no significant impacts are apparent which might result in this project's implementation.

This action is based on the project description above.

▶ SEE ATTACHED SHEET(S) FOR ANY MITIGATION MEASURES IMPOSED.

Any written comments received during the public review period are attached together with the responses of the Lead City Agency. The project decisionmaker may adopt this mitigated negative declaration, amend it, or require preparation of an EIR. Any changes made should be supported by substantial evidence in the record and appropriate findings made.

167 **THE INITIAL STUDY PREPARED FOR THIS PROJECT IS ATTACHED.**

NAME OF PERSON PREPARING THIS FORM	TITLE	TELEPHONE NUMBER
David Kuntzman	City Planner	(213) 485-5776
ADDRESS	**SIGNATURE (Official)**	**DATE**
200 N. Spring Street, Room 655 Los Angeles, CA 90012	Michael D. Feldman Chairman ERC	11/14/90

ORIGINAL REC'D

DEC 15 1992

COUNTY CLERK

BY _____ DEPUT

CALIFORNIA DEPARTMENT OF FISH AND GAME

CERTIFICATE OF FEE EXEMPTION

De Minimis Impact Finding

PROJECT TITLE (INCLUDING ITS COMMON NAME, IF ANY)	MND NO.
Air Quality Element An Element of the General Plan	ND-90-0925-CW

PROJECT DESCRIPTION

Update of City's Air Quality Element to comply with the Regional Air Quality Management Plan

PROJECT ADDRESS

City of Los Angeles; Citywide COUNTY OF LOS ANGELES

APPLICANT NAME AND ADDRESS

Los Angeles City Planning Department 200 N. Spring St. Los Angeles CA 90012

FINDINGS OF EXEMPTIONS

Based on the Initial Study prepared by the City Planning Department and all evidence in the record, on November 24, 1992 it is determined that the subject project, which is located in Los Angeles County, WILL NOT have an adverse impact in wildlife resources or their habitat as defined by Fish and Game Code Section 711.2 of the Fish and Game Code, Because:

- ☑ The Initial Study prepared for the project identifies no potential adverse impact on fish or wildlife resources as far as earth, air, water, plant life, animal life, or risk of upset are concerned.
- ☐ Measures are required as part of this approval which will mitigate the above mentioned impacts, to a level of insignificance.
- ☐ The project site, as well as the surrounding area (is presently) (was) developed with residential structures and does not provide a natural habitat for either fish or wildlife.

CERTIFICATION

I hereby certify that the Los Angeles Planning Department has made the above findings of fact and that based upon the initial study and hearing record the project will not individually or cumulatively have an adverse effect on wildlife resources, as defined in Section 711.2 of the Fish and Game Code.

CHIEF PLANNING OFFICIAL	SIGNATURE
Principal City Planner, Citywide Division Department of City Planning	
DATE OF PREPARATION	PRINT NAME
November 30, 1992	R. Ann Siracusa

LEAD CITY AGENCY

LOS ANGELES CITY PLANNING DEPARTMENT, 200 N. SPRING ST. LOS ANGELES, CA 90012

COUNTY OF LOS ANGELES (FORM 4/92)

ND-90-0925-CW

ENVIRONMENTAL ASSESSMENT

This environmental assessment has been prepared to assess the potential environmental impacts of the revised Air Quality Element of the Comprehensive General Plan of the City of Los Angeles and to assist the Mayor and the City Council in their decision making.

The project under review is the City of Los Angeles Air Quality Element. The purpose of the Element is to identify the goals, objectives, and policies that will reduce air pollution and guide the City's efforts to attain the state and national Ambient Air Quality Standards.

An implementation program that details how the goals, objectives, and policies of the Air Quality Element are to be accomplished is required under State Planning law and the General Plan Guidelines. The City of Los Angeles Clean Air Program, a separate document, contains the individual implementation measures for the Air Quality Element. The Clean Air Program is designed to be a working document which can be modified to reflect the rapidly changing regulatory, technological, legislative, and economic conditions of air pollution control.

On July 12, 1991, the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) adopted the 1991 Revision to the Air Quality Management Plan (AQMP). The 1991 AQMP is the region's program to attain all federal and state air quality standards by 2010 and forms the framework for all subsequent air pollution controls efforts. Under this plan, by December 31 1992, the City of Los Angeles is required to revise the existing Air Quality Element of its Comprehensive General Plan to address air quality issues.

The control measures recommended in the 1991 AQMP are expected to result in far-reaching changes in the Basin's environment. Therefore, the SCAQMD and SCAG prepared a comprehensive Environmental Impact Report (EIR) which consisted of the following documents:

1. Notice of Preparation of a Draft Environmental Impact Report for: 1991 Revision to the Air Quality Management Plan;

2. Final Draft Environmental Impact Report for 1991 Revision to the Air Quality Management Plan (State Clearinghouse No. 90010869), including comments received on the Notice of Preparation and responses to these comments;

3. Addendum to the Final Draft Environmental Impact Report for 1991 Revision to the Air Quality Management Plan, including responses to comments on the Final Draft Environmental Impact Report; and,

4. Statements of Findings and Overriding Considerations and Mitigation Monitoring Plan.

A copy of the AQMP EIR is available for review at the City of Los Angeles Planning Department, 221 South Figueroa Street, 4th Floor, Los Angeles, CA, Monday through Friday, between the hours of 8 a.m. and 5 p.m.

The AQMP EIR is a program EIR, as defined by the California Environmental Quality Act (CEQA), because it examines the environmental effects of a series of programs that may be characterized as one large project and are related in the manner set forth in the State CEQA guidelines, Section 15168 (a).

The AQMP requires the City to adopt certain control measures to improve air quality. The Clean Air Program contains many of these programs. Because the AQMP EIR has already assessed the environmental effects of these programs, CEQA does not require the City to reassess these programs for their environmental effects for the purpose of including them as the implementation for its Air Quality Element. If the measures in the Clean Air Program are within the scope of the AQMP and its EIR, the City can incorporate the recommended mitigation measures in its Air Quality Element, since these programs would not result in any new effects or require any mitigation measures not already covered by the EIR for the AQMP. Thus, the AQMP EIR simplifies the environmental assessment of programs developed by the City. The SCAQMD and SCAG intended the AQMP EIR to be used to eliminate redundant environmental assessments when a proposed program was within its scope.

The City's Environmental Assessment Form was not used for this environmental assessment since it was not designed to evaluate projects or policies which are not site specific, such as the City's Clean Air Program or Air Quality Element. However, the present narrative environmental assessment addresses the same issues that the standard evaluation form would address.

The City of Los Angeles is in the process of preparing the Citywide General Plan Framework and revising other Citywide Elements, including the Transportation Element and the Housing Element, to achieve internal consistency among the various elements of the General Plan. Until these revisions are completed, the Air Quality Element, which uses the regional and sub-regional policy forecasts for population, housing, and employment from the 1991 Regional Growth Management Plan, is technically inconsistent with the rest of the elements. This inconsistency is considered temporary and will be resolved when the other updated Citywide elements are finalized.

FINDINGS

1. The project under review is the City of Los Angeles Air Quality Element.

2. The purpose of the Air Quality Element is to identify the goals, objectives, and policies to reduce air pollution and guide the City's efforts in attainment of state and national Ambient Air Quality Standards.

3. The implementation program for the Air Quality Element is the City of Los Angeles' Clean Air Program.

4. Project specific environmental assessments shall be required prior to the implementation of the Clean Air Program measures not within the scope of the program EIR for the 1991 AQMP or in a previous environmental assessment.

5. The Air Quality Element is technically inconsistent with the Comprehensive General Plan at this time, because the revisions of the other Citywide Elements have not yet been completed.

CONCLUSIONS

1. The intent of the Air Quality Element through implementation of the policies is to relieve congestion, improve mobility, manage growth, create appropriate job/housing relationships, reduce vehicle miles travelled and conserve energy while meeting clean air criteria.

2. The Air Quality Element is the City's statement of goals, objectives, and policies for clean air which guide the air quality measures contained in the Clean Air Program.

3. The City can make the Air Quality Element consistent with the Comprehensive General Plan by revising the other Citywide Elements. Such revisions would also make the Comprehensive General Plan consistent with the regional plans.

4. The adoption of the revised Air Quality Element itself does not have any environmental impacts of potential significance.

DETERMINATION

On November 14, 1990, the City Planning Department Environmental Review Committee (ERC) of the City of Los Angeles proposed that a mitigated negative declaration be adopted for this project because the mitigation measures proposed in the draft Air Quality Element would reduce any potential significant adverse effects to a level of insignificance. The ERC initial study indicated that no significant impacts were apparent which might result in this project's implementation and a Negative Declaration was prepared.

The project could have a significant effect on the environment when the individual programs contained in the Clean Air Program are adopted and implemented. However, the project specific environmental assessments and mitigation measures required prior to implementation of the individual programs would mitigate any potential significant adverse effects to a level of insignificance.

It was determined that the project as proposed was not substantially different from the ERC initital study in November 1990 and the determination for a Negative Declaration remains unchanged.

Reviewed by:

Charles Montgomery
Senior City Planner

Jimmy C. Liao
Jimmy Liao
City Planner

Prepared by:

Srimal P. Hewawitharana.
Srimal Hewawitharana
Environmental Associate II

f/n:ENVIR.DOC
5/21/92

NOISE ELEMENT



DEPARTMENT OF CITY PLANNING LOS ANGELES, CALIFORNIA

Noise Element
of the Los Angeles City General Plan

City Plan Case No. 97-0085
Council File No. 96-1357

Adopted by the City Council February 3, 1999
Approved by the City Planning Commission November 12, 1998

An Equal Employment Opportunity/Affirmative Action Employer

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability, and upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

City of Los Angeles

Richard Riordan, Mayor

City Council

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2nd District — Joel Wachs
3rd District — Laura N. Chick
4th District — John Ferraro
5th District — Michael Feuer
6th District — Ruth Galanter
7th District — Richard Alarcón
8th District — Mark Ridley-Thomas
9th District — Rita Walters
10th District — Nate Holden
11th District — Cindy Miscikowski
12th District — Hal Bernson
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15th District — Rudy Svorinich

City Planning Commission

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Los Angeles City Planning Department

Con Howe, Director of Planning
Franklin P. Eberhard, Deputy Director
Gordon B. Hamilton, Deputy Director
Robert H. Sutton, Deputy Director

Citywide Planning Division

R. Ann Siracusa, ACIP, Principal City Planner

Noise Element Revision Staff

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Graphics Services Section

Rey Hernandez, Graphics Designer III
Louie Angeles, Cartographer
Joyce Odell, Cartographer

Table of Contents

Introduction ____ xiii

Chapter I - Background ____ 1-1

Planning Area ____ 1-1

Demographics ____ 1-1

California State Noise Element Requirements ____ 1-1

CONTENT

NOISE MEASUREMENT AND STANDARDS

INSULATION STANDARDS

GENERAL PLAN CONSISTENCY

IMPLEMENTATION

Element Scope ____ 1-2

ISSUES NOT ADDRESSED

Chapter II - Existing Conditions, Noise Impact Issues and Noise Management History ____ 2-1

Introduction ____ 2-1

Building Sound Insulation and Nuisance Noise ____ 2-2

CALIFORNIA AND FEDERAL LEGISLATION ____ 2-2

CITY NOISE ORDINANCES ____ 2-3

ZONING AND LAND USE ____ 2-3

BUILDING SOUND INSULATION REGULATIONS ____ 2-5

NUISANCE NOISE ____ 2-5

Building Mechanical Equipment
Disturbing The Peace
City Park Facilities
Barking Dogs
Commercial Vehicles
Emergency Vehicles

Automotive Vehicles 2-6

VEHICLE EMISSIONS

STREET NOISE

FREEWAY NOISE

Rail Systems 2-8

RAILROADS 2-8

Jurisdictional Authority
Noise Issues
Alameda Corridor Project

NEW RAIL SYSTEMS 2-9

Train And Light Rail Noise
Subway Noise And Vibration

Aircraft and Airports 2-11

JURISDICTIONAL AUTHORITY 2-11

Federal
State
Local
Airport Land Use Commission
City Of Los Angeles
Summary

REGULATIONS AND PROGRAMS 2-12

Environmental Assessment
Federal Aviation Regulations Part 36 (FAR Part 36)
California Airport Noise Standards
Airport Noise and Capacity Act of 1990 (FAR Parts 91 and 161)
Federal Aviation Regulations Part 150 (FAR Part 150)
California Noise Insulation Standards
Local Noise Compatibility Programs

HELICOPTERS 2-15

Planning Commission And Fire Department Permits
Helicopter Noise

AIRPORTS IN THE LOS ANGELES AREA 2-16

LOS ANGELES INTERNATIONAL AIRPORT (LAX) 2-18

LAX Zoning
LAX Noise Management
LAX - FAR Part 150 And LAWA Compatibility Programs
LAX - Community Plan Noise Issues
LAX Plan

VAN NUYS AIRPORT (VNY) ____ 2-23

VNY Zoning
VNY Noise Management
VNY - Community Plan Noise Issues
VNY Plan

BURBANK-GLENDALE-PASADENA AIRPORT (BUR) ____ 2-25

BUR Noise Management
BUR - Community Plan Noise Issues
BUR Plan

SANTA MONICA AIRPORT (SMO) ____ 2-27

SMO - Community Plan Noise Issues
SMO Noise Management

WHITEMAN AIRPORT ____ 2-31

Whiteman Noise Management
Whiteman Zoning And Community Plan

ENDNOTES ____ 2-31

Chapter III - Goals, Objectives and Policies ____ 3-1
Definition of Noise-Sensitive Uses Goals, Objectives And Policies

Chapter IV - Implementation Programs ____ 4-1

Exhibits

Exhibits (within text):

Exhibit A: Airports Within/Adjoining the City of Los Angeles (Freeways, Etc.) 2-16

Exhibit B: Los Angeles International Airport Noise Contour 2-17

Exhibit C: Van Nuys Airport Noise Contour 2-18

Exhibit D: Burbank-Glendale-Pasadena Airport Noise Contours 2-19

Exhibit E: Santa Monica Airport Noise Contour 2-20

Exhibit F: Whiteman Airport Noise Contour 2-21

Appendix and Exhibits (at end of text):

Appendix A: Evolution Of Transportation Systems In Los Angeles: A Context For Los Angeles Noise Issues A-1

Exhibit G: Glossary of Terms And Acronyms G-1

Exhibit H: Common Noise Levels H-1

Exhibit I: City Guidelines for Environmental (Exterior) Noise Compatible Land Use I-1

Introduction

California State Government Code Section 65302g mandates that noise elements be included as a part of city general plans and that cities adopt comprehensive noise ordinances. The city's 1975 Noise Plan and ordinance achieved compliance with state law. This element revises and updates the 1975 plan and references the city's noise standards, which are contained in Los Angeles Municipal Code Section 111 et seq. In addition to addressing issues, such as airport related noise, which were addressed in the 1975 plan, the element addresses noise sources and noise mitigation strategies and regulations that came into existence after 1975, including new fixed rail systems.

The noise element applies to the city as a whole. It addresses noise mitigation regulations, strategies and programs and delineates federal, state and city jurisdiction relative to rail, automotive, aircraft and nuisance noise.

Regulation of noise relative to vehicles is largely outside the authority of municipal government. Primary municipal authority relates to regulation of land use, implementing federal and state regulations and enforcing nuisance noise. This element describes noise management programs of each jurisdictional entity, as they relate to the City of Los Angeles.

The exhibits contained herein include examples of noise commonly experienced by city dwellers, local airport noise contours, state environmental guidelines and a history of Los Angeles transportation and associated noise issues.

Chapters III and IV set forth noise management goals, objectives, policies and programs of the City of Los Angeles. Implementation programs include noise mitigation guidelines for community planners and permit processors, noise management activities in which the city is engaged and affirmation of the Alameda Corridor Project which will consolidate freight rail lines, thereby reducing noise impacts on local neighborhoods.

Chapter I — Background

Planning Area

The Noise Element relates to the entire City of Los Angeles. Within the city's boundaries are approximately 467 square miles of land area, including approximately 214 square miles of hills and mountains. The San Gabriel and Santa Susana Mountains bound the city on the north, the Santa Monica Mountains extend across the middle of the city and the Palos Verdes Hills and Pacific Ocean are on the south and west. Some noise impacts are generated by sources, such as rail, highway and freeway systems, which are within the purview of other governmental entities. Noise generated by aircraft associated with Los Angeles-based air facilities potentially impact people outside the city. Therefore, the element takes into account other jurisdictions and governmental entities.

Demographics

The 1990 federal census estimated that the city's population was 3,485,399 individuals. The 1996 Citywide General Plan Framework Element (aka Framework) of the city's general plan estimates that the population of the city would be increased by approximately 820,000 people to 4,306,564 by the year 2010 and that employment will be increased by an estimated 390,000 jobs. Circulation and transportation systems, a primary source of urban noise, continue to evolve in response to the city's changing needs and introduction of new technology.

California State Noise Element Requirements

Content

In 1971 the state of California required cities and counties to include noise elements in their general plans (Government Code Section 65302 et seq.). State law intended that noise elements guide policy makers in making land use determinations and in preparing noise ordinances that would limit exposure of their populations to excessive noise levels. The law required that local jurisdictions prepare noise ordinances that would help manage noise. In 1984, state noise element provisions were revised to shorten the list of noise element requirements, encourage local jurisdictions to design their own noise control approaches and to eliminate the requirement that general plan noise and circulation elements be consistent with each other.

Under the 1984 provisions, a noise element is required to "recognize" guidelines prepared by the Office of Noise Control of the California Department of Health Services and to analyze and quantify, "to the extent practicable, as determined by the legislative body," noise from the following sources: highways and freeways; primary arterials and major local streets; passenger and freight on-line railroad operations and ground rapid transit systems; commercial, general aviation, heliport, helistop and military airport operations, aircraft overflights, jet engine test stands, and other ground facilities and maintenance functions related to airport operation; local industrial plants, including, but not limited to, railroad classification yards; and other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

The subject element complies with state law by describing airport related noise management programs and identifying and analyzing noise sources and noise management measures. It also provides guidelines for noise management within Los Angeles.

Noise Measurement and Standards

State law (Government Code Section 65302 et seq.) specifies that, as is practical, a community noise equiva-

lent level (CNEL) or day/night average level (Ldn) be used to measure noise exposure for the identified noise sources. Modeling is permitted as a tool for measuring noise. However, as will be noted in Chapter II, state and federal law has preempted local authority with reference to many of the above listed noise sources.

In response to the 1971 state requirements, the city simultaneously prepared a noise plan and a comprehensive noise ordinance. It utilized noise contours and modeling in order to establish ambient noise standards that were linked to zoning classifications. Identical standards were incorporated into the ordinance and plan to facilitate implementation and enforcement. The ordinance was adopted in 1973 (Los Angeles Municipal Code Section 111 et seq.). It has been amended several times. The city's first noise plan was adopted in 1975. The intent of state law was to prompt local jurisdictions to establish noise standards vis-a-vis the state's noise insulation standards and to enact plan implementation measures to address local noise problems. The city met these objectives with the adoption of the ordinance and plan. The noise standards contained in the ordinance guide the city's noise management and are consistent with state and federal standards.

The California Environmental Quality Act (CEQA) permit processing procedures and the ambient noise standards contained in the city's noise ordinance guide noise impact assessment and mitigation relative to new development that is subject to CEQA environmental assessment review. This element, combined with the city's noise ordinance, complies with the noise measurement and standards requirements of state law, to the greatest extent practicable, by providing sample noise exposure contours for local airports and by outlining airport and other noise management programs.

Insulation Standards

The California Department of Health Services noise office, which is cited in the 1984 general plan law, no longer exists. The most current guidelines prepared by the state noise officer were issued in 1987 and are contained in the "General Plan Guidelines" issued by the Governor's Office of Planning and Research in 1990. The standards contained in the city noise ordinance are consistent with the noise officer's 1987 guidelines.

General Plan Consistency

State general plan law requires that all elements and all parts of a general plan be integrated, internally consistent and compatible (Government Code Section 65300.5). The Framework element of the city's general plan provides broad policies and guidelines for preparation of the other elements of the general plan. It identifies the noise element as one of twelve general plan elements but contains no other noise element policies or guidelines. The subject noise element references and is consistent with general plan community plans that contain noise management issues or programs. In addition, it references and is consistent with local airport plans, as required by California Government Code Section 65302.3.

Implementation

General plan law requires that a general plan be meaningfully implemented (Government Code Section 65400). The noise element is implemented by a variety of city regulations. In addition, the airport plans and individual community plans contain implementation features that address noise related land use issues.

Element Scope

The subject element updates and replaces the city's 1975 noise plan. It identifies new significant potential noise sources, addresses the issue of vibration relative to rail and identifies historic and current significant noise management approaches.

Issues Not Addressed

Occupational noise is not addressed. State and federal governments, not cities, have jurisdiction over standards and enforcement relative to occupational health, including noise.

The goals, standards, objectives, policies and programs presented herein are within the jurisdiction of the City of Los Angeles. Programs outside the authority of the city are not listed. For example, rail, state highway and freeway and aspects of airports that are unrelated to land use generally are under federal and/or state, not municipal authority. The roles and relationship of various authorities are discussed in Chapter II, providing a context within which the element and can be better understood.

Chapter II — Existing Conditions, Noise Impact Issues and Noise Management History

Introduction

Noise is unwanted sound and, therefore, is an important factor in the quality of urban life. There are two main types of sound: ambient and intrusive. Ambient sound is the background sound that aggregates all sound emissions, far and near, as received within a particular locale. It is the "given" level of sound to which we are accustomed in our residential, work or other particular environments; the generally not unpleasant "hum" of sound about us. Intrusive sound is greater than the ambient sound level; it is perceived as "noise." It may be intermittent (siren, barking dog) or continuous (air conditioner equipment). Abatement of intrusive noise generally involves one or more of the following: reducing the noise at the source (turning down the volume), isolating the noise source by establishing buffer land uses (industrial uses around airports), blocking noise (walls, berms), or protecting the receiver (industrial ear protectors, home insulation).

The decibel (dB) is the standard unit used for measuring noise. To more closely approximate noise as it is received by the human ear at different frequencies, the decibel scale is 'A-weighted' (dBA). 'A' measures the level of sound the way sound is received by the human ear. The range of human hearing is approximately 3 to 140 dBA, with 110 dBA considered intolerable or painful to the human ear. Continuous levels of 70 dBA or higher can cause loss of hearing. A comparison of types of commonly experienced environmental noise is provided in Exhibit H. The goal of all noise mitigation is to reduce or manage intrusive noise so as to achieve or maintain healthful ambient sound levels.

Since the adoption of the city's noise plan in 1975, significant noise management has taken place, largely due to public demand for noise abatement. Watershed legislation was the National Environmental Policy Act of 1969 (NEPA) which required all significant potential environmental impacts to be evaluated and mitigation measures determined prior to issuance of land development permits. NEPA led to the establishment of state and local environmental laws, including the 1971 California Environmental Quality Act (CEQA) and requirements that general plans contain noise elements and that cities adopt local noise ordinances. Public concerns about noise led to establishment of national transportation policies and programs, including noise standards for aircraft. NEPA and CEQA require environmental assessment and imposition of noise mitigation measures for new development projects, including transportation projects. Millions of dollars in public funds have been expended to reduce impacts of noise from existing airports and freeways, as well as for research and development of new design, noise suppression technology and regulations for mitigating noise from transportation and other sources.

Transportation systems are a primary source of urban noise. Management of noise from the most significant of these sources (aircraft, trains and freeways) generally has been preempted by federal and state authority. Primary municipal authority is regulation of land use. The City of Los Angeles has established standards for ambient noise levels that are correlated with land use zoning classifications. The standards are contained in the city's noise ordinance, Los Angeles Municipal Code (LAMC) Section 111 et seq. Compliance is achieved by a variety of means, including barriers, buffers, separation of incompatible uses and reduction of sound at its source.

The first section of this chapter discusses ordinances and other measures for regulating noise sources and mitigating noise impacts within the city. The other sections discuss the evolution of noise impacts and

management measures associated with local transportation systems. The Appendix provides an historical perspective of the evolution of transportation systems and associated noise issues.

Building Sound Insulation and Nuisance Noise

Several city, state and federal regulations address sound insulation and nuisance noise. These range from use permit limitations and building construction provisions to nuisance abatement. This section summarizes the city's major noise management procedures and regulations.

California And Federal Legislation

CALIFORNIA NOISE INSULATION STANDARDS

The California Noise Insulation Standards of 1988 (California Building Code Title 24, Section 3501 et seq.) establishes inter-dwelling (between units in a building) and exterior sound transmission control measures. It requires that interior noise levels from the exterior source be reduced to 45 decibels (dB) or less in any habitable room of a multi-residential use facility, e.g., hotels, motels, dormitories, long-term care facilities, and apartment houses and other dwellings, except detached single-family dwellings. Measurements are based on a day/night average sound level (Ldn) or the community noise equivalent level (CNEL). Both Ldn and CNEL utilize averaging, not single event exposure. Therefore, the passing of a single train during a day would be averaged over the 24-hour period, resulting in negligible exposure.

The significant noise generation sources identified by the Noise Insulation Standards are: highways, country roads, city streets, railroads, rapid transit lines, airports and industrial areas. Noise-sensitive uses planned in proximity to such uses are required to be designed to prevent intrusion of significant exterior noise. The applicant must submit an acoustical analysis, prepared by or under the supervision of an acoustical engineer, indicating that a 45 dB or less interior noise level will be achieved within each proposed habitable room. Interior allowable noise levels can be achieved by reorienting the project on the site, providing setbacks, shielding (e.g., buffer walls or berms) the receptor from the noise source, incorporating sound insulation into the building construction, requiring that windows be unopenable or remain closed and air conditioning be provided, and any other methods.

To help permit processors assess whether special acoustical analysis and mitigation is needed, local jurisdictions are to identify areas of 60 dB or greater, averaged over a 24-hour period. The noise element of the general plan is to be used in helping to identify sites with noise levels of 60 dB or greater. In addition, the state general plan law (Government Code Section 65302 et seq.) calls for noise elements to "recognize" the state health department noise guidelines and to quantify, "to the extent practicable, as determined by the legislative body, current and projected noise levels" from transportation and other significant sources. This element identifies noise levels of 65 dB or greater with reference to airports.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The National Environmental Policy Act of 1969 (NEPA) requires that an environmental impact statement (EIS) be prepared for federal or federally funded (including loans) projects. The EIS identifies potential impacts of the project and evaluates feasible alternatives for mitigating the impacts. The impacts and mitigation alternatives are taken into account by decision makers. However, mitigation of impacts is not required by NEPA.

FEDERAL NOISE CONTROL ACT

The Noise Control Act of 1972 (42 United States Code 4901 et seq.) gives the Environmental Protection Agency (EPA) authority to publish regulations and standards relative to transportation, construction and electrical equipment, motors, engines, etc. It reaffirms the Federal Aviation Administration and EPA preemption of state and local control over aircraft noise. It requires that the FAA to consult with the EPA prior to promulgating or amending noise regulations.

The California Environmental Quality Act of 1970 (CEQA) was patterned in part after NEPA. It mandates that mitigation measures be part of a discretionary land use development permit approval, including building permits, unless a project is deemed exempt from environmental assessment procedures. CEQA is intended to protect the natural environment from avoidable damage, including from noise impacts, by requiring that proposed land development projects mitigate identified significant potential impacts. Where an environmental impact report is required, the decision maker may issue a permit even if the potential impact cannot be reduced to a level of insignificance, providing the decision maker finds that project benefits outweigh the unavoidable impacts. Impacts on the environment (or known future environment) also are considered, including noise from exterior sources on project users or residents. Where federal agencies or funding is involved, both NEPA and CEQA apply.

Conservation of nonrenewable energy resources is a consideration under NEPA and CEQA. Mitigation measures typically include building insulation to reduce heat gain and loss so as to reduce the amount of energy needed to heat or cool buildings. Even without CEQA mitigation requirements, most new construction includes energy insulation features, combined with air conditioning and heating systems, to make projects more energy efficient. Insulation reduces exterior-to-interior noise impacts.

City Noise Ordinances

The City of Los Angeles has numerous ordinances and enforcement practices that apply to intrusive noise and that guide new construction. These are summarized in the following sections.

The city's comprehensive noise ordinance (LAMC Section 111 et seq.) establishes sound measurement and criteria, minimum ambient noise levels for different land use zoning classifications, sound emission levels for specific uses (radios, television sets, vehicle repairs and amplified equipment, etc.), hours of operation for certain uses (construction activity, rubbish collection, etc.), standards for determining noise deemed a disturbance of the peace, and legal remedies for violations. Its ambient noise standards are consistent with current state and federal noise standards. They are correlated with land use zoning classifications in order to guide the measurement of intrusive noise that results in intermittent (periodic) or extended impacts on a geographically specific site. The intent is to maintain identified ambient noise levels and to limit, mitigate, or eliminate intrusive noise that exceeds the ambient noise levels within the zones specified. The standards guide building construction and equipment installation, equipment maintenance and nuisance noise enforcement. The city council initially adopted the ordinance in 1973 and periodically amends it to reflect current issues and noise management approaches.

As a general rule, the city's building and safety department enforces noise ordinance provisions relative to equipment (air conditioning units, swimming pool pumps, car wash facilities and other machinery) and the police department enforces provisions relative to noise generated by people (parties, amplified sound, etc.). The police department also is authorized to enforce the mechanical equipment and other provisions of the noise ordinance, relative to nuisance noise complaints.

Zoning And Land Use

The city's planning and zoning code (LAMC Section 11 et seq.) contains a variety of provisions that directly or indirectly mitigate noise impacts on, or impacts that are associated with, different types of land uses. Permit processing is guided by the general plan, especially the community plans which together are the city's land use element. The plans designate appropriate land use (zoning) classifications. Noise element programs (Chapters III and IV) outline considerations that may be taken into account during community plan preparation and planning permit processing. The noise ordinance guides land use considerations by setting maximum ambient noise levels for specific zones.

Los Angeles was the first jurisdiction in the nation to establish zoning by land use category (1904 and 1908). Under the guidance of the city's first planning director, Gordon Whitnall, the zoning was changed (1930) to create the standardized classifications that are used today. These include regulation of height, area (including yards), density and parking. The combination of the various regulations contributes significantly to reduction of potential noise impacts throughout the city.

The most basic noise management measure is traditional zoning that separates agricultural, residential, commercial and industrial uses. Another is the front yard set back that not only adds attractiveness to a neighborhood but serves to distance homes from adjacent street noise. Side and rear yards also serve as noise buffers. Through zone change and subdivision processes, site or use specific conditions can be imposed to assure compatibility of land use and to protect users of a site from impacts from adjacent uses.

The commercial (C zones) and manufacturing (M zones) provisions of the code contain use specific requirements intended to reduce noise, odor and other impacts on adjacent uses. These include prohibiting of certain commercial and industrial uses within so many feet of residential or less restrictive uses or zones, requiring increased setbacks from residential uses, limiting hours of operation, containing uses wholly within an enclosed buildings, requiring sound walls, prohibiting openings that face residential uses and prohibiting audibility of noise outside a facility.

Conditional use and use variance permits (LAMC Sections 12.24, 12.27, 12.28 and 12.29) allow the planning commission, zoning administrators and, on appeal, board of zoning appeals and city council to assess potential use impacts and impose conditions to mitigate noise impacts. Conditional use or use variance permits are required in certain zones for schools, churches, homeless shelters, municipal facilities, correctional institutions, alcohol sales, golf courses, parks, rubbish disposal projects, mixed use development, stadia, automobile service and repair facilities, certain types of parking, joint living and work quarters, mini-malls, hotels and motels, drive-thru food establishments, nightclubs, keeping of certain types of animals and other unique, potentially noise intrusive uses. In most cases the uses are allowed by right in less restrictive zones. Some are prohibited entirely in residential zones. The permitting procedures include site investigations, notice to neighbors and hearings to assist decision makers in determining if the use should be permitted and, if permitted, allow imposition of appropriate conditions of approval. Typical conditions include specific site design, setbacks, use limitations on all or parts of the site, walls and hours of operation so as to minimize noise and other impacts. Violation of conditions can result in permit revocation.

Supplemental use districts or "overlay zones" (LAMC Section 13) for such uses as oil drilling, animal slaughter, surface mining and equine keeping typically contain construction, installation and operational provisions that are intended to minimize or eliminate noise impacts on adjacent uses. For example, the surface mining provisions prohibit establishment of a surface mining district closer than 100 feet from a residential zone, unless a landscaped buffer berm is provided, and limit mining activity hours. Oil drilling district noise mitigation provisions include drilling operation term limits, drilling equipment noise guidelines and a requirement that oil production activities be inaudible outside the enclosed operations structure. In some cases, the commission and city council are authorized to impose additional conditions to further mitigate potential impacts associated with a particular supplemental use.

Other code provisions allow a zoning administrator to conditionally permit, without public hearing, particular uses allowed in a zone, provided that the uses meet certain criteria, such as provision of additional parking or walls. The additional parking requirements for such uses as health clubs, restaurants, trade schools and auditoriums in part are to minimize noise impacts, especially in the evening and at night on residential neighborhoods. Poten-

tial impacts include door slamming and people talking as they walk to their cars.

The authority to revoke, discontinue a use or to impose nuisance abatement conditions on established uses has become a major tool for reducing nuisance noise. Use permits may be revoked by the commission, zoning administrator, or, on appeal, by the board of zoning appeals or city council for nuisance (including disturbance of the peace) or noncompliance with conditions of a conditional permit. In addition, a zoning administrator may discontinue or, on appeal, the board or council, may impose operational conditions on existing commercial or industrial uses that are deemed a nuisance, including for excessive noise or disturbance of the peace (LAMC Section 12.21-A.15). These two procedures have been increasingly utilized in recent years to encourage owners to operate activities on their properties in a manner that is compatible with adjacent uses, particularly residential uses.

Building Sound Insulation Regulations

With the development of inexpensive insulation materials, air conditioning and improved noise reduction techniques it became economically feasible to design buildings that provide effective insulation from outside noise as well as from weather conditions. It has been estimated that standard insulation, efficiently sealing windows and other energy conservation measures reduce exterior-to-interior noise by approximately 15 decibels. Such a reduction generally is adequate to reduce interior noise from outside sources, including street noise, to an acceptable level. Building setbacks and orientation also reduce noise impacts.

Sound transmission control requirements were added to the national Uniform Building Code (UBC) in 1992. The UBC standards were incorporated into the city's building code (LAMC Section 91) in 1994. They are consistent with state noise insulation standards (California Building Code Title 24, Section 3501 et seq.), requiring that intrusive noise not exceed 45 dB in any habitable room. As with state standards, the provisions do not apply to detached single-family residential uses. The city's airport noise abatement programs apply the standard to detached single-family dwellings.

The city's building code guides building construction. The insulation provisions are intended to mitigate interior noise from outside sources, as well as sound between structural units. The provisions vary according to the intended use of the building, e.g., residential, commercial, industrial. The regulations are intended to achieve a maximum interior sound level equal to or less than the ambient noise level standard for a particular zone, as set forth in the city's noise ordinance.

Nuisance Noise

Nuisance noise is intermittent noise that exceeds the city's ambient noise levels or is otherwise deemed a nuisance. It is addressed primarily through enforcement of municipal code provisions described in this section.

BUILDING MECHANICAL EQUIPMENT

In addition to standards and regulations contained in the noise ordinance, mechanical equipment noise (e.g., roof top air conditioners) is regulated by the building code (LAMC Section 91). The city's building and safety department administers and enforces the code as it applies to noise relative to both installation and maintenance of equipment.

DISTURBING THE PEACE

In addition to the noise ordinance, Los Angeles Municipal Code Section 41 contains several disturbance of the peace provisions that are enforced by the police department. These include regulation of noise from theaters, construction activities, devices used to emit music, miniature golf courses (including unduly loud talking) and "loud and raucous" noise. The latter probably is the most commonly requested noise enforcement provision because it relates to general public nuisance, e.g., loud parties. California Penal Code Section 415 also authorizes local police departments to enforce noise relative to public nuisances, including intentional noise making.

The street sales (vendor) ordinance (LAMC Section 42.00) is enforced by the police department. It prohibits "loud, boisterous, raucous, offensive or insulting" activity associated with the sale of goods or services, including solicitation for sight-seeing tours.

CITY PARK FACILITIES

Los Angeles Municipal Code Section 63.44 regulates use of recreation and parks department facilities. Park rangers and other recreation and parks department staff enforce regulations that include restrictions on use of sound amplification systems within parks and regulation of concert uses of park facilities. In addition, the recreation and parks department designs its facilities, locates activities within park sites, enforces park use hours and has operational policies for individual sites that are intended to minimize potential noise and activity impacts on surrounding neighborhoods.

BARKING DOGS

The animal regulation department administers the barking dog noise ordinance (LAMC Section 53.63). It investigates written complaints and issues warning notices to owners of properties on which barking dogs are located. If the problem continues, a hearing is set before an animal regulation department hearing officer who considers testimony and attempts to resolve the problem. Dog licenses can be revoked and the owner required to remove the animal from the site if the problem continues.

COMMERCIAL VEHICLES

Engines of large commercial vehicles (six tires, gross weight of 10,000 pounds or more when empty) are not permitted to be operated at night in any manner deemed disturbing to residents of dwelling units, including residential hotels (LAMC Section 80.36.3). The prohibition is enforced by the police department and applies to parked as well as moving vehicles.

EMERGENCY VEHICLES

It is operational policy of the city's fire and police departments to limit use of sirens and horns, as practical, when emergency vehicles travel past noise sensitive uses or through noise sensitive areas.

Automotive Vehicles

The noise most commonly experienced throughout the city is produced by automotive vehicles (cars, trucks, buses, motorcycles). Traffic moving along streets and freeways produces a sound level that remains relatively constant and is part of the city's minimum ambient noise level. Vehicular noise varies with the volume, speed and type of traffic. Slower traffic produces less noise than fast moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

Management of automotive vehicle and associated noise is within the jurisdiction of federal, state and/or local authorities. This section reviews the jurisdictional authority of vehicle noise management relative to the City of Los Angeles.

Vehicle Emissions

Vehicle noise emission standards are promulgated by the federal Environmental Protection Agency (Title 49, Code of Federal Regulations Parts 190 et seq.). The Federal Highway Administration (FHA) of the Department of Transportation has authority to enforce noise standards pertaining to licensed interstate vehicles with a gross weight of over 10,000 pounds, providing the enforcement authority has been authorized "curbing" (i.e., police) authority. The FHA in the Los Angeles region (headquarters in Riverside County), does not have curbing authority. State and local jurisdictions may adopt the Environmental Protection Agency regulations without amendment in order to enforce the regulations. However many cities, including Los Angeles, have not done so because noise emissions, as described previously and below, can be enforced locally as nuisance noise under other authorities.

Street Noise

Occupants of buildings are protected from traffic noise and vehicle related noise by a number of lo-

cal land use, building construction and noise mitigation measures. Separation of land uses through general plan and zoning classifications traditionally has provided one of the best means of reducing noise impacts. Early land use practices and zoning designated commercial and industrial uses along highway corridors. This provided buffer uses between highways and residential areas. Construction of freeways that cut through existing communities, introduced traffic noise impacts into previously protected neighborhoods.

Modern building construction noise insulation and air filtration (air conditioning) standards contained in the city's building code generally are sufficient to mitigate noise impacts associated with city streets and ambient noise. The code also requires that outside factors, such as nearness to freeways or highways, be assessed in establishing noise insulation requirements for a particular building. The city's noise ordinance (Municipal Code Section 111 et seq.) and noise element provide minimum ambient noise levels that are correlated with land use zoning classifications. The ordinance regulates excessive noise generated by individual vehicles and incidents including noise from radios, horns, alarms, sound amplification equipment and other vehicle equipment. It also regulates hours of construction equipment operation and rubbish truck collection. These sections of the ordinance are enforced by the police department. Other noise regulations and noise mitigation procedures are contained in the municipal code and environmental review guidelines. The slower a vehicle travels, the less noise it generates. Therefore, speed limits, especially on local streets, reduce traffic noise impacts on adjacent uses. Together, the zoning and other statutes and provisions establish the city's standards and guidelines for vehicle related noise management.

The California Department of Motor Vehicles has jurisdiction over vehicle noise emissions within California. California Motor Vehicle Code Section 23130 establishes vehicle noise limits for moving vehicles, including interstate trucks that operate on streets, highways and freeways within the state, and regulates noise impacts on adjacent land uses. The provisions are enforced by the California Highway Patrol and local law enforcement agencies, such as city police.

Trucks tend to generate greater noise than cars. Certain types of trucks are prohibited by the state from traveling on certain state highways due to safety considerations. Freeways serve as the primary truck freight haul routes. Within the city, trucks are allowed to travel on streets except where prohibited by state regulations or by weight or height limits, such as on bridges, in tunnels and on some mountain or substandard streets. Because trucks can travel on most streets and highways in Los Angeles, truck noise can impact all areas of the city. Areas especially impacted tend to be those that are located adjacent to industrial and warehouse sites. Truck traffic impacts, including noise, are such a problem in the port community of Wilmington that the Wilmington-Harbor City community plan (adopted 1989) recommends that certain major highways within the community be designated as truck routes and that trucks be discouraged from using other streets.

Freeway Noise

By the late 1960s, freeways were a major source of noise throughout the state. Entire communities were impacted, especially at night, by the steady hum or roar generated by fast moving traffic. In 1973-74 state and federal agencies, in response to the 1969 National Environmental Policy Act, adopted formal policies and criteria for construction of noise barriers to mitigate impacts. In California, the responsibility for freeway and highway noise management was assumed by the California Department of Transportation (Caltrans). As a part of the nationwide highway noise abatement effort, Caltrans instituted a noise management program to reduce impacts from existing and new freeways on residential, school and other noise sensitive uses.

The program utilized noise barriers (sound walls) and/or building modification methods. The noise barrier program was the most publicly visible of the methods used. By 1996 over 150 miles of the nearly 210 miles of walls nationwide had been con-

structed in California, including more than 115 miles of walls in Los Angeles County. Sound walls typically are eight to fourteen feet in height and are installed between the freeway and adjacent homes or other impacted uses.

Where sound walls alone cannot reduce interior sound to acceptable levels, buildings sometimes are modified by adding or improving air conditioning, acoustical glass and/or other noise insulation features. Such abatement measures primarily are applied to schools. By 1996, the retrofitting program had been almost entirely completed for impacted schools located within the city's boundaries.

In addition, new freeways, such as the Glenn Anderson Interstate 105 Freeway (formerly called the Century Freeway), which opened in 1993, are constructed with noise mitigation features. These include walls and earth berms, freeway design (e.g., locating freeways in trenches) and conversion of some adjacent, potentially impacted properties to freeway compatible uses. The noise mitigation measures for both existing and new freeways has contributed significantly to reduction of ambient urban noise and has reduced direct noise impacts on adjacent uses and neighborhoods.

Rail Systems

Noise from rail systems is localized, impacting immediately adjacent communities. This section reviews noise and vibration management relative to rail systems within the city.

Railroads

JURISDICTIONAL AUTHORITY

The city cannot regulate transcontinental or intrastate trains operating within its borders. It has the authority to regulate land use as long as its determinations do not conflict with or infringe upon state or federal authority. Management of rail system related noise is within the jurisdiction of federal and/or state authorities. For example, the Federal Transit Administration (FTA) requires that all rail systems that receive federal funding must be constructed and operated in accordance with its specifications; the Federal Rail Administration (FRA) sets and enforces safety standards, including regulation of noise emissions within locomotive cabs, and requiring that train horns be a minimum of 96 dBA at 100 feet in front of a moving train; the National Environmental Policy Act (NEPA) requires federal agencies to incorporate environmental protection and enhancement measures into projects that are financed in whole or in part by federal funds (including loans). The FTA has promulgated noise and vibration impact assessment and mitigation guidelines for use by rail authorities for preparation of environmental impact reports for federally funded rail projects. Rail operations in Los Angeles are centered around Union Station and the east Los Angeles rail yards.

NOISE ISSUES

Union Station is located in the Central City North community of Los Angeles, adjacent to El Pueblo de Los Angeles Historic Monument. The train yard adjacent to the station bounds New Chinatown and extends to Taylor Yard, which is adjacent to the communities of Glassell Park and Cypress Park (Northeast community plan area). The station and yards serve both passenger and freight trains. Noise from Union Station and the adjacent yards largely is buffered from residential uses by manufacturing, commercial, office and park (Elysian Park) uses. In the early 1990s use of the yards by Metrolink trains generated public concern. An advisory committee was formed. The committee prepared a community compatibility study that recommended noise management measures.

Noise from freight train activities associated with industrial and warehouse uses and around the Los Angeles-Long Beach harbors generally is buffered from adjacent uses by surrounding industrial, warehouse and commercial uses. Overall improvement in train equipment and servicing methods has contributed significantly to reduction in noise impacts. However, some residential neighborhoods near active rail lines are impacted

by noise from intermittent passing trains and associated rail and truck activities.

ALAMEDA CORRIDOR PROJECT

Construction of the six-lane, 20-mile project began in 1997. The corridor extends from the ports of Los Angeles and Long Beach, though south and central Los Angeles to rail yards in the cities of Vernon and Commerce, interconnecting rail lines with regional truck systems. It is intended to increase the efficiency of movement of freight and expand rail capacity within the Southern California region. This is to accommodate the expected tripling of Pacific rim (Asia, North and South America and other Pacific nations) trade over the next quarter of a century. The project will consolidate some 90 miles of railroad tracks and eliminate approximately 200 at-grade street crossings. A 30-foot deep trench paralleling ten miles of Alameda Street is planned from the rail yards near downtown Los Angeles to the Artesia Freeway (Route 91) in the city of Compton. Consolidation of rail lines will reduce noise impacts by reducing the number of freight haul lines and by providing buffering of new lines, thereby eliminating or significantly reducing noise associated with freight trains.

New Rail Systems

TRAIN AND LIGHT RAIL NOISE

The Southern California Regional Rail Authority (SCRRA) is a quasi-state agency that operates the Metrolink commuter train system. Since it is regulated by federal interstate commerce laws, it is exempt from local regulations. If a train system utilizes existing rail rights-of-way, it is deemed categorically exempt under the California Environmental Quality Act (CEQA) environmental assessment and mitigation procedures. Metrolink trains utilize existing rail corridors, station areas and rail yards. Therefore its system generally have been deemed categorically exempt under CEQA. However, SCRRA voluntarily attempts to abide by local noise regulations and responds to noise complaints.

Other new rail systems are under the authority of the Los Angeles County Metropolitan Transportation Authority (MTA). The MTA serves commuter and short haul public transit passengers within the greater Los Angeles metropolitan area. As a quasi-state agency it is exempt from city noise laws. However, the MTA attempts to comply with the local noise regulations and to achieve the federal standard of 85 dBA within 50 feet of a habitable dwelling. The MTA uses comprehensive noise and vibration criteria that varies according to land use. This has enabled it, in some neighborhoods, to achieve even more restrictive sound emission levels than are set forth in the city ordinances and/or federal guidelines.

Before rail lines are constructed or new systems installed, significant potential noise and vibration must be identified and mitigation measures assured in accordance with federal and state environmental impact regulations (NEPA and CEQA). New rail systems and equipment are designed to comply with noise standards established by the FTA, the American Association of Railroads and the Public Utilities Commission relative to car, engine and track design, horns, auxiliary equipment, train operation, sound of wheels at curves, crossing signal bells and other system associated noise. Significant noise mitigation has been achieved by both MTA and SCRRA through replacement of existing rails and wood ties or construction of new tracks with continuous or seamless (not jointed) welded rails. Antilock braking systems prevent 'flat spots' on train wheels which, in the past, caused them to bump and clank whenever the flat spot and rail came into contact. New car and wheel system design and noise dampening devices also reduce external noise. These and other features have eliminated the vibration, noisy "click-clack" sound and other noises commonly associated with traditional railways.

The MTA Blue Line and Metrolink lines generally utilize existing rights-of-way that bound existing industrial, institutional, commercial, open space and other nonresidential areas, thus minimizing new noise impacts on residential uses. Securing of rail rights-of-way has enabled the MTA to, in some

cases, create open space, park and recreational buffers along rail lines, further reducing noise impacts on adjacent residential areas. Noise impacts are virtually nonexistent for the MTA's Green Line light rail system because it is located almost entirely within the Glenn Anderson Freeway.

New development on properties adjacent to rail lines must comply with the city's building code insulation provisions. Along with zoning setbacks, building insulation generally assures adequate noise mitigation relative to adjacent rail lines.

The MTA and SCRRA have attempted to be responsive to neighbors. After the Blue Line began to operate between downtown Los Angeles and Long Beach, residents in the Long Beach area complained to the MTA of the sound of wheels on rails at one section of the line. People also complained about the loudness of the train horns. These complaints prompted the MTA to hire a noise consultant to investigate. Based on the consultant's recommendation, the MTA installed quieter horns, retrofitted cars with additional dampening fixtures and materials, modified the car design, ground the rails and constructed a sound barrier at the noise complaint site, thereby achieving lower noise levels. The redesign of the cars and other modifications benefitted properties along the entire Blue Line route and are being applied to other MTA light rail systems. Similar complaints about the loudness of Metrolink horns resulted relocation of the horns from the roofs to the undercarriages of the trains, significantly reducing noise impacts.

Partially in response to community concerns, the planned Metrolink maintenance facility at Taylor Yard (Glassell Park and Cypress Park in northeast Los Angeles) was designed to reduce noise impacts. New technology and facility design enabled entire trains to be serviced without having to separate cars or locomotives. This virtually eliminated noise from separation of air hoses and coupling and uncoupling of cars.

Nevertheless, the community experienced noise impacts due to increased activity in the yards. This resulted in neighborhood demands for mitigation of rail yard noise and for development of more compatible uses along the eastern portion of the property. A study group was formed in the early 1990s. It was comprised of the representatives of the American Institute of Architects, community groups, property owners and operators, public agencies, elected officials and other entities who evaluated the potential use of parcels adjacent to and within the eastern portion of Taylor Yard. The team recommended community oriented commercial and other neighborhood compatible development of some parcels along the north side of Taylor Yard. The recommendations were used in conjunction with the revision of the Northeast community plan, which was underway in 1998.

SUBWAY NOISE AND VIBRATION

MTA's Metro Rail Red Line subway is partially completed. A single subway line operates between Union Station and Western Avenue (in the Wilshire community). Other lines are under construction, including a branch to the San Fernando Valley via Vermont Avenue and Hollywood Boulevard (Hollywood community). Because it is an enclosed underground system, noise impact concerns have been minimal, except relative to construction activities. Subway construction was granted a variance from the city's noise ordinance construction hours to enable tunneling 24 hours a day, in accordance with conditions of the variance. Any construction activities must otherwise comply with the noise ordinance.

In the Hollywood area the broadcast industry raised concerns about vibration and noise, especially during construction, relative to the proposed tunnels below television, radio and recording studios. This resulted in the hiring by the MTA of a consultant to evaluate potential noise and vibration impacts and to propose mitigation measures as a supplement to the environmental impact report for that segment of the system. The measures issued in 1989 included some subway realignment. Depth of the subway tunnels, track engineering and vibration dampening measures are expected to reduce or

eliminate impacts of vehicle generated vibration on uses located above the tunnels when the system becomes operational.

Tunneling under the community of North Hollywood began in 1996 and resulted unanticipated problems, including construction noise and vibration impacts on sensitive uses, e.g., recording studios. The MTA reanalyzed its planned train operations and environmental conditions. In response to its findings, the MTA adjusted its noise and vibration criteria, modified the track supports and offered to modify some buildings that contained sensitive uses. The measures are intended to eliminate any significant above ground noise and any vibration impacts, as measured relative to the high ambient noise levels associated with the area.

Aircraft and Airports

Airport and heliport noise is localized, affecting communities immediately adjacent to the facilities. However, the intensity and intrusiveness of jet aircraft noise has resulted in such noise becoming a major local concern. The primary issue raised during the hearings and public discussion relative to the city's first Noise Plan (1975) was the issue of aircraft noise, especially noise impacts on communities adjacent to the Los Angeles International Airport (LAX). Issues also were raised in 1975 about noise associated with heliports and the Hollywood-Burbank Airport (now called the Burbank-Glendale-Pasadena Airport). In the interim since the 1975 plan was adopted many changes have taken place that have enabled authorities to better address noise issues relating to airports. However airport noise remains the primary unresolved noise issue facing the city. This section reviews noise management of aircraft and airports (including heliports) within the city. It addresses this issue relative to the five airports that are located within or immediately adjacent to the City of Los Angeles: LAX, Van Nuys, Burbank, Santa Monica and Whiteman airports.

Jurisdictional Authority

Management of aircraft and airport related noise is within the jurisdiction of federal, state and/or local authorities.

FEDERAL

Under federal statutes, safety and national defense have primacy over noise abatement. The Federal Aviation Act of 1958 vested the Federal Aviation Administration (FAA) with exclusive authority over air safety, management and control of airspace and movement of aircraft through airspace. Local jurisdictions and local airport authorities have no direct control over airspace or air traffic control, which are safety issues under the authority of the FAA. The FAA determines landing and departure routes for public and private airports and heliports and sets construction and operational standards to assure safety. Federal authority preempts state and local authority over aircraft operations, including aircraft noise emissions, aircraft flight patterns and airport use.

STATE

Enforcement in California of federal airport regulations is delegated to the California Department of Transportation (Caltrans) and is administered by the Caltrans Aeronautics Program (CAP). CAP sets noise guidelines for local airports. In addition, the state is responsible for regulation of airport related land use and has established noise insulation standards. It has delegated authority over land use regulation largely to local governments.

LOCAL

Land use compatibility with airport uses is largely within the authority of local jurisdictions, as long as actions do not conflict with or infringe upon federal and state authority. Local governments cannot regulate flight hours, flight patterns or operational procedures. Where the local government is also the airport proprietor, it may adopt noise abatement measures affecting aircraft operations only with the express authorization of the FAA. The city has mapped airport hazard areas around the Van Nuys (VNY) and LAX airports and established procedures to regulate land development consistent

with federal safety regulations (LAMC Section 12.50). Land use within flight path hazard areas, both within and outside of airport boundaries, must comply with height, glare and other safety considerations established by the FAA.

AIRPORT LAND USE COMMISSION

State law (Public Utilities Code Section 21670 et seq.) requires creation of county airport land use commissions (ALUCs). The ALUCs advise local jurisdictions concerning coordination of airport and land use planning for adjacent geographic areas in order to achieve orderly expansion of airports, reduction of community exposure to excessive noise and elimination of safety hazards associated with airport operations. The ALUCs prepare and adopt comprehensive airport land use plans (CLUPs) that "provide for the orderly growth of each public airport and the area surrounding the airport" within the ALUC's jurisdiction and protect the welfare of the surrounding residents and general public. The plans are based upon airport layout plans, as accepted by the CAP, or locally adopted airport master plans. The ALUC plans anticipate airport growth for a period of 20 years.

An ALUC reviews those sections of a city's general plan (e.g. community plans and airport plans), as well as proposed plan amendments, specific plan ordinances and development permit requests that pertain to airport hazard and noise impact areas in order to determine consistency with the CLUP. Local authorities may overrule an ALUC's determination.

State law provides for the Los Angeles County Regional Planning Commission to act as the ALUC for Los Angeles County. The county's 1991 CLUP contains a CNEL of 65 or 70 dB noise exposure contours for each airport in the county. The CLUP "Land Use Compatibility Table" provides guidelines for establishment of particular uses in areas exposed to a CNEL of 60 or more dB noise impacts. The City of Los Angeles noise ordinance emission standards are consistent with the 1991 CLUP guidelines. Revision of the county's CLUP was initiated in 1997.

CITY OF LOS ANGELES

Pursuant to the city's planning and zoning code, aircraft landing fields are allowed by right in the M2 (light industrial) and M3 (heavy industrial) zones. In all other zones they are authorized by conditional use permit issued by the city planning commission (LAMC Section 12.24.B.1) or, on appeal, by the city council. Most heliports are not located in M2 or M3 zones. The three airports within the city boundaries (LAX, VNY and Whiteman) generally are zoned in the M2, M3 or PF (public facilities) zones.

In 1998 Los Angeles World Airports, the city's airport authority, was preparing master plans for LAX and VNY. The plans are limited by the FAA to land use considerations, including intensity of development. However, changes in airport land use must be approved by the FAA. The city is prohibited from closing an airport or reducing the intensity or type of aircraft activity without FAA approval.

Because Whiteman Airport is a county facility, it is legally exempt from municipal zoning laws. However, as a matter of policy, the county attempts to comply with city zoning laws and land use procedures.

SUMMARY

In general: federal authority is over airspace and safety, including aircraft noise standards; state authority is over airports, including airport noise standards, and enforcement of airport safety (except where preempted by federal authority); and local authority is over operations and land use (except where preempted by federal and state authority).

Regulations And Programs

A variety of regulations and programs guide and assist local airport authorities in achieving federal and state noise standards.

ENVIRONMENTAL ASSESSMENT

The 1969 National Environmental Policy Act (NEPA) and 1970 California Environmental Quality Act (CEQA) require that environmental impacts, including noise impacts, be evaluated. NEPA requires

that mitigation measures be considered in project implementation. CEQA requires that mitigation measures be incorporated into the project to avoid or minimize significant impacts to the maximum extent feasible. Proposed new airports, including heliports, are required to submit environmental statements as a part of their permit applications. Master plans, zone changes, reconfiguration of airport uses (including runways) or other significant projects are discretionary actions that trigger the environmental assessment and mitigation procedures. All official environmental review documents are subject to public review and comment.

FEDERAL AVIATION REGULATIONS PART 36 (FAR PART 36)

Congress in 1968 granted the FAA authority to implement and monitor airspace regulations, including regulation of aircraft noise. The FAA in 1969 promulgated "14 Code of Federal Aviation Regulations Part 36" (FAR Part 36) establishing maximum sound emission levels for new aircraft and phasing out of noisier aircraft. Subsequent amendments classified fixed-wing aircraft into three noise impact categories, with Stage 1 applying to the oldest and noisiest aircraft engines and Stage 3 to the newest and quietest engines. New fixed-wing aircraft built in the United States were required to comply with the Stage 3 standards. After January 1, 1986 commercial fixed-wing aircraft were to comply with the Stage 2 standards. Stage 1 aircraft were phased out of use at civilian airports by 1990.

To comply with FAR Part 36, all new commercial passenger airplanes are designed to reduce engine noise to a minimum feasible level. Lighter and stronger composite materials and more streamlined design have reduced needed engine power, thereby reducing engine noise emissions. New technological advances are anticipated to further reduce fixed-wing aircraft engine noise in the future.

CALIFORNIA AIRPORT NOISE STANDARDS

California Airport Noise Standards (California Code of Regulations Title 21, Section 5000 et seq.) were adopted in 1970. They are administered by the Caltrans Aeronautics Program (CAP). Under the standards, civilian airports, including heliports, that are deemed to be a "noise problem airports" are required to meet a community noise equivalent level (CNEL) of 65 dB at airport boundaries by January 1, 1986 (FAR Part 36) or to seek a variance from CAP. Noise problem airports that were unable to eliminate noise incompatibility within the established time frame were permitted to seek and renew variances. Variances provide extensions of time for development of plans for compliance within a reasonable period of time.

CNEL is a noise measurement scale applied over a 24-hour period to all noise events received at the measurement point. It is weighted more heavily for evening and night periods in order to account for the lower tolerance of individuals to noise during those periods. Noise is greater at the source (airport runway) and diminishes as the distance between source and the receptor widens. The CNEL measurement is expressed as a contour line around the noise source.

The California Noise Standards contain procedures for implementing noise and land use compatibility requirements. They establish systematic methods for measuring noise levels and addressing noise problems and define incompatible noise sensitive uses, e.g., residential dwellings (including mobile homes), schools, hospitals, convalescent homes and houses of worship. An interior noise level of a CNEL of 45 dB is the standard for all noise sensitive uses.

Counties are authorized under the noise standards to issue a resolution declaring that a civilian airport within its boundaries is a "noise problem" airport, based upon receipt of noise complaints and other noise impact data. Once so identified, the airport becomes subject to the California Airport Noise Standards, which are enforced by the county. The county is required to validate the noise contours. Airports identified by the county as noise problem airports are to reduce noise problems (i.e., incompatibility) through a variety of suggested strategies, including reconfiguration of airport land use, modification of airport flight paths, rezoning, land ac-

quisition and other abatement measures. The airport's comprehensive land use plan is submitted to the county for review and adoption. The county submits the plan and quarterly reports (documenting the contours and incompatible land uses within the contour areas) to the CAP. The CAP reviews the reports and approves the plans.

Five airports are within or adjoin the city (Exhibit A). The Los Angeles County Board of Supervisors has deemed three of the five, LAX, VNY and Burbank, to be noise problem airports. All three airports submit quarterly reports with contour maps depicting CNEL of 65 dB contours (Exhibits B-D) to the county and prepare noise abatement programs. They currently operate under noise compatibility compliance time extension variances. Santa Monica and Whiteman airports are not considered noise problem airports because significant airport related noise is contained within the airport or surrounding airport-compatible land use (Exhibits E and F).

AIRPORT NOISE AND CAPACITY ACT OF 1990 (FAR PARTS 91 AND 161)

The Airport Noise and Capacity Act of 1990 (14 Code of Federal Regulations [subsequently recodified as 49 U.S.C. 47521 et seq.]) established FAA authority over most airport noise management, preempting state and local authority. The Act sets procedural requirements that must be met before noise regulations can be enacted for an airport. It is implemented by "14 Code of Federal Aviation Regulations Part 161" (FAR Part 161), which establishes a program for reviewing airport noise and access restrictions on the operations of Stage 2 and Stage 3 aircraft. In addition, FAR Part 91 establishes procedures for phasing out of large (over 75,000 pounds) Stage 2 aircraft and for reducing noise emitted by Stage 2 aircraft. The goal is to phase out most Stage 2 commercial fixed-wing aircraft from airports by December 31, 1999. Any proposed new Stage 3 noise mitigation measures must be authorized by the FAA. Prior to 1990, airports could impose more stringent standards than were contained in federal regulations. The Act allows noise ordinances already in effect, such as the Van Nuys Noise Abatement and Curfew Ordinance, to remain in effect, i.e., to be "grandfathered".

FEDERAL AVIATION REGULATIONS PART 150 PROGRAM (FAR PART 150)

In 1979, passage of the Aviation Safety and Noise Abatement Act made matching funds available for noise abatement. "14 Code of Federal Aviation Regulations Part 150" specifies how abatement and prevention measures may become eligible for the funds. The program is popularly known as "FAR 150 program." The Burbank Airport Authority and LAWA are participating in the FAR Part 150 program relative to the LAX, VNY and Burbank airports.

To qualify impacted areas for noise abatement or prevention funds, an airport authority must submit noise exposure contour maps and prepare a noise compatibility program (NCP), as defined by FAR Part 150. The maps are to identify CNEL of 65 dB or greater noise exposure contours for current and projected exposures. The NCP is to include a description of how citizens, local jurisdictions and affected agencies will participate; an airport land use compatibility plan; measures to prevent introduction of additional incompatible uses within the noise exposure areas; and detailed proposals for achieving and maintaining compatibility, e.g., reduction of incompatible land uses, airport reconfiguration, modification of flight procedures, sound proofing or other noise management measures designed to reduce impacts on existing surrounding noise sensitive uses. To guide noise impact assessment and prioritization, FAR Part 150 provides a land use compatibility table. It is comparable to the state guidelines and the guidelines contained in this noise element (Exhibit I). The FAA may deny an NCP or approve eligibility for funding for all or part of a proposed NCP.

The FAR Part 150 program in 1998 began requiring evidence that local authorities are preventing the introduction of new noise sensitive uses within noise impact areas and stopped providing funds for noise abatement for incompatible uses introduced after January 1, 1998. The changes are intended to

encourage promulgation and enforcement of local land use compatibility measures.

CALIFORNIA NOISE INSULATION STANDARDS

The interior noise standard to be achieved by abatement programs is specified by the California Noise Insulation Standards (Building Code Title 24, Section 3501 et seq.). It sets interior noise levels of 45 dB in any habitable room, averaged over a 24-hour period. The standard is applied, per the California Airport Noise Standards, to all "sensitive uses" pursuant to the airport noise compatibility program.

LOCAL NOISE COMPATIBILITY PROGRAMS

In addition to federal noise abatement and prevention funding, local airport authorities may establish their own programs. LAWA has established an abatement program relative to LAX. It is independent of the Part 150 program. In addition, local airports and jurisdictions have sought to reduce through land use changes and other noise management approaches.

Helicopters

PLANNING COMMISSION AND FIRE DEPARTMENT PERMITS

Aircraft, helicopters and heliport noise and safety considerations are within the regulatory authority of the state and federal governments, as described previously. However, cities have authority over certain land use and specific safety considerations.

In the 1960s the Los Angeles City Planning Commission (CPC) was given the responsibility (LAMC Section 12.24) for authorizing heliports, including heliports[1] used only in emergency situations. The permits are conditioned, based on potential impacts identified during the permit review process, including environmental review and public hearings. The conditions define and regulate the use of a specific heliport. If noise or other potential land use related problems appear unsolvable, the CPC can deny the permit. Permits can be revoked if noise impacts prove greater than anticipated or conditions of approval are not observed. The county's airport land use commission is required by state law to confirm the local heliport permit before final authorization can be considered by the Caltrans Aeronautics Program. The FAA determination of conformity of a heliport and its flight paths to FAA guidelines occurs prior to CPC consideration. Therefore, the determination is part of the documentation provided by the applicant to the CPC. If the state, FAA or the city fire department determine that a proposed or existing heliport is unsafe, the CPC's permit becomes moot.

The fire department has the authority to deny or revoke use of a private or public heliport if it determines that a facility does not meet city safety requirements (e.g., failure to maintain a heliport in a safe condition, existence of trees or other obstructions in the landing or departure paths or improper maintenance of wind socks and lighting).

In 1974 all new buildings over 75 feet in height were required by the city to provide emergency helicopter landing facilities (LAMC Section 57.18.11). The authority to approve such uses was assigned to the fire department. The new law resulted in a substantial reduction in the number and type of permits considered by the CPC. Permits for banks and hospitals became the most common requests because banks needed to transfer paper records on a daily basis and hospitals needed heliports for transfer of patients and materials. Requests for commuter and passenger service operations generally were denied by the commission. However, such requests were rare because of the availability of helicopter operations at local airports.

In 1978 the fire department was authorized to approve "infrequent" helicopter landings in any zone (LAMC Section 12.22-A.6). Such landings may occur only twice a year at sites within specified single-family (RA, R1) and commercial (C1, CR) zones. Infrequent landing permits are to accommodate occasional events such as educational programs and movie filming.

Commission hearings for heliports typically generate community concern regarding noise impacts. To minimize noise impacts, the CPC generally limits the use (e.g., bank records transfer only), hours

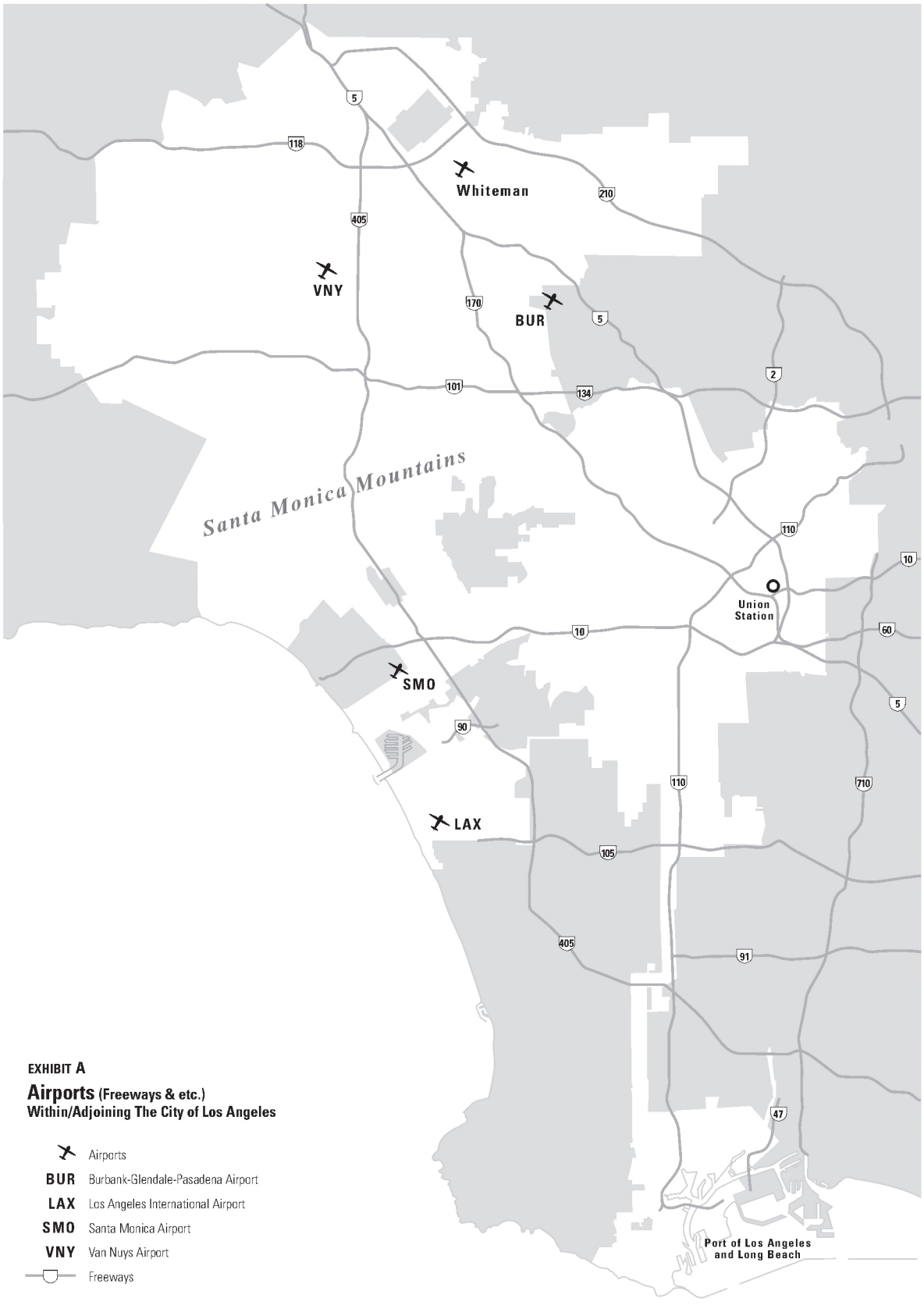

EXHIBIT A

Airports (Freeways & etc.)
Within/Adjoining The City of Los Angeles

- Airports
- **BUR** Burbank-Glendale-Pasadena Airport
- **LAX** Los Angeles International Airport
- **SMO** Santa Monica Airport
- **VNY** Van Nuys Airport
- Freeways

Source: Proposed Transportation Element of the General Plan, Los Angeles City Planning Department, 1997.
Prepared by the Transportation Unit • City of Los Angeles Planning Department • Citywide Graphics • January, 1998

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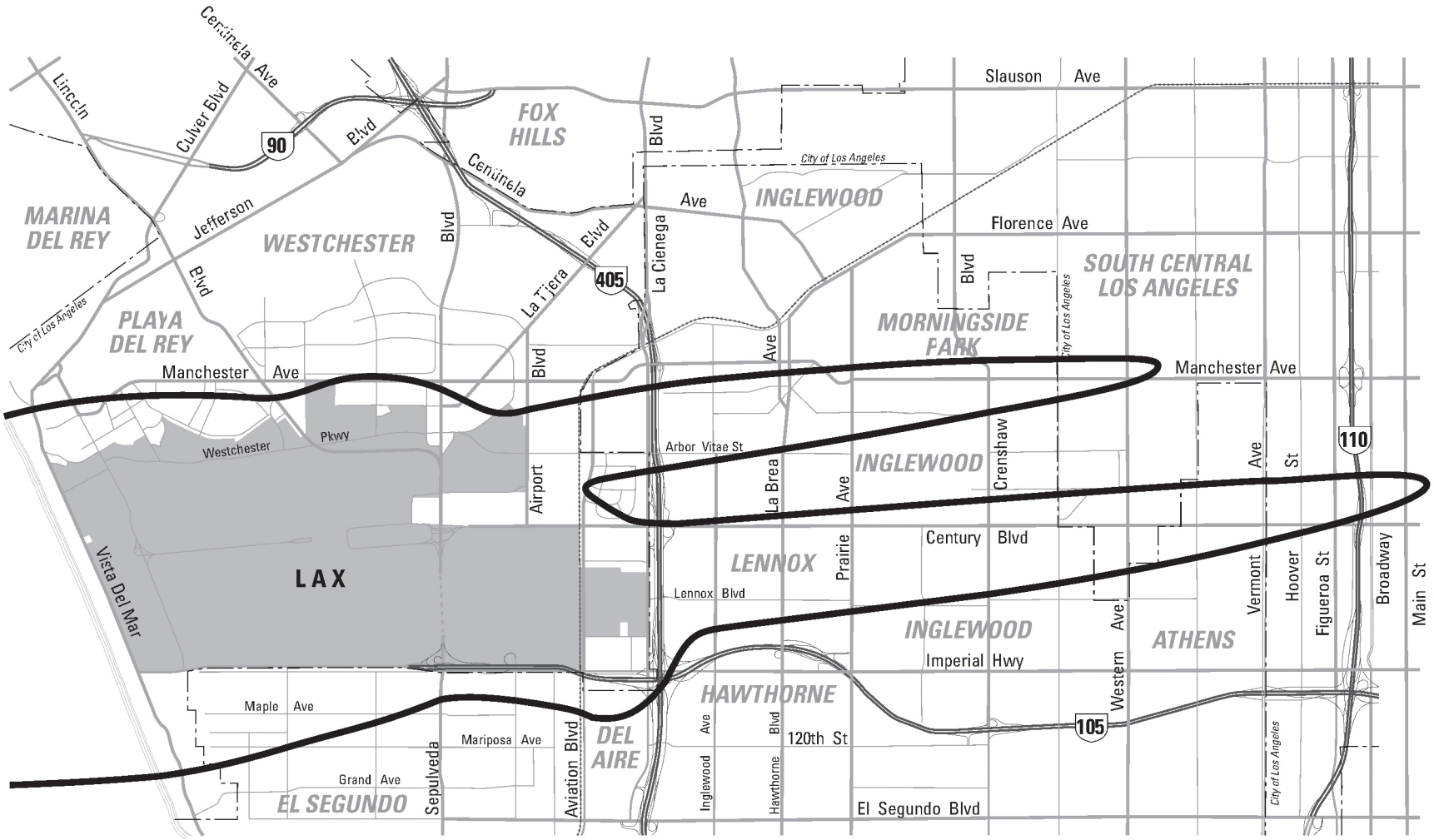

EXHIBIT B

Los Angeles International Airport
Noise Exposure Contour*

Noise Contour (a CNEL of 65 dB)

Airport Boundary

Note: Exhibit is illustrative and is not to scale.
For further information contact Los Angeles World Airports.

*Based on: (1) Fourth Quarter Monitoring Report, Los Angeles World Airports, August 13, 1997
Los Angeles World Airports, April 07, 1997
(2) City Planning Department community plan maps.

Prepared by the Graphics Section • City of Los Angeles Planning Department • Citywide Planning Division • January, 1998

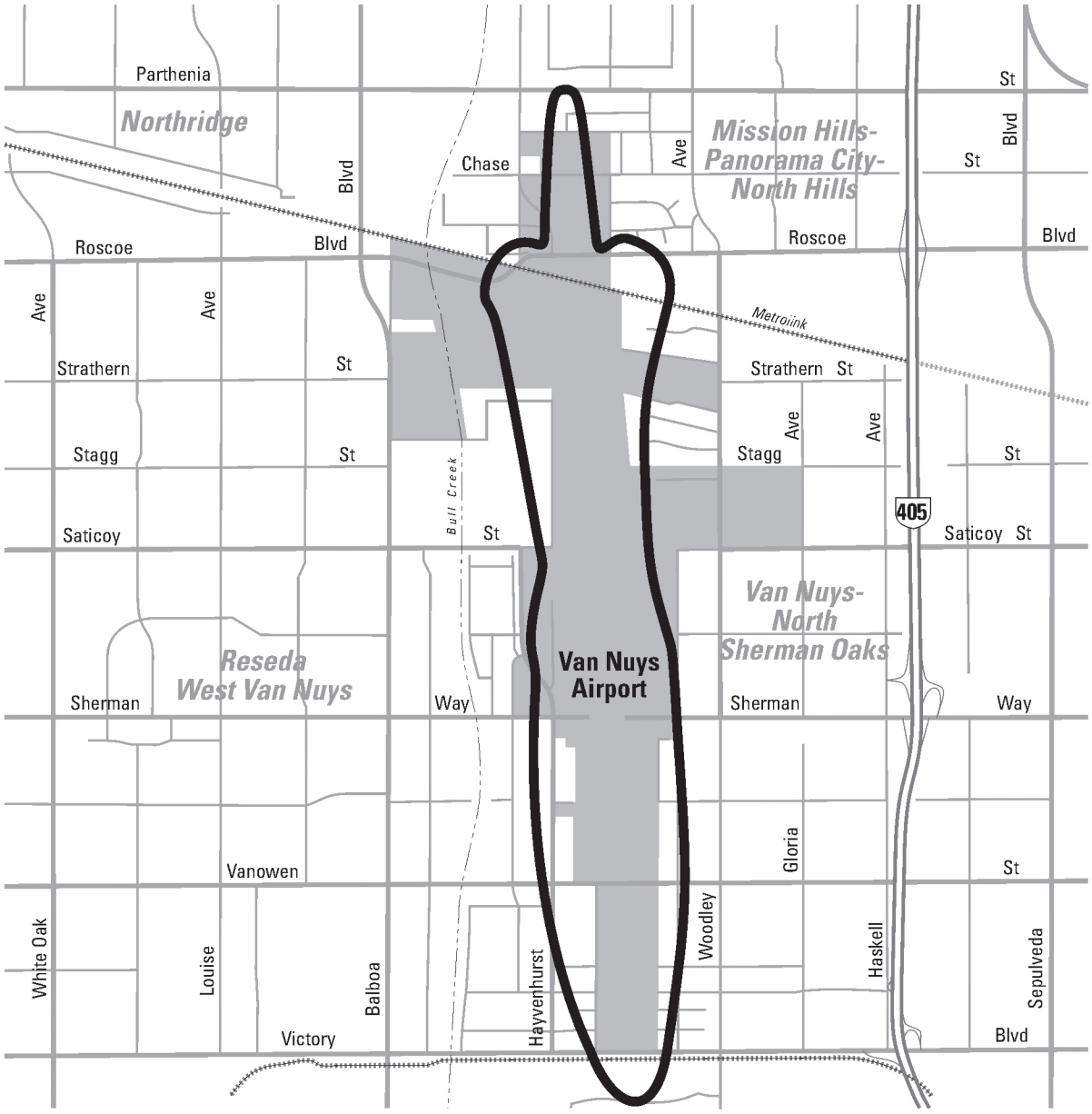

EXHIBIT C

Van Nuys Airport
Noise Exposure Contour*

Noise Contour (a CNEL of 65 dB)

Airport Boundary

Note: Exhibit is illustrative and is not to scale.
For current information contact Los Angeles World Airports.

*Based on : (1) Fourth Quarter Monitoring Report, Los Angeles World Airports, September 8, 1997
(2) City Planning Department community plan maps.

Prepared by the Graphics Section • City of Los Angeles Planning Department • Citywide Planning Division • January, 1998

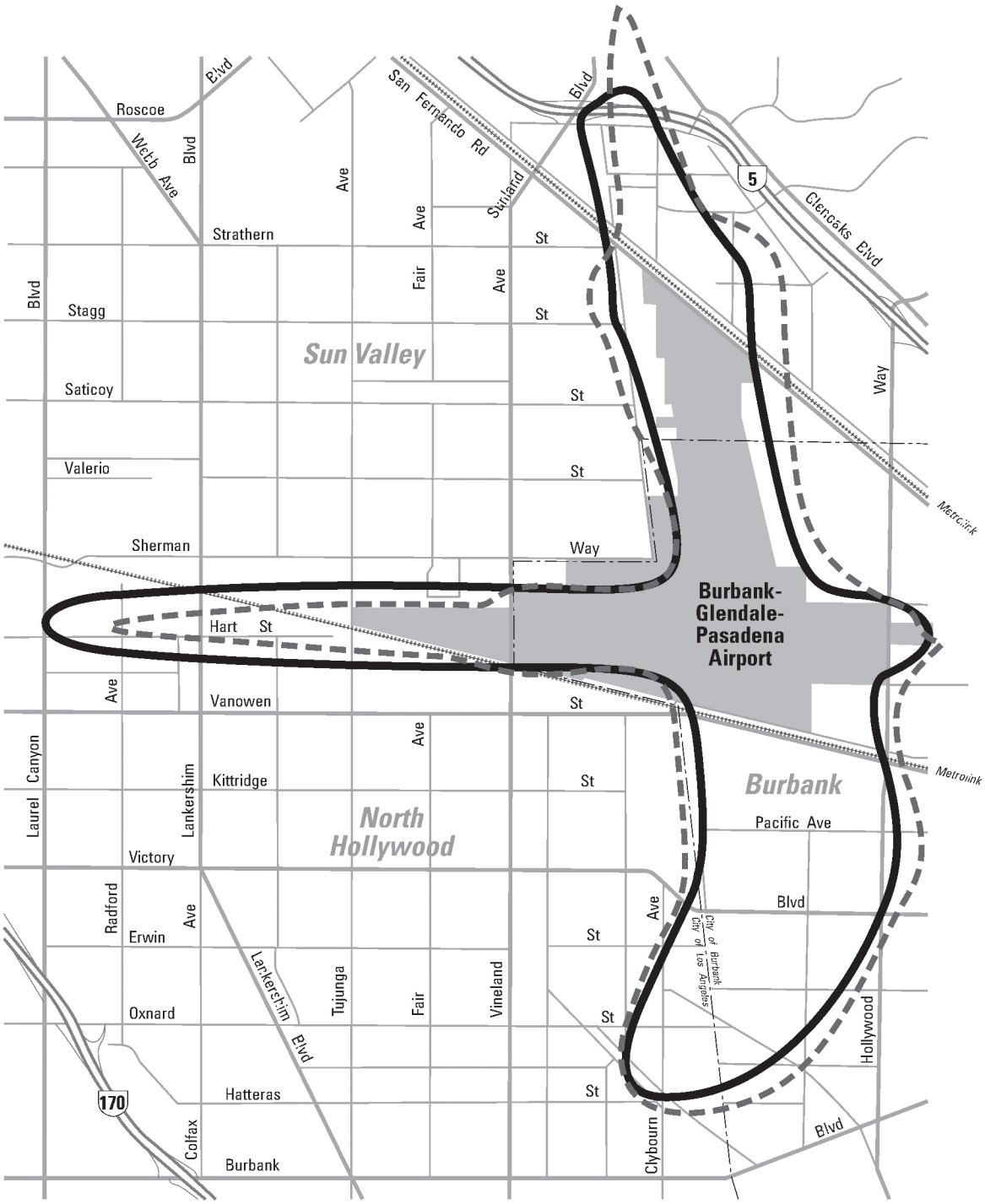

EXHIBIT D

Burbank-Glendale-Pasadena Airport
Noise Exposure Contours

1996 Noise Contour (a CNEL of 65 dB)*

2010 Projected Contour (a CNEL of 65 dB)**

Airport Boundary

*Based on : (1) "Quarterly Noise Monitoring Report, at Burbank Airport, Fourth Quarter 1996", Burbank-Glendale-Pasadena Airport Authority, July 1996.
(2) City Planning Department community plan maps.

**Based on : "Environmental Impact Statement for Land Acquisition and Replacement Terminal Project," Burbank-Glendale-Pasadena Airport Authority, August-1995.

Note: Exhibit is illustrative and is not to scale. For further information contact the Airport Authority

Prepared by the Graphics Section • City of Los Angeles Planning Department • Citywide Planning Division • January, 1998

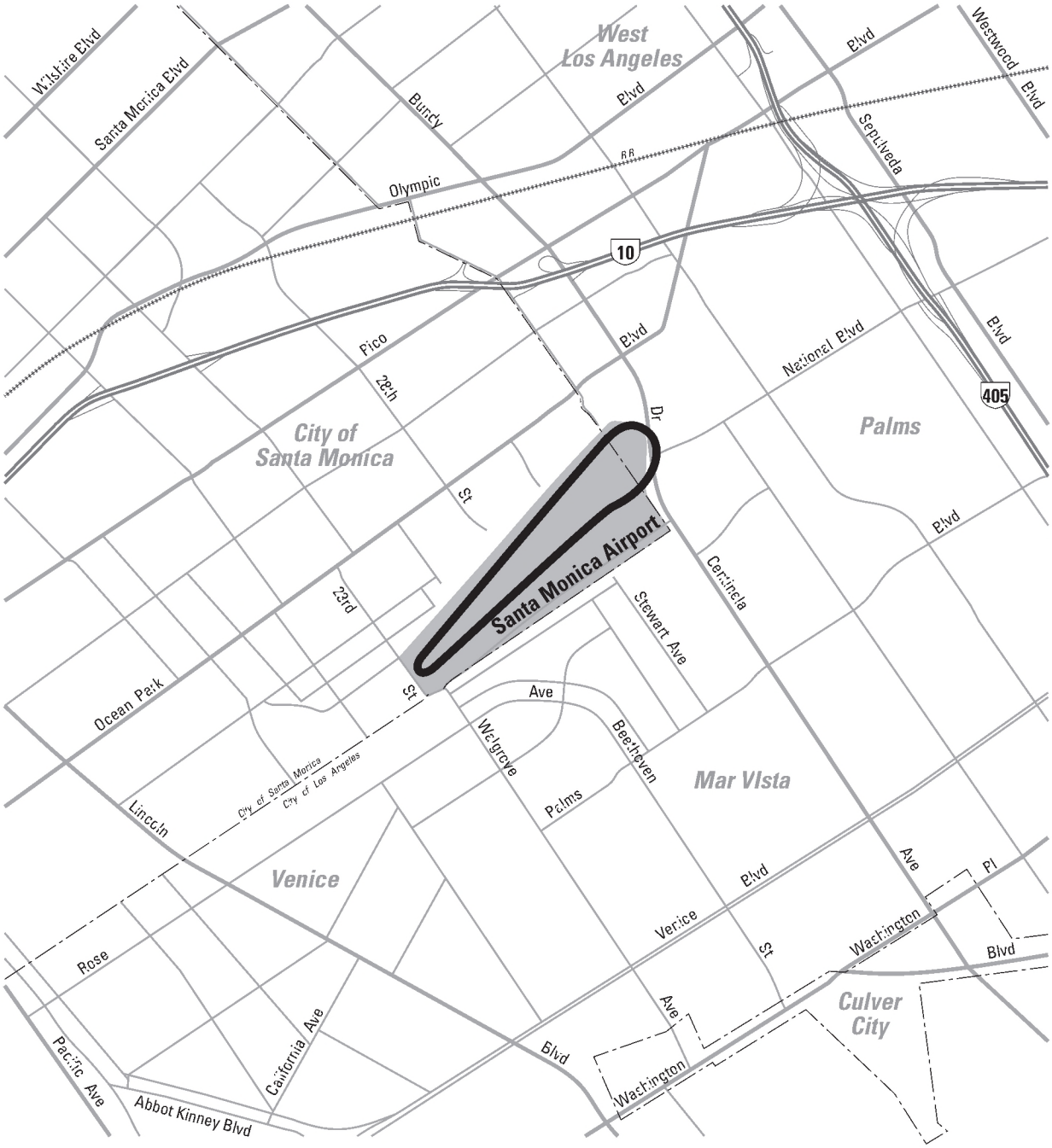

EXHIBIT E

Santa Monica Airport
Noise Exposure Contour*

Noise Contour (a CNEL of 65 dB)

Airport Boundary

Note: Exhibit is Illustrative and is not to scale.
For current information contact the Santa Monica Airport

*Based on : (1) Santa Monica Airport Noise Management Office, 1996.
(2) City Planning Department community plan maps.

Prepared by the Graphics Section • City of Los Angeles Planning Department • Citywide Planning Division • January, 1998



EXHIBIT F

Whiteman Airport
Noise Exposure Contour*

Noise Contour (a CNEL of 65 dB)

Airport Boundary

Note: Exhibit is illustrative and is not to scale.
For current information contact the County Regional Planning Department

*Based on: (1) "Los Angeles County Airport Land Use Plan", adopted 1991, Los Angeles County Airport Land Use Commission.
(2) City Planning Department community plan map.

Prepared by the Graphics Section • City of Los Angeles Planning Department • Citywide Planning Division • January, 1998

of operation and number of flights. It sometimes requires noise barrier walls and imposes landing or departure routes. However, because state and federal authority preempts that of municipalities regarding safety, flight path and noise barrier requirements sometimes have been deemed inoperative by the FAA or CAP if they interfered with flight safety. For many years the CPC imposed helicopter weight limitations because it was assumed that weight could be correlated with the amount of noise generated. It ceased imposing the condition in the early 1980s when it was advised that helicopter weight no longer had any bearing on noise emissions.

Helicopter noise, unlike that of fixed-wing aircraft, is associated with the sound generated by rotor blades slapping against wind currents, not by the aircraft engine. Improvements in rotor systems is the primary means of reducing noise generated by helicopters. By the mid-1980s requests for conditional permits for heliports dwindled to zero, largely due to the building construction recession, electronic transfer of documents, increased popularity of limousine service and increased helicopter use of airports. By then approximately 50 private heliports had been permitted within the city, apart from emergency heliports and at local airports (primarily at Van Nuys and Burbank airports).

In the 1980s noise reduction and concern about crime resulted in the support by many local communities for police surveillance helicopters, causing such use to increase substantially. In Los Angeles, police and fire department helicopters operate from existing heliports that often contain fueling, parking and helicopter maintenance facilities.

HELICOPTER NOISE

Even with noise suppression improvements, helicopter flight at 500 feet creates an audible sound that is especially noticeable at night. National "Fly Neighborly" guidelines are implemented voluntarily by most pilots, thereby reducing noise impacts, especially in the vicinity of residential neighborhoods and noise sensitive uses. For example, voluntary alternate flight routes have been requested by the FAA relative to the Hollywood Bowl and other open air theaters during summer concert seasons. In the 1980s, to reduce noise impacts on adjacent communities, local airport authorities established helicopter operational flight procedures, specific landing and departure routes, use restrictions (e.g., no flight training exercises) and restricted hours of operation. These measures, along with rotor system redesign, significantly reduced noise impacts on neighborhoods. The operational procedures were "grandfathered" as existing procedures when the Aircraft Noise and Capacity Act of 1990 was effectuated (October 1990).

Airports In The Los Angeles Area

Los Angeles International Airport is known by its FAA identifier "LAX." It is one of four airport facilities operated by the Los Angeles Department of Airports. The department adopted the business name of "Los Angeles World Airports" (LAWA) in 1997.[2] LAWA is an independent, fee supported, self-managing city agency governed by a board of airport commissioners who are appointed by the mayor and confirmed by the city council. LAWA establishes rules and regulations governing the operation its four airports.

In 1930 LAX became the city's first airport. LAWA subsequently acquired the Van Nuys (VNY), Ontario and Palmdale airport properties. LAX and VNY are located within the city's borders. Ontario Airport is located 30 miles east of Los Angeles, within the city of Ontario. The Palmdale Regional Airport is located 35 miles northeast of Los Angeles in the Antelope Valley within the Mojave Desert, near the city of Palmdale. A temporary airport terminal is located on U.S. Air Force property adjacent to the city's 17,750 acre future regional airport site. Pending development of that airport, portions of the site are used for agricultural purposes (pistachio nut and fruit orchards, grazing sheep). The Ontario and Palmdale airports are not discussed in this element.

Los Angeles International Airport (LAX)

LAX is located entirely within the City of Los Angeles. It is situated south of the Santa Monica Mountain range, within the Westchester-Playa del Rey community planning area. It bounds the cities of El Segundo and Inglewood, the county community of Lennox and the Pacific Ocean.

The airport was located in the middle of a bean field. It rapidly expanded until today it occupies an approximately 3,500 acre site. It has four lighted runways ranging from 8,925 feet to 12,090 feet in length, each of which can accommodate wide bodied passenger jet aircraft. A major contributor to the local economy, LAX is the fourth busiest airport in the United States and the world. In 1996 it served 763,866 flights and 58 million passengers and its 98 acre "cargo city" handled over 1.89 million tons of goods, 40 percent of which was international freight. Among the facilities located on LAX property are commercial and light manufacturing uses, the Centinela Hospital Airport Medical Clinic, a U.S. Coast Guard Air Station and a 200 acre El Segundo Blue Butterfly habitat preservation area.

LAX ZONING

The majority of the LAX site is classified in the M2 and M3 (manufacturing) zones, which allow airport uses by right. Commercial, light manufacturing and open space zoning around the perimeter of the site has encouraged development and retention of airport compatible uses, which serve as noise buffers between the airport and adjacent noise sensitive uses. A portion of the zoning within the airport is conditioned to limit types of use and intensity of development in order to reduce street traffic impacts and encourage compatibility with surrounding communities. Parcels along the north (Westchester) perimeter generally are required to secure planning commission or planning department site plan approval prior to issuance of building permits. This allows additional public review and ensures compliance with planning commission policy.

LAX NOISE MANAGEMENT

Following the opening of the airfield in 1928, agricultural lands surrounding the airport gradually were converted to urban uses. When jet aircraft were introduced in 1959, residents, merchants and school authorities began complaining about noise, especially noise associated with landings and takeoffs. A Sound Abatement Coordinating Committee comprised of representatives of the air transport industry, LAWA, FAA, the Airline Pilots Association and commercial carriers was formed in July 1959 to address the noise problem. Subsequently LAWA implemented the committee's recommendation that aircraft be required to maintain a straight departure course, not turning until they were over the Pacific Ocean. But noise complaints continued.

As a result of a legal action by Westchester property owners, LAWA, with the assistance of FAA funds, in 1965 began to acquire and remove more than 2,800 homes that were severely impacted by aircraft noise and to relocate approximately 7,000 residents of the homes. The program was completed in the 1980s with many of the homes relocated as a part of an affordable housing program. Twenty of the vacated homes were used for a sound insulation testing program. The program concluded that homes severely impacted by airport noise could not be adequately insulated at a reasonable cost using materials and techniques then available. The study is one of the most systematic investigations of different methods and materials applied to dwellings. It has been used by federal and other agencies for formulating insulation standards and programs.

To achieve compliance with FAA and state noise regulations, LAWA adopted (1972) a five-point program to reduce aircraft noise and diminish greater than CNEL of 65 dB aircraft noise impacts on surrounding communities. The measures included termination of airport use permits for operators who repeatedly violated LAWA's noise regulations. Nighttime noise impacts on residential areas was reduced in 1973 when LAWA instituted a preferential nighttime runway system and rerouted night landing and departures over the ocean. Fol-

lowing a test flight of the Concorde supersonic airplane to LAX in 1974 all supersonic aircraft were prohibited from using LAX until such time as they could meet LAWA noise standards. A 1,500 foot long concrete and landscaped earthen sound barrier was constructed in 1979 along the north side of LAX between Emerson Avenue and the Westchester Golf Course to mitigate noise impacts on the Westchester community. During the 1970s a lawsuit brought against LAWA by local school districts was settled when LAWA agreed to provide funds for insulation of schools impacted by LAX and the school districts agreed to aviation (overflight) easements.

LAX - FAR PART 150 AND LAWA NOISE COMPATIBILITY PROGRAMS[3]

The major program in the 1980s and 1990s to accomplish greater compatibility between airports and their neighbors was the FAR Part 150 noise compatibility program. In 1981, to qualify for FAR Part 150 funds, LAWA instituted a four-part study, "The LAX-Airport Noise Control Land Use Compatibility Study." The study reevaluated the feasibility of achieving acceptable indoor noise levels, the methods and materials to meet the levels and the costs involved. It established new noise identification and mitigation procedures that could be applied to homes within a CNEL of 65 dB contour. The new procedures included an aircraft noise monitoring system, which was installed to detect nighttime engine testing in maintenance areas, and a 24-hour complaint and information phone line to facilitate processing of and response to community complaints.

The study provided documentation that enables thousands of properties in the LAX noise impact area to quality for noise abatement funds. Representatives of the aviation industry, regulatory agencies and communities impacted by noise participated in the study. They assessed noise management techniques in relation to land use and recommended methods for achieving greater compatibility between LAX and its neighbors. Public hearings and workshops were conducted to help identify the scope of the study and to secure information and ideas. Committees explored different issues including helicopter noise, maintenance operations, nighttime impacts, operations of aircraft in flight and on the ground and community specific issues. Using advanced modeling techniques, airfield and aircraft operational strategies were evaluated for both noise reduction and safety. In addition, homeowners in noise impacted communities were invited to participate in a "validation" project to test noise insulation materials and methods. Of the 243 dwellings offer by owners for sound insulation testing, seven apartment buildings and 15 single-family dwellings were selected. Residents were interviewed to determine the effectiveness of insulation techniques and materials.

Data from the study resulted in establishment of geographic boundaries within which impacted jurisdictions and properties could qualify to participate in the FAR Part 150 program. The study provided the information needed to qualify and establish prioritization of properties and jurisdictions for FAR Part 150 funding and led LAWA, in 1987, to establish its own sound insulation funding program to supplement federal funding. Other noise monitoring and reduction benefits resulting from the study include: an ongoing dialogue between the community and airport authority; revision of flight and on-ground aircraft and maintenance operational procedures; acceleration of planning and redevelopment programs to reduce incompatible land uses in surrounding jurisdictions; enactment by LAWA of a requirement that aircraft using the Imperial Boulevard terminal (near the city of El Segundo) be towed between the airfield and the terminal; installation of auxiliary power units at all aircraft parking locations so that aircraft would not have to run their engines in order to maintain air conditioning levels within the aircraft between flights; proposals for redesign of runways, including a plan for maximizing use of interior runways so as to focus noise away from adjacent communities; reaffirmation of LAWA's prohibition of supersonic aircraft from use of LAX; establishment of procedures for improved pilot education concern-

ing flight noise management procedures and new helicopter noise abatement (including requiring a 2,000 foot flight altitude); construction of additional sound barriers in Westchester and El Segundo; and a determination that recent advances in acoustical and thermal insulation materials and techniques had made retrofitting a viable alternative for some noise impacted areas and uses.

LAWA sound insulation funds were made available in 1987 to impacted jurisdictions (Los Angeles city and county, Inglewood and El Segundo). To qualify for LAWA funds a local jurisdiction must be a participant in the FAR Part 150 program. Funding for both the FAR Part 150 and LAWA programs has been expanded to accelerate noise management efforts. An estimated 29,041 uninsulated dwelling units lie within the LAX CNEL of 65 dB noise exposure area (approximately 20,051 multifamily and 8,990 single-family residential units). It is estimated that, by the year 2010, LAWA will spend approximately $245 million to soundproof more than 21,000 dwelling units and $220 million for purchase (for conversion) of incompatible uses. As of 1996, the city of Inglewood had been allocated $8 million to convert noise impacted residential properties to airport compatible uses and school districts had been allocated $21 million for sound insulation.

Between 1981 and 1996 the LAX CNEL of 70 dB noise exposure contour area had shrunk from 2.6-square miles to one-square mile, while the CNEL of 65 dB contour remained at around three-square miles. Noise impacts on surrounding communities were significantly reduced by 1986, primarily due to the phasing out of all Stage 1 aircraft, the noisiest aircraft. Virtually all Stage 2 aircraft were phased out by 1996 and all will be phased out by the year 2000.

LAWA is preparing an exterior sound transmission control ordinance to codify noise exposure contours and establish uniform procedures and requirements for sound insulation of new and existing noise sensitive uses, as defined by the California Airport Noise Standards, based on the contours. LAWA also is continuing its efforts to work with the FAA and pilots to further reduce noise impacts through flight techniques and practices. For example, a LAWA-FAA instrument based procedure recently was developed that enables pilots to readily identify the Pacific shoreline. This enables them to maintain flight paths and turning patterns that are less likely to impact the El Segundo and Playa del Rey communities.

LAX - COMMUNITY PLAN NOISE ISSUES

In spite of all these efforts, airport related noise continues to impact surrounding communities, including the Los Angeles city communities of Westchester-Playa del Rey and South Central, the cities of Inglewood and El Segundo and unincorporated areas of Los Angeles County, especially the community of Lennox. Each jurisdiction is addressing the issue of airport noise compatibility through its general planning and noise management programs.

LAX is located within the community of Westchester. To facilitate preparation of plans for LAX, the airport property was removed from the Westchester-Playa del Rey community plan. In acknowledgment of this action, Objective 7 of the 1974 Westchester-Playa del Rey District Plan calls for coordination of airport and airport related land uses to "provide adequate buffers and transitional uses" between LAX and the community.

LAX PLAN

LAWA is preparing a airport master plan that addresses the first major expansion of LAX since 1984. It will become a part of the city's general plan and, therefore, will be considered for approval and/or adoption by the planning commission, mayor and city council, following public hearings. The primary goal of the plan is to reduce noise impacts on adjacent communities, especially residential neighborhoods, while enabling significant expansion of airport activity. The project also will address ground traffic impacts (both noise and circulation) on surrounding communities. Noise has been a major issue in the project discussions.

Van Nuys Airport (VNY)

Van Nuys Airport is owned and operated by LAWA. It is located wholly within the City of Los Angeles. It is known by its FAA identifier "VNY." VNY is situated in the center of the San Fernando Valley, north of the Santa Monica Mountain range, within the community of West Van Nuys and at the edges of the community plan areas of Mission Hills-Panorama City and Van Nuys-North Sherman Oaks. VNY is a 730-acre general aviation airport (no scheduled air carrier services). It has two lighted runways. The 8,000 foot long runway crosses Sherman Way boulevard via an overpass and can accommodate jet aircraft of up to 210,000 pounds. The 4,000 foot runway can accommodate aircraft of up to 14,000 pounds. In 1996 VNY was the busiest general aviation airport in the world and the seventh busiest civilian airport in the nation, handling over 526,433 annual flights and serving 750 based aircraft (those that lease space at the airport). In addition to airport related uses, VNY property contains a hotel, nine-hole golf course, restaurants, agricultural uses and an office supplies store.

VNY ZONING

The majority of the airport property is classified in the [Q]M2-1VL Zone. The [Q] 'Permanent Qualified' condition limits land use on specified sites to airport and airport related uses. The 1VL Height District designation limits structures to 45-feet in height. Less than 16 acres of the property is classified in the M1 and M2 (light manufacturing) zones. The remaining 59 acres lie within the airport overfly (hazard) area and are classified in the OS-1XL (open space) and A1-1XL (agricultural) zones with structures limited to 30 feet in height by the 1XL Height District classification.

Pending completion of the VNY master plan, the city council in 1993 imposed a two-year interim control ordinance to regulate airport land use changes. Subsequently the time period was extended. The ordinance requires planning department authorization for virtually all changes in use. This is to ensure that new uses will not significantly intensify airport activity, that they will be compatible with the surrounding neighborhood and that they will not preclude airport master plan actions.

VNY NOISE MANAGEMENT[4]

From 1949, when LAWA acquired the airport, to 1971, additional acquisitions led to airport expansion and enabled establishment of peripheral airport related uses to buffer airport noise from adjacent residential neighborhoods. However, continuing complaints from neighboring communities regarding noise, especially during the nighttime hours, prompted the city council in 1981 to adopt a noise abatement and curfew law (Ordinance 155,727). The ordinance prohibited airplanes that exceeded 74 dB from taking off from VNY between the hours of 11 p.m. and 7 a.m. (except as provided by the ordinance, e.g., military aircraft and in the event of an emergency); prohibited repetitive jet pattern flying and training operations; limited propeller driven aircraft activities, engine testing and use of certain runways during nighttime hours; and established penalties for ordinance violations. Fixed-wing aircraft operators subsequently were required to sign a "Quiet Jet Departure Program" agreement. The agreement required pilots to observe flight techniques and procedures designed to reduce noise impacts on surrounding communities, e.g., modification of hours and patterns for landings and departures. With the passage of the federal Airport Noise and Capacity Act of 1990, local governments and airports were prohibited from adopting new noise restrictions without obtaining authorization from the FAA. However the Act grandfathered existing local noise ordinances, including the VNY noise abatement ordinance.

In October 1982, LAWA prohibited scheduled commercial air carrier flights from using VNY. In 1985, in response to community concerns regarding potential airport acquisitions, expansion, safety and noise, LAWA established the VNY citizens advisory council to help assess community concerns and develop noise management strategies. In 1992 it prepared the VNY Part 150 program with the assistance of a steering

committee, which included community representatives. It was not accepted by the FAA because the FAA deemed that the airport noise exposure maps, upon which the program was based, were unacceptable.

Voluntary modified takeoff procedures were requested of jet aircraft by LAWA in 1993 to reduce noise and enable an assessment of the effects of such measures on noise impacts. In 1994 noise monitoring was improved to provide more accurate noise contours on which to base the FAR Part 150 noise compatibility program. By 1996, VNY and FAA noise management strategies, including acquisition of land for airport related uses and phasing out of Stage 1 (the noisiest aircraft), had reduced the CNEL of 65 dB contour to an area almost entirely within the airport boundaries and surrounding industrial properties (Exhibit C). A new FAR Part 150 Steering Committee was established in 1996 to advise LAWA concerning noise issues and to recommend abatement measures.

From 1995 to 1998, in response to continuing complaints from neighbors about noise, LAWA enacted a series of noise management policies, all of which required approval of the FAA before they could be incorporated into the VNY noise abatement ordinance. These included prohibiting issuance of additional leases for Stage 2 based aircraft (July 1995), extending the curfew from 11 p.m. to 10 p.m. (May 1996) and requesting permission to apply the curfew to helicopters (March 1997). The curfew limitations and the nonaddition rule for aircraft with a noise emission level of over 77 dBA (calculated using FAA Advisory Circular No. 36-3) were authorized by the FAA in August 1997. FAA ruled that any proposed new helicopter restrictions must comply with FAR Part 161, following environmental review processes and public hearings, consistent with federal procedures. The new curfew was incorporated into the VNY noise abatement ordinance and became effective in February 1998. The nonaddition rule was under consideration by city decision makers in 1998.

VNY - COMMUNITY PLAN NOISE ISSUES

Some noise from VNY impacts adjacent communities located within the general plan community planning areas of Reseda-West Van Nuys, Mission Hills-Panorama City-Sepulveda and Van Nuys-North Sherman Oaks. The majority of the VNY is located within the Reseda-West Van Nuys community plan area. The plan was adopted in 1986. Its policies call for all new development within VNY to be accomplished under conditional use permit. This enables the planning commission and city council, on appeal, to review use change requests and, if approved, to impose conditions, including noise impact mitigation measures. The community plan designates 650 acres of the plan area for industrial use, most of which is located within or around VNY. The industrial uses provide buffers between the airport and adjacent residential neighborhoods. Some residential uses still exist within the noise contour area. The community plan was being updated in 1998.

The Mission Hills-Panorama City-Sepulveda and Van Nuys-North Sherman Oaks community plans for several decades have designated land immediately adjacent to VNY for industrial uses. By the late 1980s incompatible uses generally had been phased out and an industrial buffer had been created adjacent to the southern and northwestern portions of VNY. Both community plans were being revised in 1998.

VNY PLAN

A master plan for VNY was being prepared by LAWA, in coordination with the VNY citizens' advisory council and other affected and interested parties, in 1998. The master plan will become a part of the city's general plan and, therefore, will be considered for approval and/or adoption by the planning commission, mayor and city council following public hearings. The FAA also must approve the plan. The primary goals of the planning effort are to reconfigure on-site airport land use and modify airport use to make VNY more economically viable while at the same time reducing im-

pacts on adjacent communities. Noise from current as well as potential future airport activities was a major issue in the master plan discussions which were taking place in 1997-98.

Burbank-Glendale-Pasadena Airport (BUR)

The Burbank-Glendale-Pasadena Airport, commonly known as the Burbank Airport and by its FAA identifier "BUR," is not within the jurisdiction of the City of Los Angeles, although a small portion of the airport is located within the city. It is owned and operated by the Burbank-Glendale-Pasadena Airport Authority, which is independent of the three cities for which it is named. Each of the cities appoints representatives to the Authority's board of directors.

BUR is located primarily within the City of Burbank, north of the Santa Monica Mountains. Small portions of BUR are located within the Los Angeles communities of Sun Valley and North Hollywood. The most westerly portion of BUR bounds the Los Angeles planning area of North Hollywood. In 1996, BUR occupied a 480-acre site and had two lighted runways in excess of 6,000 feet in length and capable of supporting 240,000 pound jets. It served over 59,000 passenger air carrier flights with nearly 5 million annual passengers, as well as over 125,000 flights by other types of aircraft (air taxi, cargo, business, private flights and a small number of military flights).

BUR NOISE MANAGEMENT[5]

When the Authority purchased BUR in 1978, incompatible uses within a CNEL of 70 dB noise impact contour totaled 385 acres. At that time, BUR was not a designated "noise problem" airport. However, the FAA and state encouraged civilian airports to reduce airport related noise impacts within their CNEL of 70 dB noise contour areas through such means as changes in land use, installation of sound insulation and changes in airport operations. To achieve this goal, the Authority in 1981 required commercial airlines to phase out their Stage 1 and Stage 2 aircraft and to operate only Stage 3 aircraft, the quietest jet air passenger carriers, by 1989. It also prohibited departures and landings of all general aviation Stage 1 and Stage 2 jet aircraft between the hours of 10 p.m. and 7 a.m. Scheduled air carriers were asked to comply voluntarily with the curfew. Most of the carriers voluntarily complied. Stage 3, freight and other private aircraft did not come under the mandatory or voluntary restrictions. The goal of only-Stage 3 passenger carriers operating at BUR was achieved ahead of schedule, in 1987.

Due to these measures, by 1986 only 83 acres of impacted land (residential and other noise sensitive uses) remained within a CNEL of 70 dB noise contour area. In 1986 the Division of Aeronautics (later called Caltrans Aeronautics Program) changed its noise impact measurement standard from a CNEL of 70 dB to a CNEL of 65 dB. This resulted in an increase in the impact area to 446 acres. By 1994, noise management measures had reduced the number of scheduled commercial airline flights to approximately a dozen during nighttime hours, with only three occurring after 6:30 p.m. In addition to the noise reduction measures, between 1985 and 1996 the total flights associated with BUR declined from 246,000 to 184,000, further reducing noise impacts. By 1996, the impacted area within a CNEL of 65 dB contour had been reduced to 373 acres.

In 1985 the Authority began preparation of its FAR Part 150 noise compatibility program. The FAA approved the program in 1989 and allocated funds that enabled soundproofing of four schools of which two were located within the City of Los Angeles. Within the CNEL of 65 dB noise contour area (Exhibit D) approximately 2,300 dwellings within Los Angeles and Burbank could be eligible for grant assistance, depending upon the availability of money from the Federal Aviation Trust Fund. In 1997 funding became available and was offered for soundproofing of 50 homes.

BUR - COMMUNITY PLAN NOISE ISSUES

In spite of all these efforts, noise from aircraft activity continued to impact Burbank and the Los Angeles community planning areas of Sun Valley,

North Hollywood and the Van Nuys-North Sherman Oaks. Plans for the three planning areas generally designate land immediately adjacent to BUR for industrial uses. By the mid-1980s most of those lands had been improved with industrial uses, thereby creating buffers adjacent to the airport. In addition, revisions to the community plans between 1979 and 1996 called for additional mitigation measures to reduce noise impacts.

BUR PLAN

A final environmental impact report (EIR) for land acquisition and a BUR replacement passenger terminal was approved by the Authority in 1993. The proposed project included acquisition by the Authority of 130 acres of land for construction of a new passenger terminal and conversion of the existing terminal site to airfield related uses. The new terminal site was selected in order to meet FAA terminal and runway separation requirements. The FAA, for safety reasons, requires that a terminal not be closer than 750 feet from the center line of an active air carrier runway. The current terminal is within the runway hazard zone.

In 1993 the City of Los Angeles challenged the adequacy of the EIR. The superior court found in favor of Los Angeles and requested that the Authority prepare a supplemental environmental impact report addressing noise impacts associated with BUR's projected increased aircraft activity. The report was prepared and, in 1995, the court found that the EIR met California Environmental Quality Act (CEQA) requirements. Los Angeles appealed the finding. In 1996 the FAA completed its review of the federally required environmental impact statement (EIS) for the project and deemed that it met the National Environmental Policy Act (NEPA) requirements. In 1996 Los Angeles challenged the adequacy of the EIS. It contended that the project was for the entire airport and would result in increased airport activity and increased impacts on noise sensitive uses within the City of Los Angeles, as indicated on the project's EIS 2010 projected noise contour map (Exhibit D). The Authority contended that the project was for the terminal only and that the increase in flight activity would occur whether or not a new terminal was constructed. Lawsuits also were filed between the Authority and City of Burbank over jurisdictional, noise and other matters. In March 1998 a federal court of appeals upheld the EIS. Other litigation was pending in 1998.

Santa Monica Airport (SMO)

Santa Monica Airport, known by its FAA identifier "SMO," was established in 1919. It is the oldest continuously operated airfield in Los Angeles County. SMO is a general aviation airport (no scheduled air carriers) that is owned and operated by the City of Santa Monica and is located entirely within that city. The site is south of the Santa Monica Mountains, east of the Pacific Ocean and a few miles north of LAX. It adjoins the Los Angeles community planning areas of Venice and Palms-Mar Vista-Del Rey. The 225 acre site has a single 5,000 foot lighted runway that is capable of handling aircraft of up to 105,000 pounds. In 1994 SMO served approximately 550 based aircraft and handled over 208,000 flights annually. It has a capacity for 750 based aircraft. In addition to airport related activities, the site contains conference and meeting facilities and a large aircraft museum that displays vintage, corporate and recreational aircraft.

SMO - COMMUNITY PLAN NOISE ISSUES

In the 1990s, noise from SMO activities was not identified as a significant planning issue by either the Venice or Palms-Mar Vista-Del Rey community plans. The Penmar Golf Course in Venice adjoins SMO at the northeast boundary of the plan area, providing a partial buffer at the west end of the SMO runway. The golf course significantly mitigates noise impacts on Venice. The 1997 revised Palms-Mar Vista-Del Rey plan designates an area between SMO and Centinela Avenue for low density residential use. Footnote No. 4 indicates that the land should not be developed with residential uses as long as the airport is in operation. A portion of the area is developed with residential uses, the remainder with developed with airport related uses.

Until the 1960s SMO primarily served as a testing field for the Douglas Aircraft Company. When the company moved its operations to Long Beach, SMO expanded its operations. By 1966 it rivaled VNY as the busiest general aviation airport in the nation, reaching a peak of 374,000 flights.

With the expansion of SMO and introduction of jet aircraft in the 1960s neighbors began to complain about noise. During the 1970s the volume of flights continued to increase, as did complaints from Santa Monica and Los Angeles neighborhoods that were under or adjacent to the SMO flight paths.

Several lawsuits were filed. The courts determined that the City of Santa Monica had an obligation to take reasonable actions to abate noise impacts. In 1982 the U.S. Department of Justice advised Santa Monica that it intended to file suit, contending that Santa Monica was in violation of federal law and contracts relating to SMO operations. Santa Monica responded that it was obligated to continue airport operations in order to comply with legal commitments to the United States. As part of a preagreement, Santa Monica in 1983 adopted a revised airport master plan and noise ordinance. The ordinance included limitation of flight departures and engine start-ups to weekdays between 7 a.m. and 11 p.m. and weekends between 8 a.m. and 11 p.m. (except for emergencies), limitation of touch-and-go pattern flying operations to daytime and nonholiday hours, prohibition of all aircraft deemed unable to meet a 95 dBA (single-event noise exposure level) standard and prohibition of use of SMO for helicopter flight training. The ordinance set criminal penalties for violations. A 1984 negotiated settlement between Santa Monica and the FAA provided for SMO to operate through July 1, 2015, under certain conditions.

Provisions of the settlement included conditions that were incorporated into the Santa Monica noise ordinance (restrictions, standards and penalties), required SMO to establish aircraft noise abatement procedures and incorporated features of the new master plan (e.g., runway realignment, relocation of noise generating activities and designation of a heliport site). A main feature of the master plan was relocation of airport uses from the south (adjacent to Los Angeles) to the north side of SMO, creation of buffer zones by converting the southeast (adjacent to Los Angeles) portion of SMO to airport oriented uses (a business park) and converting other land to park and nonresidential uses. Flight patterns were established to contain noise within SMO and the Penmar Golf Course (Exhibit E). In 1990 the final phase of the master plan was implemented by the completion of the business park. Although the federal Airport Noise Capacity Act of 1990 prohibited local authorities from adopting new noise restrictions without obtaining permission from the FAA, it grandfathered existing ordinances, including the 1983 SMO noise ordinance.

In the early 1990s over $6 million in local and federal funds was expended on noise reduction measures, including construction of noise walls. Noise abatement procedures incorporating provisions of the noise ordinance and settlement were provided to aircraft operators and were revised periodically to improve noise abatement and reflect new technology and safety considerations. Procedures included restricted flight operation hours, a minimum altitude of 900 feet over the SMO vicinity for helicopters, compliance with other SMO-FAA established helicopter noise abatement procedures and specific landing and departure routes over the golf course and adjacent freeways. Operators were urged to observe additional voluntary procedures, including increased altitude for landing and departure patterns.

Noise impacts on properties within the Los Angeles and Santa Monica generally were mitigated by the various measures that were implemented following the 1984 settlement. A greater than CNEL of 65 dB noise contour generally is retained within SMO boundaries and adjacent public, industrial and commercial areas.

Whiteman Airport

Whiteman Airport has been owned and operated by the County of Los Angeles since 1970. It is located entirely within the City of Los Angeles community of Pacoima, in the north San Fernando Valley. The 184.4-acre, general aviation airport has one lighted 4,100 foot long runway that is capable of handling aircraft of up to 12,000 pounds. Whiteman primarily serves single engine, fixed-wing, propeller driven aircraft. In 1995 it served 551 based aircraft and handled over 88,000 flights.

WHITEMAN NOISE MANAGEMENT

Noise has not been a major issue relative to Whiteman. This is largely due to the fact that the majority of aircraft operations occur during daytime hours and only propeller (not jet) aircraft use the site. Noise impacts generally are contained within the airport boundaries or adjacent industrial, open space or public lands (Exhibit F).

Much of the airport is separated from residential uses by industrial, open space or public uses. The open space and public uses include county flood control and associated recreational facilities, a county communications center and a county regional fire department headquarters (including a heliport). Hilly terrain to the north of the runway provides a natural buffer.

From the 1970s to the 1990s the economic recession contributed to a reduction in airport activity and concomitant reduction in airport related noise. Flights decreased from 140,900 flights in 1989 to 88,000 in 1995. Based aircraft decreased from 655 in the 1970s to 551 in 1995. The 1991 airport master plan indicates a projected increase to 285,000 annual flights and 930 based aircraft by the year 2010. The increase was taken into account during the updating of the Arleta-Pacoima community plan and airport rezoning (1996).

WHITEMAN - ZONING AND COMMUNITY PLAN LAND CLASSIFICATION

Even though a county can preempt municipal land use law, the county worked closely with the city planning department and neighbors during the Arelta-Pacoima community plan updating project. The county supported rezoning of airport parcels so as to emphasize its desire to maintain the airport in a low intensity use and to provide land use buffers between the community and airport uses. Concurrent with the adoption of the community plan changes in 1996, the airport site was rezoned. The current zoning is mostly in the PF (public facilities) Zone, which permits continuance of the M2 Zone uses, i.e., airport related uses by right. Portions of the property along the northeast boundary are zoned as OS (open space) and [Q]MR2 (restricted light industrial). The [Q] 'Permanent Qualified' conditions limit uses generally to the MR1 (restricted industrial) Zone and require shielding of lights and other measures to protect adjacent residential uses.

Endnotes

No.	Description
1	The term "heliport" applies to all formal heliport or helistop sites. The FAA requires that all airports provide access for helicopters. Since helicopters may land on airport runways, no formal heliport facilities or locations at airports are required.
2	The official (charter) name of the airport is "Department of Airports." However, throughout this element the agency will be referred by its business name, Los Angeles World Airports (LAWA).
3-5	Detailed descriptions of legislation and programs are contained in the Regulations and Programs section of this chapter.

Chapter III — Goals, Objectives and Policies

The following goals, objectives and policies relate to noise management within the city. The "General Plan Guidelines" issued by the Governor's Office of Planning and Research (1990) advises that a general plan should contain goals, objectives, policies, programs and implementation monitoring. Goals are described as a general setting of direction, objectives as intermediate steps in attaining the goal, policies as specific guides to decision making and programs as specific means of achieving the policies. Each policy is to have at least one corresponding implementation measure.

The programs for the noise element are contained in the Chapter IV program implementation listing. Program numbers are referenced in this chapter after each policy with the notation 'P' followed by the program number.

DEFINITION OF NOISE-SENSITIVE USES: For the purposes of implementation of policies and programs contained herein, the following land uses are deemed "noise sensitive" uses: single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodgings and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves, and parks.

Goal

A city where noise does not reduce the quality of urban life.

Objective 1 (Airports and Harbor)

Reduce airport and harbor related noise impacts.

Policy

1.1 Incompatibility of airports declared by Los Angeles County to be "noise problem airports" (LAX, Van Nuys and Burbank) and land uses shall be reduced to achieve zero incompatible uses within a CNEL of 65 dB airport noise exposure area, as required by the California Department of Transportation pursuant to the California Code of Regulations Title 21, Section 5000, et seq., or any amendment thereto. (**P1** through **P4**)

Objective 2 (Nonairport)

Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses.

Policy

2.2 Enforce and/or implement applicable city, state and federal regulations intended to mitigate proposed noise producing activities, reduce intrusive noise and alleviate noise that is deemed a public nuisance. (**P5** through **P10**)

Objective 3 (Land Use Development)

Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.

Policy

3.1 Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts. (**P11** through **P18**)

Endnotes

No.	Description
6	These standards are consistent with the standards proposed promulgated by the California Department of Health Services and recommended by the Governor's Office and Planning and Research "1990 General Plan Guidelines."

Chapter IV — Implementation

The following programs are intended to implement the policies set forth in Chapter III. All of the programs are ongoing city programs that are funded out of city funds or, as available, from federal, state or other sources.

An asterisk (*) indicates the program lead agency, if any.

DEFINITION OF NOISE-SENSITIVE USES: For the purposes of implementation of policies and programs contained herein, the following land uses are deemed "noise sensitive" uses: single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodgings and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves, and parks.

Airports and Harbor:

P1 Continue to develop and implement noise compatibility ordinances and programs that are designed to abate airport related noise impacts on existing uses, to phase out incompatible uses and to guide the establishment of new uses within a CNEL of 65 dB noise exposure area of the Los Angeles International and Van Nuys airports and within those portions of the city that lie within a CNEL of 65 noise exposure area of the Burbank-Glendale-Pasadena Airport.

Responsible agencies: *Airport, Building and Safety and Planning departments.

P2 Noise abatement, mitigation and compatibility measures shall be incorporated into the city's general plan airport and harbor elements, including, where feasible, sound proofing of impacted sensitive uses, buffering, land use reconfiguration, modification of associated circulation and transportation systems, modification of operational procedures, conversion or phasing out of uses that are incompatible with airport or harbor uses, and/or other measures designed to reduce airport and harbor related noise impacts on adjacent communities.

Responsible agencies: *Airports, *Harbor and *Planning departments.

P3 Continue to incorporate airport and harbor noise compatibility measures into the city's general plan community plan elements for communities that are significantly impacted by airport and harbor related noise, including, where feasible, conversion or phasing out of land uses that are incompatible with airport and harbor uses, reclassification of zones, modification of associated circulation systems and/or other measures designed to reduce airport and harbor related noise impacts on adjacent communities.

Responsible agencies: *Planning, Airports and Harbor departments.

P4 Continue to encourage operators of the Burbank-Glendale-Pasadena, Santa Monica and Whiteman airports to continue implementing and improving noise management measures so as to maintain a CNEL of 65 dB contour within the airport and surrounding compatible use boundaries and so as to maintain or reduce any impacts on noise-sensitive uses located within the City of Los Angeles to a CNEL of 65 dB or lower noise level.

Responsible agencies: City Council and Mayor.

Nonairport:

P5 Continue to enforce, as applicable, city, state and federal regulations intended to abate or eliminate disturbances of the peace and other intrusive noise.

Responsible agencies: Animal Regulation, Building and Safety, Police, and Recreation and Parks departments.

P6 When processing building permits, continue to require appropriate project design and/or insulation measures, in accordance with the California Noise Insulation Standards (Building Code Title 24, Section 3501 et seq.), or any amendments thereto or subsequent related regulations, so as to assure that interior noise levels will not exceed the minimum ambient noise levels, as set forth in the city's noise ordinance (LAMC Section 111 et seq., and any other insulation related code standards or requirements) for a particular zone or noise sensitive use, as defined by the California Noise Insulation Standards.

Responsible agency: Building and Safety Department.

P7 Continue to periodically update city codes and plans that contain noise management provisions so as to address new issues and noise management changes.

Responsible agencies: Animal Regulation, Building and Safety, City Council, Planning, Police, and Recreation and Parks departments.

P8 Continue to periodically update guidelines for California Environmental Quality Act-required land development project review by city agencies.

Responsible agencies: Airports, Community Development, *Environmental Affairs, Harbor, Housing, Planning, Public Works, Recreation and Parks, Transportation, and Water and Power departments and Community Redevelopment Agency.

P9 Continue to operate city equipment, vehicles and facilities in accordance with any applicable city, state or federal regulations.

Responsible agencies: all.

P10 Continue to encourage public transit and rail systems operating within the city's borders, but which are not within the jurisdiction of the city, to be constructed and operated in a manner that will assure compliance with the city's noise ordinance standards.

Responsible agencies: City Council and Mayor.

Land Use Development:

P11 For a proposed development project that is deemed to have a potentially significant noise impact on noise sensitive uses, as defined by this chapter, require mitigation measures, as appropriate, in accordance with California Environmental Quality Act and city procedures.

Examples of mitigation measures to consider:

(a) increase the distance from the noise source and the receptor by providing land use buffers, e.g., parking lots, landscaped setbacks or open areas, utility yards, maintenance facilities, etc.;

(b) orient structures, use berms or sound walls, utilize terrain or use other means to block or deflect noise, provided it is not deflected to other noise-sensitive uses and that the barrier does not create a hiding place for potential criminal activity;

(c) require projects with noise generating components (e.g., auto repair and maintenance facilities) to have no openings in building walls that face sensitive uses;

(d) limit the hours of operation of a noise generating use;

(e) limit the use of the site to prohibit potential noise generating uses that otherwise are allowed by right within the zone classification of the project site;

(f) require that potential noise impacts associated with project construction be minimized by such measures as designating haul routes, requiring less noisy equipment, enclosing or orienting noisy equipment (e.g., electrical generators) away from noise sensitive uses, imposing construction hours that are more restrictive than those set forth in the Los Angeles Municipal Code, requiring vehicle parking and deployment activities to be separated and buffered from sensitive uses; or

(g) determine impacts on noise sensitive uses, such as public school classrooms, which are active primarily during the daytime and evening hours, by weighting the impact measurement to the potential interior noise level (or for exterior uses, e.g., outdoor theaters, to the exterior noise level) over the typical hours of use, instead of using a 24-hour measurement.

(h) other appropriate measures.

Responsible agencies: Airports, Community Development, Environmental Affairs, Harbor, Housing, Planning, Public Works, Recreation and Parks, Transportation, and Water and Power departments and Community Redevelopment Agency.

P12 When issuing discretionary permits for a proposed noise- sensitive use (as defined by this chapter) or a subdivision of four or more detached single-family units and which use is determined to be potentially significantly impacted by existing or proposed noise sources, require mitigation measures, as appropriate, in accordance with procedures set forth in the California Environmental Quality Act so as to achieve an interior noise level of a CNEL of 45 dB, or less, in any habitable room, as required by Los Angeles Municipal Code Section 91.

Examples of mitigation measures to consider:

(a) Impose project orientation and buffering measures similar to those cited in the prior program;

(b) orient the project so as to use structures, terrain or building design features (e.g., windowless walls or nonopening windows facing the noise source) so as to block or reduce noise impacts;

(c) orient interior features of the project to reduce or eliminate noise impacts on particularly noise sensitive portions of the project (e.g., locate bedrooms and balconies away from the noise source);

(d) require insulation and/or design measures, attested to by an acoustical expert, to the satisfaction of the city's Department of Building and Safety, to identify and mitigate potential noise impacts;

(e) determine impacts on noise sensitive uses, such as public school classrooms, which are active primarily during the daytime and evening hours, by weighting the impact measurement to the potential interior noise level (or for exterior uses, e.g., outdoor theaters, to the exterior noise level) over the typical hours of use, instead of using a 24-hour measurement.

(f) other appropriate measures.

Responsible agencies: Planning, Community Development and Housing departments and Community Redevelopment Agency.

P13 Continue to plan, design and construct or oversee construction of public projects, and projects on city owned properties, so as to minimize potential noise impacts on noise

sensitive uses and to maintain or reduce existing ambient noise levels.

Examples of noise management strategies to consider:

(a) site or alignment selection to minimize potential noise incompatibility;

(b) orientation of noise sources away from noise sensitive uses;

(c) placement of structures between noise generators and noise sensitive receptors;

(d) enclosure of noise sources;

(e) erection of sound walls, berms or other noise buffers or deflectors, providing that they do not deflect sound to other noise sensitive uses and that the barrier does not create a hiding place for potential criminal activity;

(f) restricted hours of operation;

(g) modification of noise sources (e.g., utilizing less noisy equipment); or

(h) determine impacts on noise sensitive uses, such as public school classrooms, which are active primarily during the daytime and evening hours, by weighting the impact measurement to the potential interior noise level (or for exterior uses, e.g., outdoor theaters, to the exterior noise level) over the typical hours of use, instead of using a 24-hour measurement.

(i) other appropriate measures.

Responsible agencies: Airport, Community Redevelopment Agency, Harbor, Public Works, Recreation and Parks, Transportation, and Water and Power departments.

P14 Continue to periodically update general plan public facilities and utilities elements, taking into account existing and potential noise impacts.

Responsible agencies: Airport, Harbor, *Planning, Public Works, Recreation and Parks, and Water and Power departments.

P15 Continue to take into consideration, during updating/revision of the city's general plan community plans, noise impacts from freeways, highways, outdoor theaters and other significant noise sources and to incorporate appropriate policies and programs into the plans that will enhance land use compatibility.

Approaches to consider: rezoning, street realignment, site design, recommendations that the mayor and city council request that the California Department of Transportation, or other responsible agencies take reasonable measures to mitigate noise impacts associated with their facilities, etc.

Responsible agency: Planning Department

P16 Use, as appropriate, the "Guidelines for Noise Compatible Land Use" (Exhibit I),[1] or other measures that are acceptable to the city, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter, within a CNEL of 65 dB airport noise exposure areas and within a line-of-sight of freeways, major highways, railroads or truck haul routes.

Responsible agencies: City Council, Mayor and *Planning Department.

P17 Continue to encourage the California Department of Transportation, the Los Angeles County Metropolitan Transportation Authority, or their successors, and other responsible agencies, to plan and construct transportation systems so as to reduce potential noise impacts on adjacent land uses, consistent with the standards and guidelines contained in the noise element.

Responsible agencies: City Council and Mayor.

P18 Continue to support the Alameda corridor

project as a means of consolidating rail lines and improving buffering in order to reduce noise impacts on adjacent communities from railroad related uses.

Responsible agencies: City Council, Harbor, Mayor, Planning, Public Works, and Transportation departments.

Endnotes

No.	Description
6	These standards are consistent with the standards proposed promulgated by the California Department of Health Services and recommended by the Governor's Office and Planning and Research "1990 General Plan Guidelines."

Appendix A *(Not Adopted — Information Only)*
Evolution of Transportation Systems in Los Angeles:
A Context for Los Angeles Noise Issues

Automotive Vehicles

Automobile History

The first gasoline powered automobile was produced by Benz in 1885. It was a three-wheeled carriage that used Gottlieb Daimler's 1885 motorbike engine for power. The next year Daimler designed the first four-wheeled carriage. By the start of World War I a variety of gasoline powered vehicles were being produced, including Henry Ford's Model T. The new "horseless carriages" or "tin Lizzies," as they were popularly called, were scoffed at and criticized for being dangerous to horses and people and noisy nuisances. Mass production of automobiles followed Ford's introduction of assembly lines and moving conveyor belts in 1913. During the First World War inexpensive cars became readily available, rapidly displacing the horse and buggy. By 1920 Los Angeles County had become the most motorized metropolitan area in the nation with over 481,500 registered automobiles.

Los Angeles Street System

On September 4, 1781, under the authority of the King of Spain, Governor Felipe de Neve and eleven families founded el Pueblo de la Reina de los Angeles (the Village of the Queen of the Angels). The pueblo was to provide food for Spanish troops traveling between the missions of San Diego and Santa Barbara. Prior to departure de Neve drew up a plan situating the pueblo along Rio El Porciùncula (later renamed the Los Angeles River) and identifying the locations for a plaza, church, homes, farms, an irrigation system and a road connecting the pueblo with the nearby San Gabriel Mission. The pueblo's first named streets were Primavera (later named Spring) and Aliso streets.

The first Los Angeles city land use survey was prepared by U.S. army lieutenant Edward O.C. Ord in 1849, in anticipation of Los Angeles city becoming a city of the new state of California. It was prepared under contract to the city. The plan established boundaries for city-owned lands, dividing the vacant lands west and north of the central plaza into blocks and lots and with a grid street system. That was the city's first formal street map.

In 1870 the city's first engineer, Frank Lecouvreur prepared the first master plan for development of a Los Angeles infrastructure. His plan separated sewers from flood control systems and reoriented new streets in an east-west direction to facilitate the flow of rain water, thereby reducing flooding.

Introduction of motorized vehicles changed the mode of local transportation and street systems. Private cars began displacing the horse drawn vehicles during World War I, resulting in traffic hazards and vehicle conflicts. To address worsening congestion, increasing conflicts between trolleys and automobiles and a rising number of traffic accidents, especially at intersections, the private Los Angeles Traffic Commission prepared the "Major Traffic Street Plan." The plan was drafted by renowned city planners Frederick Law Olmsted, Jr. (Boston), Charles H. Cheney (Redondo Beach) and Harland Bartholomew (St. Louis), with the assistance of planning commissioner/commission secretary, Gordon Whitnall. Whitnall subsequently was appointed the city's first planning director. The plan was approved by city voters in 1924, along with bond issues to pay for a portion of the first 37.5 mile phase. Railroads and the county provided the balance of the funds. The project in-

cluded the city's first bridges to separate train and automobile traffic. This increased safety and the speed of trains by reducing traffic conflicts. The city's first traffic ordinance also was drafted by the commission. It was adopted in 1925, requiring the city's first standard signs and signals.

Until recent times, establishment and construction of integrated and efficient municipal street systems was sporadic. Local governments had difficulty purchasing or exacting land for street rights-of-way. The state Subdivision Map Act of 1907 provided for dedication of land for public purposes but efforts to secure dedications met with opposition. In 1911 the state Improvement Act empowered local governments to use easements, eminent domain, assessment districts and subdivision procedures to secure streets and other infrastructure systems. To give local jurisdictions more leverage, the Map Act was amended in 1921, enabling cities to require easements for public improvements. However, efforts to exact land were challenged. Dedications continued to be voluntary or were secured through purchase following costly, often lengthy condemnation proceedings. Systematic development of the city's street system was slow until the economic depression of the 1930s.

Following the stock market crash of 1929, private financing for public infrastructure systems dwindled. Los Angeles joined other cities in successfully campaigning for a share of the state gas tax to help complete its 1924 street plan. In 1934 the state allocated a share of the gas tax funds to cities for road projects and authorized the state Division of Highways to build and maintain city roads to link rural state highways and to create a state highway system. Cities were responsible for construction and maintenance of urban streets and highways. Federal and state public works programs provided millions of dollars for construction of streets and bridges during the period of the economic depression.

But, not until 1966 did the city gain significant leverage to exact public improvements in conjunction with land development projects. In a landmark decision, *Southern Pacific Railroad versus the City of Los Angeles*, the California Supreme Court upheld the right of Los Angeles to withhold building permits for noncompliance with public dedication requirements. The decision strengthened the ability of all municipalities to secure public facilities in conjunction with new development. Local authority was further strengthened by the 1971 California Environmental Quality Act that required development projects to mitigate potential environmental impacts associated with a project, including anticipated traffic congestion and noise. The combination of regulations (Map Act, environmental and city) enabled Los Angeles to require developers to dedicate land, construct public improvements or set aside funds for improvements. This resulted in more systematic development of the street systems. By 1996, according to the city's department of transportation, there were 6,440.1 miles of streets within the boundaries of the city, including 59.4 miles of unimproved streets, 1,028.4 miles of primary arterials (major and secondary highways), 584 bridges and 652 at-grade railroad crossings.

State Highways And Freeways

The first public road in California, El Camino Real (The Royal Road), was established in 1769 by Spanish priest-explorer Father Junipero Serra and Spain's governor of California Don Gaspar de Portolá to link the California missions. The missions were constructed approximately one day apart by horseback between San Francisco and San Diego. Following California statehood in 1850, General S.H. Marlette was commissioned to "make plans and suggestions or improvements of navigation, construction of roads, railroads and canals, preservation of forests... and surveys of boundaries of the State and counties." Although the legislature failed to allocate funds, Marlette raised money and began the first survey and construction project in 1855. It established the state's first official road, the Emigrant Wagon Toll Road from Placerville, across the Sierra Nevada Mountains to Nevada. Immi-

grants had come streaming into California following the announcement of the discovery of gold in 1849. By 1864 almost all mountain passes were accessible by toll roads that linked mining camps and immigrant routes to towns and cities. The first traffic count in 1864 was along the Lake Tahoe Wagon Road. It recorded 6,667 footmen, 833 horsemen, 3,164 stage passengers, 5,000 pack animals, 2,564 teams and 4,694 cattle.

In the 1870s the state and federal governments began planning a highway system. It was to link federal and state roads and serve the expanding freight traffic created by the land boom following the gold rush and extension of railroads to and within California. Construction was delegated to counties, which levied tolls to pay for the roads. This resulted in a variety of tolls and a disparate road system. Anticipating the popularity of automotive vehicles, the state created the bureau of highways in 1895. The bureau's 1896 highway plan laid the foundation for the California highway system as it exists today, with many of the routes following early mission and immigrant routes. Construction of the first state highway, Route 1, partially along a Pacific coast mission route from San Juan Capistrano, via Los Angeles and Santa Barbara, to San Francisco, began in 1912. Funding for maintenance and construction of state and county roads was provided by the state's first gas tax, a three-cent tax that was approved in 1923. A 1927 one-cent gas tax assured steady revenue for construction of the state road system. In that year the state Division of Highways (DOH) was created to plan, construct and maintain the highway system.

The first California nontoll highway, or "freeway," was the six-mile Arroyo Seco Parkway (later renamed the Pasadena Freeway). It was completed in 1940, connecting downtown Los Angeles with the adjacent city of Pasadena. After World War II, an infusion of state and federal funds enabled the acceleration of highway construction. By the mid-1960s California had an efficient, integrated highway system. But growing opposition to freeway construction, demands for community participation and environmental protection and a period of economic inflation slowed system expansion. People protested that planned freeways would slice through their communities, creating physical divisions, destroying neighborhoods, contributing to unplanned growth, local traffic congestion and noise. In the 1970s public opposition halted the proposed Century Freeway in south Los Angeles, a proposed Beverly Hills Freeway and other freeways and highways in the Los Angeles area. In 1972, to address shifting priorities, the state legislature established the California Department of Transportation (aka Caltrans) to replace the DOH. Caltrans was charged with the responsibility of planning and implementing a multi-modal transportation system, including over 15,000 miles of state highways and freeways. In 1974 a voter approved tax measure for the first time allowed gas tax funds to be used for non-highway system projects and enabled implementation of an integrated transportation program comprised of a variety of transportation systems (multi-modal system), e.g., roads, highways, bus, light rail, aircraft and other transportation modes.

Until the 1970s noise was not a major consideration in transportation system planning. Although manufacturers long had designed vehicles for reduced interior noise for drivers and passengers. Early in the century municipalities began regulating use of horns on city streets and eventually regulations and standards were developed for regulating engine and tailpipe noise levels. In the 1970s, in response to growing opposition of communities to new freeways and to mitigate potential noise impacts freeway and highway system design incorporated noise reduction features. Concurrently the noise abatement programs were instituted to address noise impacts of existing systems on noise sensitive uses.

Fixed Rail Systems

Railroads

Invention of the high pressure steam engine by Richard Trevithick in 1802 revolutionized land

transportation and led to the steam driven turbine engines that were used to power ships. George Stephenson built the first public steam railroad in England in 1825. This ushered in the era of railroad building around the world. Construction of the first transcontinental railroad in North America was completed on May 10, 1869 when the Central Pacific Railroad tracks were connected to the Union Pacific tracks at Promontory Point, Utah. The route linked Chicago and San Francisco by rail, enabling rapid settlement of the western frontier and stimulating a real estate boom in California that triggered construction of additional railroad lines within the state and to points east. In 1872 Los Angeles voters approved funds to help subsidize construction of a railroad between Los Angeles and San Francisco via the San Joaquin Valley. In 1876 a route from Los Angeles to Texas was completed. Southern Pacific decided to bypass Los Angeles by establishing a freight route from its yards in Colton, fifty miles east of Los Angeles, through the Cajon Pass and Palmdale, along a desert route to New Orleans. As late as 1887 railroad companies considered San Francisco a more viable city than Los Angeles as a destination and connection point for both passenger and freight lines. In that year Santa Fe established a passenger line from Chicago, via Santa Fe, New Mexico, to Los Angeles. In spite of the arduous five day trip, Santa Fe's faster trains, with their elegant Fred Harvey dining cars and Harvey Girls hostesses, helped make the Santa Fe Los Angeles line one of the most popular in the nation and to make Southern California a popular destination point for immigrants and tourists from the eastern and Midwestern United States.

By the end of World War II less polluting electric and diesel engines had replaced steam engines on major lines. But the popularity of automobiles and expansion of the trucking industry, along with rising operational costs and higher fares and freight fees, contributed to a sharp decline in the demand for rail services. Railroad companies shifted their priorities to freight services, cut passenger services and eliminated many passenger routes and operations. By the late 1960s the extinction of passenger and freight trains was predicted.

To save passenger service systems, the federal government began subsidizing designated lines. In the 1970s it established the National Rail Passenger Corporation (aka AMTRAK) as a quasi-public agency to take over operation of national passenger services. Public demand for less environmentally damaging transport and for an alternative to automobile and air transport, combined with AMTRAK's passenger train improvement program and its interfacing of passenger rail connections with bus and air transport, revived the passenger train. Concurrently, many freight rail companies formed, merged with or entered into cooperative relationships with trucking and shipping companies. By the late 1970s freight rail service had been revived by improved, more efficient equipment, especially uniform transferable cargo containers. Containers, designed to be carried by ships, trucks or trains, revolutionized the entire shipping industry.

Freight haul and AMTRAK passenger trains continue to use rail lines that cross the city. The hub for rail operations in Los Angeles is centered around Union Station (adjacent to the city's historic plaza) and the east Los Angeles rail yards. Many of the lines in the area have been in existence since the 1870s, including lines connecting the downtown with the harbor and transcontinental lines. In 1996 Union Station served five weekly or daily transcontinental passenger trains and other trains connecting Los Angeles to San Diego, San Francisco and other cities within California.

First Los Angeles Street Cars

In 1874 Judge Robert M. Widney opened the first Los Angeles street car line. It consisted of a two single open cars drawn by horses along a 2.5 mile single track beginning at the Temple Street and zigzagging down Spring to 6th Street (later extended to the Plaza and San Fernando Street). Other enterprising businessmen quickly developed competing short haul lines. One line, the Main Street and Agricultural Park Railroad, offered 308 lots in what is now Exposition Park to attract passengers. By

1885 few horse drawn cars remained. Most had been replaced by cable cars. Electric powered streetcars were introduced in 1887 by Los Angeles Electric Railway. The line went out of business in 1888 when the power plant boiler burst. In 1888 construction in Boston by Frank J. Sprague of first successful electric street car system revolutionized local transportation. Sprague's electrified trolley trains could climb steeper grades, travel faster and, because they could pull multi-cars guided by one motorman, could operate more cheaply and efficiently than conventional street cars.

Between 1890 and 1910 the city's population grew more than sixfold, from 50,395 to 319,198, fostering a period of intense competition between the street car companies. Lines were built, damaged by floods, rebuilt, bought by competitors and expanded. In 1893 General Moses H. Sherman bought out all the Los Angeles cable lines and began converting them to electrical power. Sherman was bought out by Los Angeles Consolidated Electric Railway (LACE) in 1895. In that year LACE inaugurated the first interurban trolley line. It ran between Los Angeles and Pasadena. LACE converted its remaining cable and horse car lines to electric trolley and installed handsome Pullman Company open sided cars. Although its California Car was popular, the company was unable to show a substantial profit.

Trolley competition was intense. By 1900 an estimated 72 separate trolley companies were operating in the city, carrying passengers and goods. In 1898 Henry E. Huntington, nephew of Southern Pacific railroad owner Hollis Huntington, purchased LACE and began buying up other lines throughout the region. He wanted to develop an interurban system that would compete with his uncle's company. He also was head of the Pacific Light and Power Company, which constructed the Big Creek hydroelectric plant in the Sierra Nevada Mountains in central California to power his Los Angeles Inter-Urban Railway system (L.A. Rail). As a direct challenge to Southern Pacific, he ran some of the L.A. Rail lines parallel to Southern Pacific lines, including the Los Angeles to Long Beach harbor line that opened in 1902. To encourage ridership, he hired engineers to design a new high quality, all-season wooden car with glass windows. The handsome yellow cars built by St. Louis Car Company were popular and set a national standard. Patrons dubbed them the "big yellow cars." In 1903, E. H. Harriman bought a 45% interest in L.A. Rail, eventually taking over management of the Pacific Electric Company (P&E), owner of L.A. Rail. Harriman oversaw the development of Huntington's extensive interurban P&E L.A. Rail system. The system soon was challenged by the versatile gas fueled automobiles. By 1913 the public was complaining that the P&E trolleys were crowded and noisy (compared to rubber tired vehicles), that fares were excessively high, stops inconvenient and that the trolleys were a hazard to automobiles and other vehicles.

Competition And Noise Issues

Jitneys posed the first formidable challenge to P&E's trolleys. Eager citizens purchased automobiles and entered the jitney business, providing flexible service and flexible routes with which the fixed rail system could not compete. By 1915 an estimated 1,000 jitneys plied the city's streets, drastically reducing trolley ridership. P&E reduced fares and lobbied successfully for jitney licensing and regulation, temporarily slowing jitney competition, but not affecting the public's desire for more flexible service.

Future U.S. Senator and 1924 presidential candidate William McAdoo introduced the city's first gasoline fueled buses in 1923, the People's Motor Bus Company. But Harold Huntington, who had taken over the rail company from his father, took Motor Bus to court, driving them out of business with his claim that buses were hazardous. But other bus companies were formed, again causing trolley ridership to drop. The public outcry against the noisy trolleys and their hazardous conflicts with automobiles on narrow streets and at unregulated intersections led to the adoption of the city's first

street (1924) and traffic signal plans (1925) and to construction of grade separated bridge overpasses. P&E continued to add lines. Its big yellow cars experienced a resurgence in the popularity during the economic depression of the 1930s, reaching a peak of 721 operating cars in 1932. But, with an upsurge in the economy and expansion of automobile use, ridership began to decline. To stimulate ridership, P&E in 1937 ordered new, more comfortable, streamlined, stainless steel and chrome cars and painted them red. Only two were delivered before war industry needs intervened, postponing completion of the order until 1943. The shiny new cars were dubbed the "big red cars."

At 1,164 miles of track, serving 125 cities, the P&E system was the largest electric rail system in the world. Its lines emanated from Los Angeles, reaching to Santa Monica and Ventura County (west), Redlands in San Bernardino County (east) and Riverside, Corona and Newport Beach in Riverside and Orange counties (south). The busiest year for the big red cars was in 1945 when thousands of servicemen returned from the war seeking employment opportunity in Southern California. But the era of the trolleys soon was over. Rapid population and economic expansion in all of Southern California, along with construction of the first freeways and increased automobile use created too much competition for P&E. To cut its losses the company in 1946 began eliminating short shuttle lines. Diesel powered, rubber tired buses that could operate on any street further eroded the appeal of the trolleys. The Los Angeles to Long Beach line was converted from yellow cars to red cars in 1960. By then the trolley era was over. P&E continued to close lines until only the Long Beach line remained. It was closed on March 30, 1963, temporarily ending the Los Angeles commuter rail era.

First Los Angeles Subway

A 100 mile per hour elevated, electric powered monorail was proposed by the American Rapid Transit Company in 1907. The company envisioned that the line would run from Pasadena to Santa Monica. The idea did not get beyond the planning stage.

Henry Huntington envisioned a subway system and made it a reality. He purchased the rights-of-way from 4th and Hill Streets to what is now Pico Boulevard and Rimpau Avenue. In 1907 the city council approved Huntington's subway project. By 1909 the Bunker Hill tunnel for the system had been completed. Further work was halted by an economic recession.

To address increasing conflicts between the growing automobile population and the trolley system, a 1915 study for the city proposed construction of either a subway or an elevated system. It strongly recommended a subway, so as to avoid the noise and unsightliness of elevated systems like those that had been or were under construction in New York, Chicago, Philadelphia and Boston.

In 1923, the California Railroad Commission voted to allow Huntington to increase trolley fares if he would construct an underground railroad as a means of reducing trolley and auto conflicts and potential noise. Within two years Huntington inaugurated the first Los Angeles subway, the Hollywood Subway. It had two tracks, each less than a mile in length. It ran from the new subway terminal building at Hill Street (between 4th and 5th Streets), through Crown Hill to Glendale and Beverly Boulevard near First Street. There it emerged as street trolley lines, one serving West Los Angeles and the other serving Echo Park and the cities of Glendale and, eventually, Burbank. The Beverly tunnel was used by P&E until 1955 when the Glendale-Burbank line was discontinued. The Terminal Building and the tunnel still exist as reminders of Huntington's visionary effort.

Construction of an elevated ('El') line from 6th and Main Streets to the Los Angeles River near the city's birthplace, the historic plaza, was begun in 1923. It was halted when the powerful Los Angeles Times newspaper opposed the project. The Times portrayed the El as a "dirty, deafening and hideous" contraption that would destroy the visual appear-

ance of the historic plaza and surrounding environs. To settle the issue, the city council placed two referenda on the May 1926 ballot. Proposition 8, which would have provided funding for the El, was defeated. Proposition 9, backed by the Times, was approved. It endorsed construction of a train station east of the plaza, on the site of Old Chinatown. Union Station opened in 1939.

New Fixed Rail Systems

Various measures were proposed over the next several decades for new commuter train systems but all were defeated, partially due to claims that surface and overhead systems would be noisy and unsightly. In 1959 the Metropolitan Transit Authority (MTA), a regional agency created by the state to evaluate metropolitan transit needs, proposed a new subway system from downtown Los Angeles, running east to the city of El Monte. The idea was rejected by the voters. MTA was reconstituted by the state legislature in 1964 as the Southern California Rapid Transit District (RTD). RTD was charged with the responsibility of planning, constructing and operating a regional public transit system. The system selected was a regional bus system which became one of the largest all-bus systems in the world.

Increasing congestion on highways and a heightening of interest in environmental quality, especially air quality, prompted the state legislature, in 1972, to reconstitute its transportation and highway functions into a new agency, the California Department of Transportation (Caltrans). Caltrans was directed to reduce public dependence on the air polluting, gas guzzling automobile by developing an integrated multi-modal transportation system including buses, fixed rail and aeronautics. Voters in 1974 approved a ballot measure authorizing use of gas tax monies for transportation projects other than highways and freeways. In that same year the federal Urban Mass Transit Administration allocated funds for multimodal regional transit systems. Funds allocated to the RTD enabled preparation of alternative plans for potential rapid transit fixed rail routes.

New Subway And Light Rail Systems

In 1980 Los Angeles County voters approved Proposition A, establishing the county's first tax specifically intended to fund public transportation. The half-cent sales tax was allocated for planning and implementation of a multi-modal county transportation system, including a 150-mile rail system. Additional funds from federal, state, local and private sources, including voter supported bond measures and, in 1990, a second county sales tax, enabled system implementation.

Three new mass transit systems evolved from the initial funding: (1) an urban subway system within the boundaries of the City of Los Angeles, (2) a light rail system within the county and (3) a regional commuter train system. They were designed to interconnect with each other, with bus and shuttle lines and with airport and long distance Amtrak passenger train facilities.

To better integrate planning and management of the vast system, the state in 1992 established the Los Angeles County Metropolitan Transportation Authority (MTA), consolidating the RTD and Los Angeles County Transportation Commission (LACTC). The RTD had been responsible for operating the bus and rail systems, constructing the subway system and operating the new light rail and subway systems. The LACTC had been responsible for constructing new light rail systems. The new MTA began operating on April 1, 1993.

The MTA opened its first Metro Rail Red Line subway in 1993. It was a four-mile line between Union Station (downtown) and Alvarado Street at Wilshire Boulevard (Westlake community). It was extended to Western Avenue at Wilshire (mid-city Wilshire community) in 1996. Another segment is under construction to the Los Angeles community of North Hollywood and others are being planned to serve east and west Los Angeles.

The MTA's Metro Rail Blue Line light rail system between the Los Angeles downtown and the city of Long Beach opened in 1990. In 1991 it was

extended to MTA's subterranean rail station at Flower and Seventh Streets in the city's downtown financial district. The station serves as a transfer point for the subway and Blue Line. The 20-mile east-west Metro Rail Green Line light rail system opened in 1995. Partially to reduce noise impacts, it is constructed largely within the median of the I-105 Glenn Anderson Freeway (formerly the Century Freeway). It runs from the city of Norwalk (east) to Aviation Boulevard, near the Los Angeles International Airport (west), where it becomes a grade-separated system, continuing along a 3.5 mile route to the city of Redondo Beach. Another light rail line is under construction from Union Station to the city of Pasadena.

New Interurban Trains

Concurrently with the development of the subway and light rail systems, the Southern California Regional Rail Authority established the Metrolink regional commuter train system. Metrolink quickly became operational because it used existing rail rights-of-way, thereby eliminating the need to acquire land and construct extensive rail systems. The first Los Angeles line opened in 1990, following purchase of Southern Pacific Railroad rights-of-way along a route roughly paralleling the Pacific Coast, from Union Station to San Juan Capistrano in Orange County. Metrolink lines between Los Angeles and Moorpark (Ventura County), Santa Clarita (Los Angeles County) and Pomona (San Bernardino County) opened in 1992.

Metrolink trains primarily serve commuters, thereby avoiding competition with Amtrak. They operate during weekday peak hours, with some trains operating on Saturday and midday. All Metrolink lines for southern California emanate from Union Station. Today Metrolink serves six southern California counties: Los Angeles, Ventura, San Bernardino, Orange, Riverside and San Diego. It is interconnected with other transit systems throughout the region. During the January 17, 1994 Northridge earthquake, when several freeways collapsed or were structurally damaged. Emergency expansions of Metrolink provided commuter access from Palmdale-Lancaster and other communities north of Los Angeles to areas south of the damaged freeways.

In 1997, in response to a federal mandate that Amtrak recover costs from the fare box or other means to pay for passenger lines, intrastate Amtrak lines were threatened with future closure. In response, regional coalitions were formed to devise means of assuming responsibility for lines serving their regions, including adding lines to the Metrolink system.

Train And Trolley Noise Issues

In the 1800s and the early part of the 20th century, railroad lines were built through expanses of virgin, agricultural and ranch lands. As the population and economy grew, manufacturing uses were established along the majority of rail routes within Los Angeles. Street cars serviced residential and commercial areas, much as buses do today. Noise impacts on passengers, rather than noise impacts on adjacent properties was an issue relative to the trolley system. Noise related to rail systems was a "given" of the urban environment and generally was not the subject of antinoise demands. Operation of trolleys and interurban trains primarily during daytime hours and infrequent passage of freight and passenger trains also contributed to the lack of public complaint about noise associated with railways.

Passengers complained about noise within L.A. Rail's yellow trolley cars, especially after the introduction of quieter rubber tired automobiles and buses. Rubber was installed in the new red cars to reduce noise and vibration experienced by passengers, thereby making them more appealing to riders. In the 1970s, greater public concern about the environment and health prompted promulgation of federal noise mitigation guidelines and standards. This resulted in quieter equipment and sound reducing track design.

Aircraft

Helicopters

Greek mathematician Archimedes developed a heliko or 'screw' machine around 200 B.C. to perform specific tasks. In the 16th Century Leonardo da Vinci applied the concept, using the heliko in his design of a vertical lift flying vehicle. The machine proved infeasible due to inadequate power to lift the craft. In 1907, Frenchmen Paul Cornu and Louis Breguet constructed and flew two vertical lift machines called "helicopters." The 1915 Peteroczy-Karman helicopters, which had to be tethered to the ground and could not maneuver horizontally, were used during World War I to monitor enemy military activities. In 1939 Igor Sikorsky produced the first practical helicopter that could be flown and maneuvered by pilot operated controls. By 1941 he had developed a mechanism that enabled pilots to control a helicopter's pitch and roll, thereby increasing its practical use. The Sikorsky became the first mass produced helicopter, proving its versatility during World War II. Bell Aircraft introduced the first commercial helicopter in 1947. It was powered by piston engines and was slow, noisy and vibrated so badly that it was unpopular for use in passenger travel. The introduction in the 1960s of gas turbine engines suitable for helicopters, enabled construction of lighter machines and a quieter and smoother flight. Until the 1970s the turbine engines proved impractical because they experienced frequent, recurring and expensive maintenance problems. A variety of technological advances in the late 1960s and early 1970s revolutionized helicopter technology, including stability augmentation, which improved the pilot's ability to control and maneuver the craft; solid state avionics, which reduced the size and weight of components (replacing the bulky tube radios with lighter equipment); and more reliable twin turbine engines, which provided power redundance for added safety. The improvements decreased vibration and noise levels, increased passenger comfort, decreased maintenance and reduced noise impacts on the surrounding environment.

With the improvements, use of helicopters for transportation, commercial and other civilian uses increased dramatically. Early application included use of helicopters for rescues, fire fighting and surveillance. In 1962 the Los Angeles City Fire Department acquired its first helicopter. It was used for dropping water and chemicals on targeted brush fire areas. Following the 1963 collapse of the Baldwin Hills Dam, the helicopter was used in dramatic rescues of stranded and endangered victims. The success of the operation convinced the city to purchase of a fleet of helicopters for emergency services. During the 1960s and 1970s emergency and private heliports were established throughout the city. Noise impacts were reduced by siting of facilities, flight path orientation and change in helicopter design.

Airplanes

The first successful flight of a powered, heavier-than-air craft was in 1896 by J.P. Langley whose unmanned Model No. 5 flew three quarters of a mile along the Potomac River. But it was Orville and Wilbur Wright's successful flight of the first piloted plane, a biplane, at Kitty Hawk, North Carolina in 1903 that launched the air age. Publicity flights and establishment of the first flying school by Glenn Curtis in 1907 and flight contests and air races in Europe and North America heightened public interest in flying machines. Aircraft production was accelerated during World War I when the small aircraft were used for surveillance and aerial fighting and began to be used for carrying mail and small amounts of freight, as well as for pleasure and daredevil exhibition flying. Following the war, more powerful gasoline fueled engines enabled construction of planes that could fly faster and greater distances. Soon planes were able to fly what was considered a phenomenal 200 miles per hour.

In 1927 Charles A. Lindbergh, in his Ryan NX-211 monoplane The Spirit of St. Louis, broke the U.S. transcontinental record by flying from San Diego to Long Island in 21 hours and 20 minutes with only one stop. He then flew on to Paris in 33

hours and 39 minutes, the first solo, nonstop flight across the Atlantic. His transatlantic flight caught the imagination of the public and generated increased interest in air travel. By the 1930s biplanes had been replaced for commercial and military uses by larger, faster, more versatile and more aerodynamic monoplanes.

The first jet plane, the Heinkel He-178, was produced in Germany in 1939. However, during World War II conventional propeller or "prop" planes like the DC-3 remained the primary transport and passenger aircraft. Technological advances were accelerated by wartime demands, resulting lighter planes that had greater range and speed and were more efficient and comfortable. By the 1950s jet airliners were being used for commercial flights. Not until the 1960s, with the advent of the jumbo jet with its expanded seating capacity, greater passenger comfort and reduced fares, did air passenger service become popular in the United States. In the interim the turbo props dominated the civilian market with their economical fuel consumption in carrying heavy loads over short hauls and their ability to land in difficult terrain and on short air fields. They were especially popular in rural and Third World areas.

Jet aircraft by the late 1960s had reduced the transatlantic flight time to six hours. The Anglo-French supersonic Concorde cut the time in half with its cruise speed of Mach 2, twice the speed of sound (approximately 1,350 miles per hour). The Concorde's maiden flight was in 1969. It entered commercial service in 1976. As of 1998 the single Concorde craft was the only supersonic plane in service but, due to its noise, it was barred from most airports in the United States. By the 1990s jet planes were the dominant commercial and military craft. Introduction of jet aircraft resulted in noise impacts on surrounding neighborhoods and communities. Smaller piston engine and propeller planes remained popular for private and business use and sports and generated little or no significant noise impacts on adjacent communities.

Most of the airports in the Los Angeles area initially were established within vast expanses of undeveloped or agricultural land. In some cases the airports began as test fields associated with aircraft manufacture. Communities grew up around the sites to provide homes and services for aircraft plant employees who did not complain about airport noise. With the advent of jet aircraft and transformation of surrounding neighborhoods to nonairport related populations, noise began to be considered a nuisance.

Los Angeles International Airport (LAX)

The Los Angeles Chamber of Commerce in the early 1920s recognized that the fragile airplanes, then considered a novelty, were the beginning of a new transportation era. Because federal law at that time prohibited use of federal funds for development of airports, the chamber lobbied the city to establish a municipal airport, publishing a survey (1926) suggesting 13 possible airfield sites. After assessing terrain, wind conditions and other factors of 28 sites, the city selected Mines Field (formerly called the Inglewood Site), a 640-acre bean field that had an emergency dirt air strip. When voters turned down a bond issue for purchase of the land, the city negotiated a ten-year lease, with option to buy, and began preparing three runways for the September 1928 National Air Races. At the conclusion of the races, at which Lindbergh was the main attraction, Los Angeles took over Mines Field and created the Department of Airports (DOA) to manage it.

The airfield was established as a general aviation facility. Its few buildings and a control tower served small, single-engine planes. The first permanent runway was constructed in 1929. It was 2,000 feet long and served as the landing site in August 1929 for the Graf Zeppelin. In 1930 the field was officially dedicated as the Los Angeles Municipal Airport and the lease was extended for 50 years. Voters were reluctant to fund additional improvements since the Glendale Grand Central Airport and Burbank United Terminal (later Lockheed) ap-

peared to provide adequate facilities for what was widely viewed as a passing fad. One disgruntled critic filed a lawsuit demanding that the lease be voided on the grounds that it was illegal to lease an airport without approval of the electorate. The state supreme court upheld the lease.

While the public may have been skeptical, the aircraft industry was not. It quickly established manufacturing facilities near the Municipal and Santa Monica airports. Douglas and Northrop opened plants in 1932. North American and other manufacturers followed. By 1937, 2,300 skilled workers were employed in the aircraft industries in the area. In the meantime air passenger travel had become popular and larger aircraft, such as the Douglas DC-3s, had been developed as passenger planes. Determining that the Glendale and Burbank airfields were not adequate for the new planes, TWA, American, Western and Pan American airlines agreed to make the Los Angeles airport their base if the city would make necessary improvements. Some improvements, including construction of a new runway, were made possible by a federal Emergency Relief Administration grant through the federal Works Progress Administration (WPA). WPA subsequently declined to provide funds because the site was not owned by the city. That problem was resolved when title was acquired in 1937. Between 1937 and 1939, WPA and bond monies enabled construction of runways and other facilities and improvements. The board of airport commissioners was created in 1940 to manage the DOA and in 1941 the name of the field was changed to the Los Angeles Airport.

During World War II the airport was used for military purposes. In 1943 the five major passenger airlines signed leases transferring their operations to the site. In anticipation of passenger air expansion, an airport master plan was prepared in 1944. After the war, southern California emerged as the center of the national aircraft industry with major activity taking place around the Los Angeles and Santa Monica airports. Passage of the city's 1945 airport bond issue by an overwhelming 5-to-1 majority enabled acquisition of 2,000 acres of land and construction of massive terminal facilities and major runways. Airport activity was shifted west of the original site to its present location.

The five airlines began operating at the airport in 1946, making it a major passenger terminal for the region. The following year voters approved a charter amendment making the DOA a self-managing city agency, independent of the mayor and city council and with control over its own finances. The airport commission, appointed by the mayor, quickly acted to create a regional system and to expand the airport into a world class facility. In 1950 the commission renamed the facility the Los Angeles International Airport, better known by its Federal Aviation Administration identifier LAX. The first runway overpass of its kind, the Sepulveda Boulevard overpass, was completed in 1953, enabling the extension of the two main runways above the boulevard to accommodate jet traffic.

In January 1959 American Airlines began the first jet service between New York and Los Angeles. A new terminal and the first permanent passenger facilities for LAX were completed in 1961. With the advent of jet aircraft, significant noise problems began to be experienced by neighboring communities due to jet overflights and increased airport activity. The DOA was made self sufficient by a 1963 charter amendment that allowed it to issue its own revenue bonds without having to secure voter approval. It immediately embarked on a program of diversification and expansion and began to address noise impact issues. In 1965 and 1966 the first air freight terminals were opened to accommodate an increasing demand for freight services. In anticipation of the 1984 Los Angeles Summer Olympic Games, airport passenger facilities were upgraded, new international and domestic terminals were constructed, other terminals were renovated, automobile circulation was enhanced by a new second level roadway and other facilities were added or renovated. The airport department (now calling itself Los Angeles World Airports, or LAWA) in 1998 was preparing a mas-

ter plan for LAX, of which noise management is an important consideration.

Van Nuys Airport (VNY)

Metropolitan Airport was established as a private general aviation field on October 1, 1928. Three factories, six hangers and a control tower were added in 1929. In 1942 it was purchased by the federal government for use as a military base. Los Angeles acquired the airport in 1949 for one dollar with the proviso that the California Air National Guard could remain on the site. With the completion of the Sherman Way overpass in 1957 the city renamed the airport the Van Nuys Airport. The Sherman Way extension provided VNY with a runway that could accommodate jet aircraft. Introduction of jet planes resulted in increased noise impacts on adjacent communities. Acquisitions enabled expansion of airport operations and provision of noise buffers between aircraft activities and adjacent communities. By 1971 VNY had become the busiest general aviation airport in the nation. In 1997 LAWA was preparing a master plan for VNY, in part to address noise issues.

Burbank-Glendale-Pasadena Airport (BUR)

When United Airport opened in 1930 it was the nation's first "multimillion dollar airport," boasting five 3,600-foot runways and related facilities. By 1934 the airport served more than 98,000 passengers a year and was the main terminal for the Los Angeles area. In that year its name was changed to Union Air Terminal. The Lockheed aircraft company, which owned an adjacent manufacturing facility and airfield, purchased the site in 1940, combining the two sites and using them for the production of B-17 bombers, P-8 fighters and Hudson bombers during World War II. The original site had been used by pilots, including North Hollywood resident Amelia Earhart, to test planes purchased from Lockheed. In the 1950s air cargo and commuter flights began using BUR. Subsequently commuter and distance operations were expanded, providing a convenient alternative to LAX. With increased aircraft activity came increased noise impacts on adjacent communities.

When Lockheed announced its intention to sell the airport for conversion to other uses, the state Division of Aeronautics and FAA evaluated the facility and determined that it was important to maintain the site in airport use. To do so, the state legislature in 1976 authorized formation of an airport authority to purchase and operate BUR. The cities of Burbank, Glendale and Pasadena entered into a joint powers agreement to form the authority, which was independent of the three founding cities. Los Angeles and the City of San Fernando declined to join. Each of the three members appointed three representatives to serve on the authority's board of commissioners. The board convened in 1977, formally inaugurating the Airport Authority. In 1978 the Authority purchased the airport from Lockheed with funding from the FAA and from revenue bonds issued by the Authority. The airport was renamed the Burbank-Glendale-Pasadena Airport, retaining its FAA identification call letters of BUR. The Authority's recently approved development plans are under challenge from surrounding jurisdictions, including the City of Los Angeles, in part due to noise impact issues.

Santa Monica Airport (SMO)

In 1919 the City of Santa Monica established Clover Field on a leased a portion of a barley field. Many of the private pilots who used the field were associated with the new Hollywood motion picture industry. The Douglas Aircraft Company moved to Santa Monica in 1922 and began building military aircraft, using the airstrip for test flights. With the increasing demand for airfields and expanding needs of Douglas, Santa Monica purchased 158 acres of land in 1924 for airport expansion. It was at the Santa Monica plant that Douglas began manufacturing its popular DC series of planes. In 1934 the DC-3 became the first successful mass produced plane for commercial passenger service. Growth of jobs at the plant generated a housing boom, resulting in residential development around SMO.

On the eve of World War II, the army leased the airport for army air corps and military purposes, returning it to Santa Monica in 1948. In the late 1950s Douglas shifted its primary manufacturing operations to Long Beach because SMO could not provide a long enough runway to accommodate large jet aircraft. By the 1960s, SMO rivaled VNY as the busiest general aviation airport in the nation, reaching a peak of 374,000 flights in 1966. With increased aircraft activity and surrounding land uses, noise became an increasing issue. Mitigation of impacts has been accomplished by a variety of measures, including changes in flight paths, airport use and configuration and surrounding land uses.

Whiteman Airport

Whiteman Air Park was established in 1946 as a private airfield. It was used primarily for training, business and recreational purposes. The County purchased the site in 1970 and renamed it Whiteman Airport. Noise issues have not been a major issue relative to the airport. Recent land use and zoning changes were made to assure minimal airport impacts on adjacent residential uses.

Note: additional information about history, noise issues and noise management programs is contained in the noise element text.

Exhibit G: Glossary of Terms and Acronyms

ALUC: county airport land use commission.

Ambient noise: background or existing noise level. The composite of noise from all sources near and far in a given environment, exclusive of occasional and transient intrusive noise.

Based aircraft: aircraft having legal contracts with the airport authority for use of airport property for a specific number of days. Typically the contracts are in the form of leases.

BUR: Burbank-Glendale-Pasadena Airport.

Caltrans: California Department of Transportation.

CAP: Caltrans Aeronautics Program, formerly called the Division of Aeronautics. A division of Caltrans.

CEQA: California Environmental Quality Act of 1970.

CLUP: Comprehensive (airport) Land Use Plan of the county Airport Land Use Commission.

CNEL (Community Noise Equivalent Level): a noise measurement scale applied over a 24-hour period to all noise events received at the measurement point. It is weighted more heavily for evening and night periods in order to account for the lower tolerance of individuals to noise during those periods.

CPC: Los Angeles City Planning Commission.

dB: decibel. A decibel is a unit for measuring the relative loudness of sound.

dBA: 'A' measures the level of sound the way sound is received by the human ear. Combined with dB (decibels) it is used to measure decibel level related to human hearing. CNEL is weighted, therefore the 'A' does not appear when CNEL and dB are referenced together.

DOA: Los Angeles Department of Airports. In 1997 the Board of Airports Commissioners, approved the name "Los Angeles World Airports" as the business title of the department. The official (charter) name, DOA, was not changed.

EIR: environmental impact report, a requirement of CEQA.

EIS: environmental impact statement, a requirement of NEPA.

EPA: federal Environmental Protection Agency.

FAA: Federal Aviation Administration.

FAR: Federal Aviation Regulation.

FHA: Federal Highway Administration of the U.S. Department of Transportation.

FTA: Federal Transit Administration of the U.S. Department of Transportation.

Flight: a landing or departure of an aircraft.

General aviation airport: an airport that does not serve scheduled air carriers.

Intermittent noise: periodic noise, as opposed to ambient noise.

Intrusive noise: isolated noise incidents in which the particular noise is greater than the ambient noise level.

LAMC: Los Angeles Municipal Code.

LAWA: Los Angeles World Airports, the business name for the Los Angeles Department of Airports.

LAX: Los Angeles International Airport.

Ldn: average day-night sound level weighted to account for the lower tolerance of people to noise during the night period. Approximately a half a decibel lower than CNEL.

MTA: Los Angeles County Metropolitan Transportation Authority.

NEPA: National Environmental Policy Act of 1969.

Noise contours: mapped lines around a noise source to indicate specific levels of intensity of community exposure to the noise, e.g., an airport.

Noise source: generator of the sound being measured.

SCRRA: Southern California Regional Rail Authority (Metrolink).

SMO: Santa Monica Airport.

VNY: Van Nuys Airport.

Exhibit H: Common Noise Levels

(Caltrans Noise Manual, California Department of Transportation, March 1980)

Noise Level (dBA)	Common Indoor Noise Levels	Common Outdoor Noise Levels
110	Rock Band	
100	Inside Subway Train	Jet Flyover @ 1,000 feet Gas Lawn Mower @ 3 feet
90	Food Blender @ 3 feet	Diesel Truck @ 50 feet Noisy Urban Daytime
80	Garbage Disposal @ 3 feet Shouting @ 3 feet	
70	Vacuum Cleaner @ 10 feet	Gas Lawn Mower @ 100 feet Commercial Area
60	Normal Speech @ 3 feet Large Business Office	Heavy Traffic @ 300 feet
50	Dishwasher next room	Quiet Urban Daytime
40	Small Theater/Conference Room (background)	Quiet Urban Nightime Quiet Suburban Nightime
30	Library Bedroom at Night	
20	Concert Hall (background) Broadcast & Recording Studio	Quiet Rural Nightime
10		
0	Threshold of Hearing	

Exhibit I: Guidelines for Noise Compatible Land Use

(Based on the Governor's Office of Planning and Research, "General Plan Guidelines", 1990. To help guide determination of appropriate land use and mitigation measures vis-a-vis existing or anticipated ambient noise levels)

Land Use Category	Day-Night Average Exterior Sound Level (CNEL dB)						
	50	55	60	65	70	75	80
Residential Single Family, Duplex, Mobile Home	A	C	C	C	N	U	U
Residential Multi-Family	A	A	C	C	N	U	U
Transient Lodging, Motel, Hotel	A	A	C	C	N	U	U
School, Library, Church, Hospital, Nursing Home	A	A	C	C	N	N	U
Auditorium, Concert Hall, Ampitheater	C	C	C	C/N	U	U	U
Sports Arena, Outdoor Spectator Sports	C	C	C	C	C/U	U	U
Playground, Neighborhood Park	A	A	A	A/N	N	N/U	U
Golf Course, Riding Stable, Water Recreation, Cemetery	A	A	A	A	N	A/N	U
Office Building, Business, Commercial, Professional	A	A	A	A/C	C	C/N	N
Agriculture, Industrial, Manufacturing, Utilities	A	A	A	A	A/C	C/N	N

A = Normally acceptable. Specified land use is satisfactory, based upon assumption buildings involved are conventional construction, without any special noise insulation.

C = Conditionally acceptable. New construction or development only after a detailed analysis of noise mitigation is made and needed noise insulation features are included in project design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.

N = Normally unacceptable. New construction or development generally should be discouraged. A detailed analysis of noise reduction requirements must be made and noise insulation features included in the design of a project.

U = Clearly unacceptable. New construction or development generally should not be undertaken.

LOS ANGELES
DEPARTMENT OF CITY
PLANNING
221 North Figueroa St., Suite 1350
Los Angeles, CA 90012

INITIAL STUDY

KPAC Coil Avenue Freezer Expansion Project

Case Number: ENV-2022-6860-ND

Project Location: 1420 Coil Avenue, Wilmington, CA 90744

Community Plan Area: Wilmington - Harbor

Council District: 15—McOsker

Project Description: The Project site is located at 1420 Coil Avenue within the Wilmington-Harbor Community Plan area in the City of Los Angeles (City). The Project site encompasses approximately 747,302 square feet (17.16 acres) and includes two zoning designations: [Q] MR2-1 VL-CUGU (Restricted Light Industrial) and [Q] M3-1VL-CUGU (Heavy Industrial). The site's land use designations include Light Manufacturing, Light Industrial, and Heavy Manufacturing. The Project site is currently developed with a one-story (varying heights between 26 to approximately 42 feet) 221,496 square foot cold storage facility used to store wholesale food products for third party users. The facility currently provides cooler and freezer temperature storage and operates 5 days a week (Monday through Friday) for 16 hours per day, at a quantity of two 8-hour shifts. Additionally, there is an existing double rail spur that includes 9 unloading docks each, equating to 18 unloading stations. Properties surrounding the Project site are zoned M3-1VL, [Q]M3-1VL-CUGU and [Q]M3-1 (Heavy Industrial) to the north and east along Alameda Street, R1-1XL-O-CUGU (One-Family Residential) to the west along Drumm Avenue and [Q]C1-1VL-O-CUGU (Limited Commercial) to the southwest along Pacific Coast Highway.

The proposed Project involves improvement and expansion of the existing cold storage facility which includes demolition and alteration of the 27,157 square foot existing cold dock for a new freezer. The new freezer would be approximately 71,331 square feet resulting in a net addition of 44,174 square feet of new floor area. The proposed Project would contain a maximum Floor Area Ratio (FAR) of 0.38:1 and would be 65 feet in height (not including rooftop equipment) which exceeds the 45-foot height limit currently allowed per the applicable zoning. Additionally, the existing interior freezer would be remodeled. The improved facility will be expanding to the west and would result in the removal of the existing portion of double rail spur that is located in the path of the expansion. Additionally, the proposed development would include 2,290 square feet designated for the mechanical room expansion, electrical room expansion, and fire pump building and 13,939 square feet of total new second floor building area for the offices. Following the expansion, the facility would also operate on Saturdays for one 8-hour shift. The expansion would decrease the length of the existing double rail spur and

would also decrease the number of trains unloading stations from 18 down to 6. However, the overall operation of the cold storage facility would remain unchanged following the expansion.

No trees would be removed as part of the expansion. Additionally, the Project includes import of 7,000 cubic yards of earth.

The Applicant is requesting the following entitlements: (1) a General Plan Amendment from Light Industrial land use (45-foot height limit) to Light Industrial land use (site-specific 65-foot height limit), pursuant to LAMC Sec. 11.5.6-B; (2) a change of Height District from 1VL to 1L-D, pursuant to LAMC Sec. 12.32-B; (3) a Zoning Administrators' Determination to permit a Transitional Height of 65 feet in lieu of 61 feet otherwise permitted by LAMC Sec. 12.21.1-A,10 for buildings located 100 feet to 199 feet from lots classified in the R1 Zone, pursuant to LAMC Sec. 12.24-X,22; (4) Site Plan Review for a project adding more than 50,000 square feet of nonresidential floor area; and (5) a waiver of dedication and improvement (WDI) relief from Coil Street and Drumm Avenue.

More specifically, the Applicant is requesting relief from the following requirements:

- Coil Street: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way and roadway width to remain 15 feet as exists.
- Drumm Avenue: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way to remain 20 feet and half roadway width to remain 15 feet as exists.

PREPARED FOR:

THE CITY OF LOS ANGELES
DEPARTMENT OF CITY PLANNING

PREPARED BY:

MERIDIAN CONSULTANTS
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TABLE OF CONTENTS

SECTION PAGE

1 INTRODUCTION 1

1.1 PURPOSE OF AN INITIAL STUDY 1

1.2 Organization of the Initial Study 2

1.3 CEQA Process 2

2 EXECUTIVE SUMMARY 3

3 PROJECT DESCRIPTION 6

3.1 Project Summary 6

3.2 Environmental Setting 7

3.2.1 Prcject Location 7

3.2.2 Existing Conditions 9

3.2.3 Surrounding Land Uses 9

3.3 Description of Project 10

3.3.1 Prcject Overview 10

3.3.2 Design and Architecture 11

3.3.3 Open Space and Landscaping 11

3.3.4 Access, Circulation, and Parking 11

3.3.5 Lighting and Signage 11

3.3.6 Site Security 11

3.3.7 Special Events 12

3.3.8 Anticipated Construction Schedule 12

3.4 Requested Permits and Approvals 12

4 ENVIRONMENTAL IMPACT ANALYSIS 15

I. Aesthetics 15

II AGRICULTURE AND FORESTRY RESOURCES 19

III. AIR QUALITY 22

IV. BIOLOGICAL RESOURCES 28

V. CULTURAL RESOURCES 33
VI. ENERGY 37
VII. GEOLOGY AND SOILS 41
VIII. GREENHOUSE GAS EMISSIONS 48
IX. HAZARDS AND HAZARDOUS MATERIALS 55
X. HYDROLOGY AND WATER QUALITY 65
XI. LAND USE AND PLANNING 70
XII. MINERAL RESOURCES 75
XIII. NOISE 77
XIV. POPULATION AND HOUSING 83
XV. PUBLIC SERVICES 86
XVI. RECREATION 89
XVII. TRANSPORTATION 91
XVIII. TRIBAL CULTURAL RESOURCES 94
XIX. UTILITIES AND SERVICE SYSTEMS 97
XX. WILDFIRE 103
XXI. MANDATORY FINDINGS OF SIGNIFICANCE 106
5 References 108
6 Preparers 112

List of Figures

1 Project Site Location 13
2 Site Plan 14

List of Tables

4.3-1 Unmitigated Maximum Regional Construction Emissions 23
4.3-2 Unmitigated Maximum Regional Operational Emissions 24
4.3-3 Localized Construction and Operational Emissions 25
4.6-1 Summary of Energy Use During Construction 38

4.8-1 Construction GHG Emissions 51
4.8-2 Operational GHG Emissions 52
4.11-1 Consistency with the Wilmington-Harbor Community Plan 72
4.11-2 Consistency with the General Plan Framework Element 73
4.13-1 Construction Maximum Noise Estimates 78
4.13-2 On-Site Construction Vibration Impacts – Building Damage 81
4.19-1 Estimated Water Demand 98
4.19-2 Estimated Sewage Generation 99
4.19-3 Estimated Operational Solid Waste Generation 101

Appendices

A Air Quality Study

B Arborist Report

C Cultural Resources

- C.1 AB 52 Consultation
- C.2 CHRIS Records Search

D Energy Calculations

E Hazards

- E.1 Phase I ESA
- E.2 CalGEM Well Finder
- E.3 Construction Site Well Review
- E.4 Asbestos Survey
- E.5 Methane Report
- E.6 Phase II ESA

F Noise Study

G Traffic

- G.1 City of Los Angeles VMT Calculator
- G.2 Transportation Study Assessment Referral Form

H Sacred Lands File Search

1 INTRODUCTION

An application for the proposed KPAC Coil Avenue Freezer Expansion Project (Project) has been submitted to the City of Los Angeles Department of City Planning for discretionary review. The City of Los Angeles, as Lead Agency, has determined that the Project is subject to the California Environmental Quality Act (CEQA), and that the preparation of an Initial Study is required.

This Initial Study (IS) evaluates the potential environmental effects that could result from the construction, implementation, and operation of the proposed Project. The proposed Project is subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). This Initial Study has been prepared in accordance with CEQA (Public Resources Code §21000 et seq.), the State CEQA Guidelines (Title 14, California Code of Regulations, §15000 et seq.), and the City of Los Angeles CEQA Guidelines (1981, amended 2006). The City uses Appendix G of the State CEQA Guidelines as the thresholds of significance unless another threshold of significance is expressly identified in the document. Based on the analysis provided within this Initial Study, the City has concluded that the Project may result in significant impacts on the environment. This Initial Study and Negative Declaration are intended as informational documents, which are ultimately required to be adopted by the decision-making body of the City prior to approval of the Project.

1.1 PURPOSE OF AN INITIAL STUDY

The California Environmental Quality Act was enacted in 1970 with several basic purposes, including: (1) to inform governmental decision makers and the public about the potential significant environmental effects of proposed projects; (2) to identify ways that environmental damage can be avoided or significantly reduced; (3) to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of feasible alternatives or mitigation measures; and (4) to disclose to the public the reasons behind a project's approval even if significant environmental effects are anticipated.

An Initial Study is a preliminary analysis conducted by the Lead Agency, in consultation with other agencies (responsible or trustee agencies, as applicable), to determine whether there is substantial evidence that a project may have a significant effect on the environment.

If the Initial Study concludes that the Project, with mitigation, may have a significant effect on the environment, an Environmental Impact Report should be prepared; otherwise, the Lead Agency shall adopt a Negative Declaration or a Mitigated Negative Declaration.

1.2 ORGANIZATION OF THE INITIAL STUDY

This Initial Study is organized into sections as follows:

1 INTRODUCTION

Describes the purpose and content of the Initial Study and provides an overview of the CEQA process.

2 EXECUTIVE SUMMARY

Provides Prcject information, identifies key areas of environmental concern, and includes a determination whether the prcject may have a significant effect on the environment.

3 PROJECT DESCRIPTION

Provides a description of the environmental setting and the Prcject, including prcject characteristics and a list of discretionary actions.

4 EVALUATION OF ENVIRONMENTAL IMPACTS

Contains the completed Initial Study Checklist and discussion of the environmental factors that would be potentially affected by the Prcject.

1.3 CEQA PROCESS

In compliance with the State CEQA Guidelines, the City, as the Lead Agency for the Project, will provide opportunities for the public to participate in the environmental review process. Throughout the CEQA process, an effort will be made to inform, contact, and solicit input on the Project from various government agencies and the general public, including stakeholders and other interested parties.

At the onset of the environmental review process, the City has prepared this Initial Study to determine whether the Project may have a significant effect on the environment. The analysis contained herein determined that with mitigation, the Project would not have a significant effect on the environment. Therefore, an Initial Study (IS) and Negative Declaration (ND) was determined to be the appropriate CEQA document.

2 EXECUTIVE SUMMARY

PROJECT TITLE	KPAC Coil Avenue Freezer Expansion
ENVIRONMENTAL CASE NO.	ENV-2022-6860-ND
RELATED CASES	CPC-2022-6859-GPA-HD-ZAD-SPR-WDI-

PROJECT LOCATION	**1420 Coil Avenue, Wilmington, CA 90744**
COMMUNITY PLAN AREA	Wilmington – Harbor City
GENERAL PLAN DESIGNATION	Light Manufacturing, Light Industrial, Heavy Manufacturing
ZONING	[Q]MR2-1VL-CUGU, [Q]M3-1VL-CUGU
COUNCIL DISTRICT	15 - McOsker

LEAD AGENCY	**City of Los Angeles**
CITY DEPARTMENT	Department of City Planning
STAFF CONTACT	Norali Martinez
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ADDRESS	1901 Butterfield Road, Suite 1020, Downers Grove, IL 60515
PHONE NUMBER	(630) 437-5818

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture & Forestry Resources	☐ Hazards & Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology / Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use / Planning	☐ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities / Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Geology / Soils	☐ Population / Housing	☐ Mandatory Findings of Significance

---

DETERMINATION

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions on the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

Norali Martinez, City Planner	March 17,2025
PRINTED NAME, TITLE	**DATE**

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less that significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of a mitigation measure has reduced an effect from "Potentially Significant Impact" to "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analysis," as described in (5) below, may be cross referenced).

5) Earlier analysis must be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR, or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A sources list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whichever format is selected.

9) The explanation of each issue should identify:

    a) The significance criteria or threshold, if any, used to evaluate each question; and

    b) The mitigation measure identified, if any, to reduce the impact to less than significance.

3 PROJECT DESCRIPTION

3.1 PROJECT SUMMARY

The Project site is located at 1420 Coil Avenue within the Wilmington-Harbor City Community Plan area in the City of Los Angeles (City). The Project site area encompasses approximately 747,302 square feet (17.16 acres) and includes two zoning designations: [Q] MR2-1 VL-CUGU (Restricted Light Industrial) and [Q] M3-1VL-CUGU (Heavy Industrial). The site's land use designations include Light Manufacturing, Light Industrial, and Heavy Manufacturing. The Project site is currently developed with a one-story (varying heights between 26 to 42 feet) 221,496 square foot warehouse building used to store wholesale food products for third party users. The facility currently provides cooler and freezer temperature storage and operates 5 days a week (Monday through Friday) for 16 hours per day, at a quantity of two 8-hour shifts. Additionally, there is an existing double rail spur that includes 9 unloading docks each, equating to 18 unloading stations. Properties surrounding the Project site are zoned M3-1VL, [Q]M3-1VL-CUGU and [Q]M3-1 (Heavy Industrial) to the north and east along Alameda Street, R1-1XL-O-CUGU (One-Family Residential) to the west along Drumm Avenue and [Q]C1-1VL-O-CUGU (Limited Commercial) to the southwest along Pacific Coast Highway.

The proposed Project involves improvement and expansion of the existing cold storage facility which includes demolition and alteration of the 27,157 square foot existing cold dock for a new freezer. The new freezer would be approximately 71,331 square feet resulting in a net addition of 44,174 square feet of new floor area. The new structure would be 65 feet in height (not including rooftop equipment) which exceeds the 45-foot height limit currently allowed per the applicable zoning. Additionally, the existing interior freezer would be remodeled. The improved facility will be expanding to the west and would result in the removal of the existing portion of double rail spur that is located in the path of the expansion. Additionally, the proposed development would include 2,290 square feet designated for the mechanical room expansion, electrical room expansion and fire pump building and 13,939 square feet of total new second floor building area for the offices. Following the expansion, the facility would also operate on Saturdays for one 8-hour shift. The expansion would decrease the length of the existing double rail spur and would also decrease the number of trains unloading stations from 18 down to 6. However, the overall operation of the cold storage facility would remain unchanged following the expansion.

The Applicant is requesting the following entitlements: (1) a General Plan Amendment from Light Industrial land use (45-foot height limit) to Light Industrial land use (site-specific 65-foot height limit), pursuant to LAMC Sec. 11.5.6-B; (2) a change of Height District from 1VL to 1L-D, pursuant to LAMC Sec. 12.32-B; (3) a Zoning Administrators' Determination to permit a Transitional Height of 65 feet in lieu of 61 feet otherwise permitted by LAMC Sec. 12.21.1-A,10 for buildings located 100 feet to 199 feet from lots classified in the R1 Zone, pursuant to LAMC Sec. 12.24-X,22; (4) Site Plan Review for a project adding more than 50,000 square feet of nonresidential floor area; and (5) a waiver of dedication and improvement (WDI) relief from Coil Street and Drumm Avenue. The dedication required along Coil Street include a 15-foot wide strip of land along the property

frontage between Colon Street and O Street; a partial elbow at the intersection with O Street; and a 15-foot by 15-foot cut corner or 20-foot radius property line return at the intersection with Pacific Coast Highway. Additionally, the improvement requires to construct suitable surfacing to join the existing improvements to provide an 18-foot wide roadway, concrete curb, 2-foot gutter, a 12-foot sidewalk with tree wells, and a partial elbow section with O Street. The dedication required along Drumm Avenue include a 10-foot wide strip of land along the property frontage to complete a 30-foot wide half right-of-way in accordance with Local Street standards; a partial elbow at the intersection with Q Street; and a 15-foot by 15-foot corner or 20-foot radius property line return at the intersection with Pacific Coast Highway. Additionally, the improvement requires to construct suitable surfacing to join the existing improvements to provide a 20-foot wide half roadway, concrete curb, 2-foot gutter, a 10-foot wide concrete sidewalk with tree wells, and the partial elbow section with Q Street.

The Applicant is requesting relief from the following requirements:

- Coil Street: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way and roadway width to remain 15 feet as exists.
- Drumm Avenue: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way to remain 20 feet and half roadway width to remain 15 feet as exists.

3.2 ENVIRONMENTAL SETTING

3.2.1 Project Location

The Project site is located at 1420 Coil Avenue within the Wilmington – Harbor City Community Plan area (refer to **Figure 1: Project Site Location**) which designates the commercial-zoned portion of the subject property for light manufacturing land uses and zoned [Q] MR2-1 VL-CUGU. The site encompasses approximately 747,302 square feet (approximately 17.16 acres) of lot area. The subject property is bound by the Wilmington Diamond Railroad Crossing to the north, Pacific Coast Highway to the south, Alameda Street to the east and Drumm Avenue to the west.

Properties surrounding the subject property are zoned M3-1VL, [Q]M3-1VL-CUGU and [Q]M3-1 to the north and east along Alameda Street with heavy industrial uses, R1-1XL-O-CUGU to the west along Drumm Avenue with single-family residential uses and [Q]C1-1VL-O-CUGU to the southwest along Pacific Coast Highway with commercial uses.

Ordinance No. 177,243 subjects the following permanent [Q] conditions to subareas 50 and 60 including the Project site:

1. Any open storage uses on the property shall be subject to the following limitations:

    a. A 15-foot setback shall be required along a Major Highway, or adjacent to or directly across from any residential zone.
    b. A 5-foot landscaped buffer shall be required along a Class I or II Major Highway or facing any residential zone.

c. The open storage area shall be enclosed by a solid fence or wall at least 8 feet in height, not to exceed 12 feet. No material or equipment shall be stored to a height exceeding that of the enclosing fence or wall. Such fencing shall be maintained in good condition and appearance. All walls, fences and other structures shall be maintained free of graffiti. Sheet metal and barbed wire shall be prohibited as fencing material along a Class I or II Major Highway, or adjacent to or directly across from any residential zone.
d. All driveways and parking spaces shall be paved.

2. No cargo containers may be kept or stored on the site. However, this condition shall not prohibit the loading and/or parking of trucks and truck trailers, including containers on wheels.

3. An 8-foot masonry wall shall be maintained adjoining any residential property line.

4. All structures or uses, including open storage, shall maintain a landscaped buffer at least 10 feet wide, including trees and shrubs, designed to visually screen the use, adjoining any residential property line.

5. No openings shall be permitted on the side of any structure facing a residential zone located within 20 feet of said structure, except for emergency exits as required by Code.

The entirety of the site is located within the Clean Up Green Up District "CUGU" (ZI-2458). The subject property is currently developed with a one-story (varying heights between 26 to approximately 42 feet) 221,496 square foot warehouse building and 9,247 square feet of office space. The Project site complies with CUGU, and does not require either a CUGU Adjustment or a CUGU Exception. The property is in close proximity to an oil well located on the northern portion of the site, as identified in ZIMAS by ZI-1195, which requires a construction site well review (CSWR) be completed by the California Department of Conservation. However, the plugged and abandoned oil well on the property requires no further action at this time. Furthermore, the property is located within ZI-2514 (Trucking Related Use Regulation Ordinance), which provides goals to safeguard the public health, welfare, and safety of the Wilmington and Harbor City communities, which are the most affected by trucking-related activities.

The Project site is located within approximately 2.8 miles of the nearest fault. The Project site does not fall within the Alquist-Priolo Fault Zone, a Preliminary Fault Rupture Study Area, a Flood Zone, Liquefaction Area, Landslide Area, Tsunami Inundation Zone, Hillside Area, or BOE Special Grading Area. Although the Project site is located within a Methane Zone, the Project will be required to comply with any applicable regulatory development measures, as well as those regarding methane hazards. The Project involves associated grading that will result in approximately 7,000 cubic yards of earth being imported to the Project site.

3.2.2 Existing Conditions

The entirety of the site is located within the Clean Up Green Up District "CUGU" (ZI-2458). The subject property is currently developed with a one-story (varying heights between 26 to 42 feet) 221,496 square foot warehouse building and 9,247 square feet of office space. The Project site complies with CUGU, specifically related to noise and publicly habitable spaces adjacent to subject uses, and does not require either a CUGU Adjustment or a CUGU Exception. The property is in close proximity to an oil well located on the northern portion of the site, as identified in ZIMAS by ZI-1195, which requires a construction site well review (CSWR) be completed by the California Department of Conservation (refer to **Appendix E.3**). However, the plugged and abandoned oil well on the property requires no further action at this time as the planned construction activities for the proposed project will not directly interact with or affect the integrity of the abandoned well, as the project design avoids any subsurface activities in its vicinity. The property is not located within the boundaries of or subject to any specific plan, community design overlay, or interim control ordinance.

A Phase 1 Environmental Site Assessment (ESA) Report (dated August 26, 2022), prepared by Converse Consultants, revealed evidence of recognized environmental conditions (RECs) and environmental issues in connection with the subject property. More specifically, acceptance of hydrocarbon impacted soil was conducted between 1989 and 1990 resulting in volatile organic compounds (VOC) contaminated soil throughout the Project is a Historical Recognized Environmental Condition (HREC). Bioremediated soils were allowed to be reused at the Project site, based on recommendations provided by the Regional Water Quality Control Board (RWQCB), as long as they are capped with concrete or asphalt.

3.2.3 Surrounding Land Uses

Properties surrounding the subject property are zoned M3-1VL to the east with heavy industrial uses, R1-1XL-O-CUGU to the west with single-family residential uses and C1-1VL-O-CUGU to the southwest with commercial uses.

Properties to the north and east across Alameda Street are zoned M3-1VL, [Q]M3-1VL-CUGU and [Q]M3-1 and are designated for heavy manufacturing land uses by the General Plan. The lots to the east are improved with industrial uses along Alameda Street.

Properties to the west across Drumm Avenue are zoned R1-1XL-O-CUGU and is designated for low residential land uses by the General Plan. The lots to the west are improved with single- and multi-family residential uses along Drumm Avenue, E. Sandison Street, E. Cruces Street, E. O Street and E. Colon Street.

Properties to the southwest are zoned 1VL-O-CUGU and are designated for General Commercial land uses by the General Plan. The lots to the southwest are improved with commercial uses along Pacific Coast Highway.

3.3 DESCRIPTION OF PROJECT

3.3.1 Project Overview

The Project site is currently developed with a one-story (varying heights between 26 to approximately 42 feet) 221,496 square foot warehouse building used to store wholesale food products for third party users. The facility currently provides cooler and freezer temperature storage and operates 5 days a week (Monday through Friday) for 16 hours per day. Additionally, there is an existing double rail spur that includes 9 unloading docks each, equating to 18 unloading stations.

The Applicant is proposing to improve and expand the existing 221,496 square foot operations at the 1420 Coil Avenue facility located within the Wilmington neighborhood in the City of Los Angeles (refer to **Figure 2: Site Plan**). The expansion includes demolition and alteration of 27,157 square foot existing cold dock for a new freezer. The new freezer would be approximately 71,331 square feet and 65 feet in height (not including rooftop equipment), resulting in a net addition of approximately 44,174 square feet of new floor area. The new structure would exceed the 45-foot height limit currently allowed per the applicable zoning. Additionally, the existing interior freezer would be remodeled. The improved facility will be expanding to the west and would result in the removal of the existing portion of double rail spur that is located in the path of the expansion. Following the expansion, the facility would also operate on Saturdays for one 8-hour shift. The expansion would decrease the length of the existing double rail spur and would also decrease the number of trains unloading stations from 18 down to 6. However, the overall operation of the cold storage facility would remain unchanged following the expansion.

In order to facilitate the development of the expansion, the Applicant is requesting the following entitlements: (1) a General Plan Amendment from Light Industrial land use (45-foot height limit) to Light Industrial land use (site-specific 65-foot height limit), pursuant to LAMC Sec. 11.5.6-B; (2) a change of Height District from 1VL to 1L-D, pursuant to LAMC Sec. 12.32-B; (3) a Zoning Administrators' Determination to permit a Transitional Height of 65 feet in lieu of 61 feet otherwise permitted by LAMC Sec. 12.21.1-A,10 for buildings located 100 feet to 199 feet from lots classified in the R1 Zone, pursuant to LAMC Sec. 12.24-X,22; (4) Site Plan Review for a project adding more than 50,000 square feet of nonresidential floor area; and (5) a waiver of dedication and improvement (WDI) relief from Coil Street and Drumm Avenue.

More specifically, the Applicant is requesting relief from the following requirements:

- Coil Street: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way and roadway width to remain 15 feet as exists.
- Drumm Avenue: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way to remain 20 feet and half roadway width to remain 15 feet as exists.

3.3.2 Design and Architecture

The Project site is currently developed with a one-story (varying heights between 26 to 42 feet) 221,496 square foot warehouse building. The proposed Project involves improvement and expansion of the existing warehouse facility which includes demolition and alteration of the 27,157 square foot existing cold dock for a new freezer. The new freezer would be approximately 71,331 square feet resulting in a net addition of 44,174 square feet of new floor area. The new structure would be 65 feet in height (not including rooftop equipment), which exceeds the 45-foot height limit currently allowed per the applicable zoning. Paved areas, excluding parking and driveway areas, would consist of enhanced paving materials such as stamped concrete and permeable paved surfaces.

3.3.3 Open Space and Landscaping

The Project site currently includes landscaping bordering the east side of the property along Alameda Street. The proposed Project involves improvement and expansion of the existing warehouse facility and would not alter or remove any existing landscaping that currently exists on the site.

3.3.4 Access, Circulation, and Parking

The site currently provides vehicular and pedestrian access through the Coil Avenue security gate on the southwest corner of the property. The main path of access surrounding the facility is by driving along the south and west side of the facility. There are no active vehicle entrances or exits on the west side of the facility. There are two (2) access gates to and from Drumm Avenue, however these gates are restricted for use by only the Los Angeles Fire Department (LAFD). The overall general circulation will remain unchanged following the expansion.

3.3.5 Lighting and Signage

The Project site currently provides ample lighting both externally and internally in order to maintain visibility in and around the structure to prevent any illegal activity within or surrounding the area. All exterior lighting would meet all applicable Los Angeles Municipal Code (LAMC) standards and be shielded or directed toward the areas to be illuminated. The LAMC standards require that all exterior lighting on the Project site would not illuminate adjacent properties.

3.3.6 Site Security

Security is currently at the site 7 days per week for 24 hours per day. Security devices are screened from public view. If metal security grills are used, grills that recess into pockets or overhead cylinders, completely concealed, and retractable would be used. The overall general operation will remain unchanged following the expansion.

3.3.7 Special Events

The proposed Project is an expansion of the existing cooler and freezer temperature storage facility. No special events are expected to occur, and the overall general operation will be unchanged following the expansion.

3.3.8 Anticipated Construction Schedule

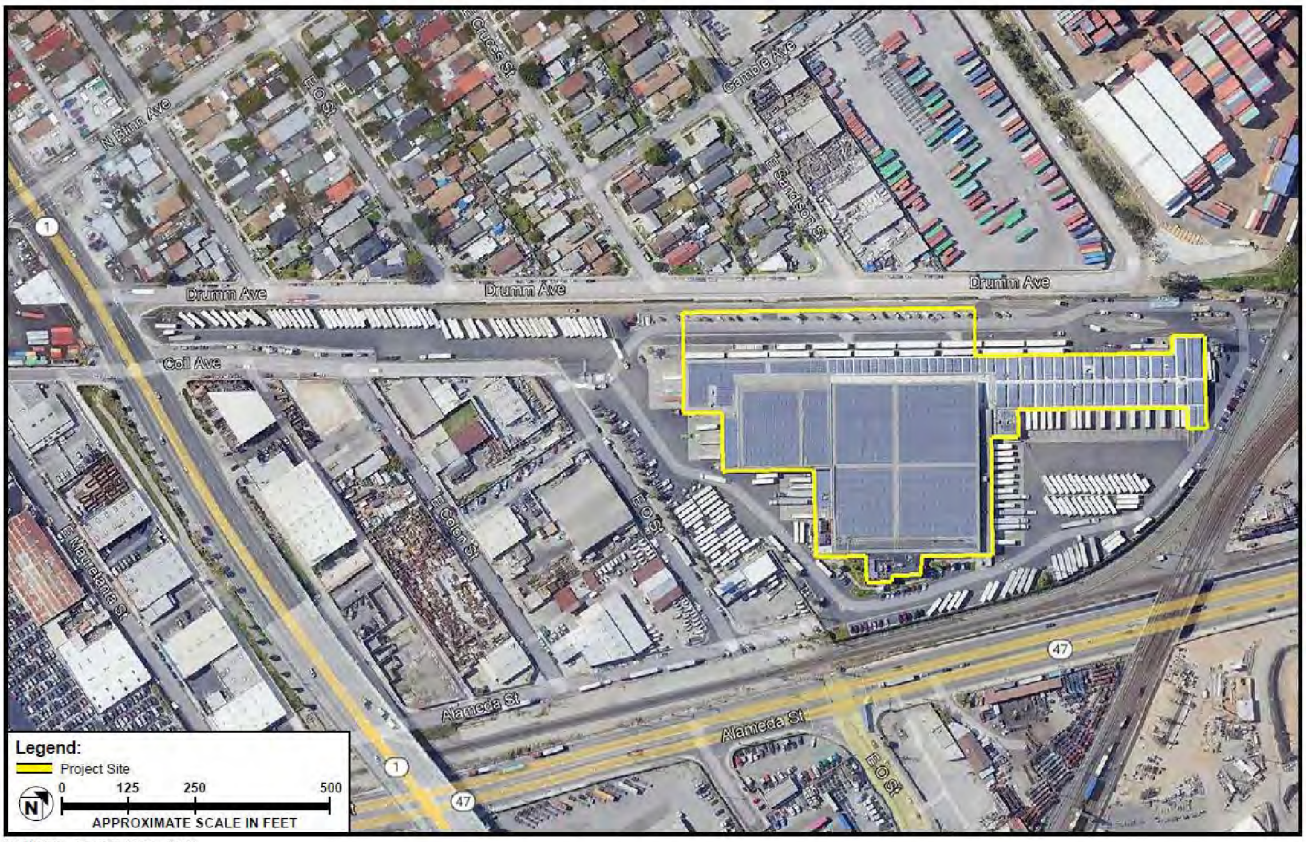
Future dates represent approximations based on the general Project timeline and are subject to change pending unpredictable circumstances that may arise. As such, for purposes of this analysis, Project construction is assumed to begin January 2026 and is expected to last until January 2027. Construction would occur over five (5) phases: (1) demolition; (2) grading; (3) building construction; (4) paving; and (5) architectural coating.

3.4 REQUESTED PERMITS AND APPROVALS

The list below includes the anticipated requests for approval of the Project. The Environmental Impact Report will analyze impacts associated with the Project and will provide environmental review sufficient for all necessary entitlements and public agency actions associated with the Project. The discretionary entitlements, reviews, permits and approvals required to implement the Project include, but are not necessarily limited to, the following:

- Pursuant to LAMC Section [Sec. 11.5.6-B], a General Plan Amendment from Light Industrial land use (45-foot height limit) to Light Industrial land use (site-specific 65-foot height limit.
- Pursuant to LAMC Sec. 12.32-B, a change of Height District from 1VL to 1L-D;
- Pursuant to LAMC Sec. 12.24-X,22, a Zoning Administrator's Determination to permit a Transitional Height of 65 feet in lieu of 61 feet, otherwise permitted for buildings located 100 feet to 199 feet from lots classified in the R1 Zone;
- A Site Plan Review for a project adding more than 50,000 square feet of nonresidential floor area.
- A Waiver of Dedication and Improvements (WDI) relief from Coil Street and Drumm Avenue. More specifically, the Applicant is requesting relief from the following requirements:
  - Coil Street: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way and roadway width to remain 15 feet as exists.
  - Drumm Avenue: All dedications and improvements (with the exception of necessary repairs to existing curbing). Half-street right of way to remain 20 feet and half roadway width to remain 15 feet as exists.
- Other discretionary and ministerial permits and approvals that may be deemed necessary, including, but not limited to, temporary street closure permits, grading permits, excavation permits, foundation permits, building permits, and sign permits.

Figure 1: Project Site Location



SOURCE: Google Earth - 2022

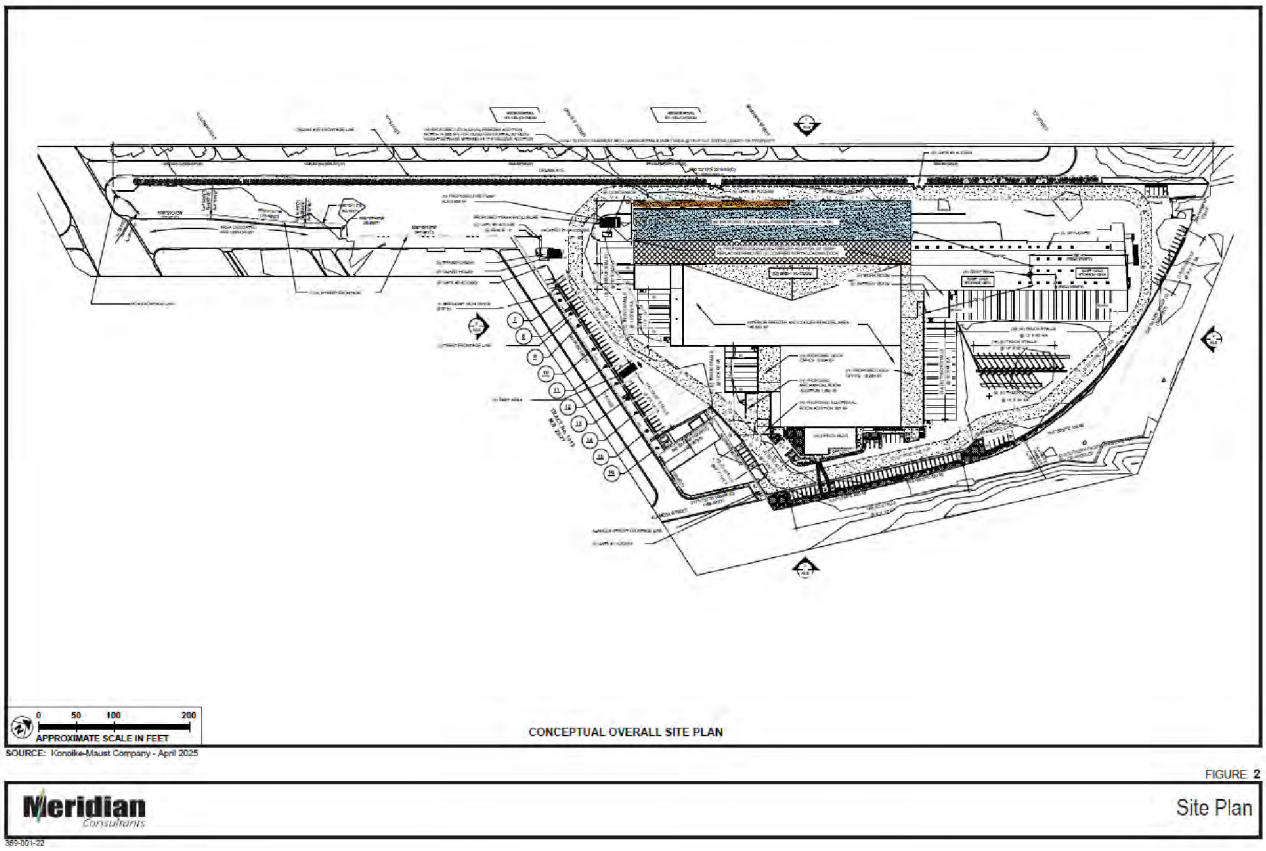
FIGURE 1

Meridian Consultants

Project Site Location

359-001-22

Figure 2: Site Plan



4 ENVIRONMENTAL IMPACT ANALYSIS

I. AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099 would the prcject:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a. Have a substantial adverse effect on a scenic vista?

No Impact. A scenic vista, as defined by the California Department of Transportation (Caltrans), is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. A significant impact would occur if the Project would have a substantial adverse effect on a scenic vista. A focal point view would consist of a view of a notable object, building, or setting. Diminishment of a scenic vista would occur if the bulk or design of a building or development contrasts enough with a visually interesting view, so that the quality of the view is permanently affected.

The Project site is within a highly urbanized community in the Wilmington – Harbor City Community Plan Area. The area has a pattern of low density residential (across Drumm Avenue to the west) and industrial uses (along the industrial corridor along Anaheim Street to the east). The existing visual character of the surrounding area is highly urban and the Project site is not located on or near any scenic vistas that would be impeded. Therefore, although the proposed Project would involve an addition resulting in a building height of 65 feet, which increases the

height and development of the Project site which has varying heights between 26 and approximately 42 feet, Project implementation would not obstruct any views of unique scenic vistas or focal points. Development of the proposed Project would result in an incremental intensification of existing prevailing land uses in an already urbanized area in the City. Furthermore, development of the Project and related projects is expected to occur in accordance with adopted plans and regulations. No impact would occur, and no mitigation measures are required.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. A significant impact would occur only if scenic resources would be damaged or removed by a project, such as a tree, rock outcropping, or historic building within a designated scenic highway. There are no identified scenic resources such as rock outcroppings or historic buildings located on-site. The building has not been identified as requiring Historic Preservation Review. The City of Los Angeles' General Plan Mobility Element (Citywide General Plan Circulation System Maps), as well as Caltrans[1] indicates that no State-designated scenic highways are located near the Project site. Therefore, no impacts related to scenic highways would occur and no mitigation measures are required.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact. A significant impact would occur if the proposed Project would substantially degrade the existing visual character or quality of the site and its surroundings. Significant impacts to the visual character of the site and its surroundings are generally based on the removal of features with aesthetic value, the introduction of contrasting urban features into a local area, and the degree to which the elements of the proposed Project detract from the visual character of an area. The Project will not change the visual character of its surroundings. As mentioned previously, although the proposed Project would involve an addition resulting in a building height of 65 feet, which increases the height and development of the Project site which has varying heights between 26 and approximately 42 feet, Project implementation would not obstruct any views thus not changing the visual character of its surroundings.

The subject property is currently developed with an existing one-story (varying heights between 26 to 42 feet) 221,496 square foot cold storage facility and provides cooler and freezer temperature storage. The proposed Project involves improvement and expansion of the existing warehouse facility which includes demolition and alteration of the 27,157 square foot existing cold dock for a new freezer. The new freezer would be approximately 71,331 square feet resulting in a net addition of 44,174 square feet of new floor area. The new structure would be 65 feet in

1 Caltrans. "California State Scenic Highway." Accessed September 2024. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways.

height (not including rooftop equipment) which exceeds the 45-foot height limit currently allowed per the applicable zoning. Additionally, the existing interior freezer would be remodeled. The improved facility will be expanding to the west and would result in the removal of the existing portion of double rail spur that is located in the path of the expansion. Additionally, the proposed development would include 2,290 square feet designated for the engine, electricity and fire pump building and 13,939 square feet of total new second floor building area for the offices. Following the expansion, the facility would also operate on Saturdays for one 8-hour shift. The expansion would decrease the length of the existing double rail spur and would also decrease the number of trains unloading stations from 18 down to 6. However, the overall operation of the warehouse building would remain unchanged following the expansion. The existing parking on site, which will not be changed with the Project, is 119 spaces.

The subject property is zoned [Q] MR2-1 VL-CUGU and [Q] M3-1VL-CUGU and is located in a long-established, urbanized neighborhood. Properties surrounding the subject property are zoned M3-1VL to the east along Alameda Street with heavy industrial uses, R1-1XL-O-CUGU to the west along Drumm Avenue with single-family residential uses and C1-1VL-O-CUGU to the southwest along Pacific Coast Highway with commercial uses.

Properties to the north and east across Alameda Street are zoned M3-1VL, [Q]M3-1VL-CUGU and [Q]M3-1 and are designated for heavy manufacturing land uses by the General Plan. The lots to the east are improved with industrial uses along Alameda Street.

Properties to the west across Drumm Avenue are zoned R1-1XL-O-CUGU and is designated for low residential land uses by the General Plan. The lots to the west are improved with single- and multi-family residential uses along Drumm Avenue, E. Sandison Street, E. Cruces Street, E. O Street and E. Colon Street.

Properties to the southwest are zoned [Q]C1-1VL-O-CUGU and are designated for Limited Commercial land uses by the General Plan. The lots to the southwest are improved with commercial uses along Pacific Coast Highway.

Potential for degradation to the visual character and quality of the site and surrounding area would be further reduced with adherence to LAMC Section 91.8104, requires that every building shall be maintained in a safe and sanitary condition and good repair, and free from debris, rubbish, garbage, trash, overgrown vegetation, or other similar material; and LAMC Section 91.8014.15, which requires that the exterior to all building and fences shall be free from graffiti when such graffiti is visible from a street or alley. Aside from the entitlements requested herein, the Project would not conflict with applicable zoning and other regulations governing scenic quality. Therefore, no impacts are anticipated, and no mitigation measures are required.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact. A significant impact would occur if light and glare substantially altered the character of off-site areas surrounding the site or interfered with the performance of an off-site activity. Light impacts are typically associated with the use of artificial light during the

evening and night-time hours. Glare may be a daytime occurrence caused by the reflection of sunlight or artificial light from highly polished surfaces, such as window glass and reflective cladding materials, and may interfere with the safe operation of a motor vehicle on adjacent streets. Daytime glare is common in urban areas and is typically associated with mid- to high-rise buildings with exterior façades largely or entirely comprised of highly reflective glass or mirror-like materials. Nighttime glare is primarily associated with bright point-source lighting that contrasts with existing low ambient light conditions. Due to the urbanized nature of the area, a moderate level of ambient nighttime light already exists. Nighttime lighting sources include streetlights, vehicle headlights, and interior and exterior building illumination. All on-site lighting is directed away from adjacent properties and would not substantially change existing ambient nighttime lighting conditions. No additional lighting would be required due to the facility expansion. The proposed Project does not include any elements or features that would create substantial new sources of glare. Therefore, light and glare impacts would be less than significant.

Cumulative Impacts

The proposed Project is not located on or near any scenic vistas or other important visual resources, including scenic highways. The proposed Project would involve an addition resulting in an increase in building height to 65 feet. However, Project implementation would not obstruct any views of unique scenic vistas. Potential related projects that would increase building heights would result in an incremental intensification in an already urbanized area of the City; however, similar to the proposed Project, all other related projects would not be near scenic vistas and would be developed in accordance with adopted plans and regulations. As such, no cumulative impacts to aesthetics would occur.

II. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Prcject and the Forest Legacy Assessment Prcject; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. A significant impact would occur if the proposed Project would convert valued farmland to non-agricultural uses. The Project site is located in an urbanized area of the City of

Los Angeles. As discussed in **Section 3.0: Project Description**, of this Initial Study, the Project site is currently developed with a warehouse building. In addition, the uses surrounding the Project site primarily include light industrial and single-family residential uses. No agricultural uses or operations occur on-site or in the vicinity of the Project site. The Project site and surrounding area are also not mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency Department of Conservation.[2] In addition, the proposed Project would not convert any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. As such, no impacts would occur, and no mitigation measures are required.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. A significant impact would occur if the proposed Project conflicted with existing agricultural zoning or agricultural parcels enrolled under the Williamson Act. The Project site is zoned [Q] MR2-1 VL-CUGU and is designated for Restricted Light Industrial land uses by the Wilmington – Harbor City Community Plan. The Project site is not zoned for agricultural use, nor is there farmland at the site. In addition, none of the surrounding properties are zoned or utilized for agricultural use. Furthermore, the Project site and surrounding area are not enrolled under a Williamson Act Contract.[3] Therefore, the Project would not conflict with any zoning for agricultural uses or a Williamson Act Contract. As such, no impacts would occur, and no mitigation measures are required.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. A significant impact would occur if the proposed Project conflicted with existing zoning or caused rezoning of forest land or timberland, or resulted in the loss of forest land or in the conversion of forest land to non-forest use. The Project site is located in an urbanized area and is currently developed with a warehouse building. The Project site does not include any forest land or timberland. In addition, the Project site is currently zoned for industrial uses and is not zoned and/or used as forest land.[4] Therefore, the Project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland as defined by the PRC. No impacts would occur, and no mitigation measures are required.

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2 California Department of Conservation. "Los Angeles County Important Farmland." Farmland Mapping and Monitoring Program. Accessed September 2024. https://www.conservation.ca.gov/dlrp/fmmp/Pages/LosAngeles.aspx.

3 California Department of Conservation. "Williamson Act Contract Land." Division of Land Resource Protection. Accessed September 2024. https://www.conservation.ca.gov/dlrp/wa/Pages/stats_reports.aspx.

4 US Forest Service. "Map of the Angeles National Forest." Angeles National Forest. Accessed September 2024. https://www.fs.usda.gov/detailfull/angeles/maps-pubs/?cid=FSEPRD535505.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. A significant impact would occur if the proposed Project conflicted with existing zoning or caused rezoning of forest land or timberland or resulted in the loss of forest land or in the conversion of forest land to non-forest use. The Project site is located in an urbanized area and does not include any forest land or timberland. Therefore, the Project would not result in the loss or conversion of forest land to non-forest use. No impacts would occur, and no mitigation measures are required.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. A significant impact would occur if the proposed Project caused the conversion of farmland to non-agricultural use. The Project site is located in a highly developed area and zoned for light industrial uses within the Wilmington-Harbor Community Plan. The subject property is currently improved with an existing warehouse building and is located in an urbanized area of the City, and no agricultural uses, designated Farmland, or forest land uses occur at the Project site or within the surrounding area. As such, the Project would not result in the conversion of farmland to nonagricultural use. No impacts would occur, and no mitigation measures are required.

Cumulative Impacts

The Project site is in an urbanized area that is not near or on land used for or designated as agricultural or forestland. Therefore, no cumulative impacts related to agriculture and forestry resources would occur.

III. AIR QUALITY

Where available, the significance criteria established by the South Coast Air Quality Management District (SCAQMD) may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

The following section summarizes and incorporates by reference information from the *Air Quality Study* prepared by Meridian Consultants, dated September 2024, on behalf of the Applicant. The Air Quality Study is included as **Appendix A** of this ND.

a. Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The South Coast Air Basin (Basin) is designated nonattainment at the federal and State level for ozone and PM2.5. SCAQMD has developed regional emissions thresholds to determine whether a project would contribute to air pollutant violations. If a project exceeds the regional air pollutant thresholds, then it would significantly contribute to air quality violations in the Basin.

Construction

All construction activities would be conducted in compliance with the SCAQMD rules pertaining to Fugitive Dust (Rule 403)[5] and Architectural Coating (Rule 1113),[6] and heavy-duty diesel

[5] South Coast Air Quality Management District (SCAQMD). *Fugitive Dust Rule 403*. Accessed September 2024. http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.

[6] SCAQMD. *Architectural Coatings (Rule 1113*). Accessed September 2024. http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf.

equipment would meet minimum California Air Resources Board (CARB) off-road fleet requirements.

Construction impacts include emissions associated with demolition, grading, construction of freezer expansion, paving, and architectural coating. Construction emissions result from on- and off-site activities. On-site emissions principally consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM10) from disturbed soil. Additionally, paving operations and application of architectural coatings would release reactive organic gas (ROG) emissions. Off-site emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM10 and PM2.5).

The analysis of daily construction emissions was prepared utilizing CalEEMod (version 2022.1.1.26) recommended by SCAQMD. **Table 4.3-1: Unmitigated Maximum Regional Construction Emissions** presents the maximum estimated daily emissions anticipated to occur throughout the duration of Project construction. Emissions of volatile organic compounds (VOC), nitrogen oxides (NOx), carbon monoxide (CO), sulfur oxides (SOx), and particulate matter (PM10 and PM2.5) are compared against the applicable SCAQMD mass daily thresholds of significance. As shown in **Table 4.3-1**, maximum daily emissions during construction would be below the applicable SCAQMD maximum daily emission thresholds. Accordingly, air quality emissions associated with construction of the Project would have a less than significant effect on the environment.

TABLE 4.3-1: UNMITIGATED MAXIMUM REGIONAL CONSTRUCTION EMISSIONS

Source	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
Maximum	41.5	25.3	19.3	0.1	5.4	2.3
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	No	No	No	No	No	No

Notes: CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; SOx = sulfur oxides; VOC = volatile organic compounds.

Source: Refer to **Appendix A**.

Operation

Operational emissions would result primarily from passenger vehicles traveling to and from the Project site. As mentioned previously, the facility currently provides cooler and freezer temperature storage and operates 5 days a week (Monday through Friday) for 16 hours per day, at a quantity of two 8-hour shifts per day. Following the expansion, the facility would also operate on Saturdays for one 8-hour shift. The new expanded facility would add approximately a maximum of 30 employees resulting in a total of 180 employees. Approximately 80 percent (144 employees) will work the day shift and approximately 20 percent (36 employees) will work the night shift. Similar to existing conditions, approximately 30 percent of the employees will continue to carpool

or use public transportation. Therefore, approximately 126 cars will arrive and depart from the facility per day. The expansion would result in an addition of approximately 40 trucks/containers arriving and departing the Project site per day, resulting in a total of 160 trucks/containers per day. Truck activity would continue to be conducted by appointment only, therefore no trucks would be idling off-site. Truck trips converted to PCE units at a ratio of 1.5 passenger cars results in 480 trips. As such, the proposed expansion would result in 732 daily trips.[7]

The results presented in **Table 4.3-2: Unmitigated Maximum Regional Operational Emissions** are compared to the SCAQMD-established operational significance thresholds. As shown, the operational emissions would not exceed the regional VOC, NOx, CO, SOx, PM10, and PM2.5 concentration thresholds. Accordingly, air quality emissions associated with operation of the Project would have a less than significant effect on the environment.

TABLE 4.3-2: UNMITIGATED MAXIMUM REGIONAL OPERATIONAL EMISSIONS

Source	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
Mobile	1.4	12.3	18.6	0.1	5.8	1.6
Area	8.8	0.1	12.3	<0.1	<0.1	<0.1
Energy	0.1	1.6	1.3	<0.1	0.1	0.1
Total	**10.2**	**14.0**	**32.2**	**0.1**	**5.9**	**1.7**
SCAQMD Mass Daily Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: Totals in table may not appear to add exactly due to rounding in the computer model calculations. CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; SOx = sulfur oxides; VOC = volatile organic compounds.

Source: Refer to **Appendix A**.

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant Impact. SCAQMD recommends that a project be considered to result in a cumulatively considerable impact to air quality if any construction-related emissions and operational emissions from individual development projects exceed the mass daily emissions thresholds for individual projects.[8] As discussed previously, Project construction and operation emissions were estimated using California Emissions Estimator Model (CalEEMod), a Statewide land use emissions computer model designed to quantify potential criteria pollutant and

7 126 employees arriving trips + 126 employees departing trips + 480 PCE trips = 732 daily trips

8 SCAQMD. "White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions." Board Meeting. Agenda No. 29 (September 5, 2003). Appendix D, p. D-3.

greenhouse gas (GHG) emissions associated with both construction and operations from land use projects. As shown in **Table 4.3-1**, maximum daily construction emissions for the Project would not exceed the SCAQMD thresholds for the criteria pollutants VOC, NOx, CO, SOx, PM10, and PM2.5. As shown in **Table 4.3-2**, maximum daily operational emissions for the Project would not exceed the SCAQMD thresholds for the criteria pollutants VOC, NOx, CO, SOx, PM10, and PM2.5. Therefore, the Project would result in a less-than-significant impact related to cumulative construction and operational emissions.

c. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. A significant impact may occur if a project were to generate pollutant concentrations to a degree that would significantly affect sensitive receptors. SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities.

Localized Significant Emission Concentrations

The SCAQMD *Final Localized Significance Threshold [LST] Methodology*[9] provides guidance on analysis of localized air quality impacts. Maximum daily LST values were derived for emissions of NOx, CO, PM10, and PM2.5 that would be generated during construction and operation of the Project. The results of the LST analysis are provided in **Table 4.3-3: Localized Construction and Operational Emissions**. These estimates assume the maximum area that would be disturbed during construction on any given day during Project buildout. Construction would comply with SCAQMD's Rule 403 (Fugitive Dust), which requires watering of the site during dust-generating construction activities, stabilizing disturbed areas with water or chemical stabilizers, and preventing track-out dust from construction vehicles. As shown in **Table 4.3-3**, emissions would not exceed the localized significance construction and operational thresholds. As such, impacts would be less than significant.

TABLE 4.3-3: LOCALIZED CONSTRUCTION AND OPERATIONAL EMISSIONS

Source	NOx	CO	PM10	PM2.5
	On-Site Emissions (pounds/day)			
Total maximum construction emissions	12.9	14.6	2.4	1.4
LST construction threshold	74	757	6	4
Construction Threshold Exceeded?	***No***	***No***	***No***	***No***
Project area/energy operational emissions	1.7	12.6	0.1	0.1

9 SCAQMD. *Final Localized Significance Threshold Methodology*. *(2008)*. p. 3-3. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2.

TABLE 4.3-3: LOCALIZED CONSTRUCTION AND OPERATIONAL EMISSIONS

Source	NOx	CO	PM10	PM2.5
	On-Site Emissions (pounds/day)			
LST operational threshold	74	757	4	1
Operational Threshold Exceeded?	***No***	***No***	***No***	***No***

Notes: Totals in table may not appear to add exactly due to rounding in the computer model calculations. CO = carbon monoxide; NOx = nitrogen oxide; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns.

Source: Refer to **Appendix A**.

Toxic Air Contaminants

Project construction would result in short-term emissions of diesel particulate matter, which is a toxic air contaminant (TAC). Off-road heavy-duty diesel equipment would emit diesel particulate matter over the course of the construction period. As mentioned previously, commercial hotel and multi-family residential uses are located adjacent to the Project site. Localized diesel particulate emissions (strongly correlated with PM2.5 emissions) would be minimal and would be substantially below localized thresholds, as shown in **Table 4.3-3**. Project compliance with the CARB anti-idling measure, which limits idling to no more than 5 minutes at any location for diesel-fueled commercial vehicles, would further minimize diesel particulate matter emissions in the Project area.

Project operations would generate only minor amounts of diesel emissions from delivery trucks and incidental maintenance activities. Trucks would comply with the applicable provisions of the CARB Truck and Bus regulation to minimize and reduce emission from existing diesel trucks. In addition, Project operations would only result in minimal emissions of air toxics from maintenance or other ongoing activities, such as from the use of architectural coatings or household cleaning products. As a result, toxic or carcinogenic air pollutants are not expected to occur in any meaningful amounts in conjunction with operation of the proposed uses within the Project site. Based on the uses expected on the Project site, potential long-term operational impacts associated with the release of TACs would be minimal and would not be expected to exceed the SCAQMD thresholds of significance.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact. As shown in **Table 4.3-3**, the construction and operation of the Project would result in emissions below the localized significance thresholds. Mandatory compliance with SCAQMD Rule 1113 would limit the number of VOCs in architectural coatings and solvents. According to SCAQMD, while almost any source may emit objectionable odors, some land uses are more likely to produce odors because of their operation. Land uses more

likely to produce odors include agriculture, chemical plants, composting operations, dairies, fiberglass molding manufacturing, landfills, refineries, rendering plants, rail yards, and wastewater treatment plants. The Project does not contain any active manufacturing activities and would not convert current agricultural land to residential land uses. Therefore, objectionable odors would not be emitted by the proposed uses.

Any unforeseen odors generated by the Project will be controlled in accordance with SCAQMD Rule 402. Rule 402 prohibits the discharge of air contaminants that harm, endanger, or annoy individuals or the public; endanger the comfort, health or safety of individuals or the public; or cause injury or damage to business or property. Failure to comply with Rule 402 could subject the offending facility to possible fines and/or operational limitations in an approved odor control or odor abatement plan.

Cumulative Impacts

Air quality emissions during the construction and operation of the proposed Project would have a less than significant effect on the environment. Furthermore, the proposed Project's maximum daily construction and operational emissions would not exceed the SCAQMD thresholds for criteria pollutants. Thus, the proposed Project would result in a less than significant impact related to cumulative construction and operational emissions. It is largely speculative at this time to determine whether the proposed Project would overlap with any future projects. However, all projects, including the proposed Project, would be subject to SCAQMD rules and regulations to limit fugitive dust and other emissions. Therefore, the proposed Project's contribution to cumulative air quality impacts would be less than significant.

IV. BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The following section summarizes and incorporates by reference information from the Arborist Report prepared by The Tree Resource dated August 26, 2022, on behalf of the Applicant. The Arborist Report is included as **Appendix B** of this ND.

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. A project would have a significant biological impact through the loss or destruction of individuals of a species or through the degradation of sensitive habitat. The Project site is located in an urbanized area and is currently developed with an existing warehouse building. Due to the urbanized and disturbed nature of the Project site and the surrounding developed areas, as well as lack of large expanses of open space areas, species likely to occur on-site are limited to small terrestrial and avian species typically found in developed settings. Areas not used for buildings, driveways, parking, or pedestrian amenities include landscaping in the form of non-native/non-protected trees and grass.

Due to the lack of habitat on the Project site, special status species listed by the California Department of Fish and Wildlife[10] or by the US Fish and Wildlife Service[11] would not be anticipated to be present on-site. Furthermore, the Project site is not located in or adjacent to a Biological Resource Area as defined by the City.[12] As detailed in **Appendix B**, there are no protected trees or shrubs on the site that would be considered protected native within the City of Los Angeles Native Tree Protection Ordinance. Additionally, there are no street trees in the parkway perimeter of the Project site. Nesting birds are protected under the Federal Migratory Bird Treaty Act (MBTA) (Title 33, US Code, Section 703 et seq., see also Title 50, Code of Federal Regulation, Part 10) and Section 3503 of the California Department of Fish and Wildlife Code. Therefore, the Project would not have any adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations by the California Department of Fish and Wildlife or US Fish and Wildlife Service. No impacts would occur and no mitigation measures are required.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. A significant impact would occur if any riparian habitat or natural community would be lost or destroyed as a result of urban development. The Project site is located in an urbanized area and is currently developed with an existing warehouse building. No riparian or other sensitive

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10 California Department of Fish and Wildlife. "California Natural Diversity Database." Special Animals List. Accessed September 2024.

11 US Fish and Wildlife Service. "Listed species believed to or known to occur in California." ECOS Environmental Conservation Online System. Accessed September 2024. https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=CA&stateName=California&statusCategory=Listed.

12 City of Los Angeles Department of City Planning. "Los Angeles Citywide General Plan Framework." Draft Environmental Impact Report. January 19, 1995. P. 2-18-4.

natural community exists on the Project site.[13,14] The Project site is not located in or adjacent to a Biological Resource Area or Significant Ecological Area as defined by the City of Los Angeles or County of Los Angeles.[15,16] There are no other sensitive natural communities identified by the California Department of Fish and Wildlife or the US Fish and Wildlife Service.[17,18,19] Therefore, the Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community. No impact would occur, and no mitigation measures are required.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. A significant impact would occur if federally protected wetlands would be modified or removed by a project. The Project site is located in an urbanized area and is currently developed with an existing warehouse building. No water bodies or federally protected wetlands as defined by Section 404 of the Clean Water Act exist on the Project site.[20] As such, the Project would not have an adverse effect on federally protected wetlands. No impact would occur, and no mitigation measures are required.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No Impact. A significant impact would occur if the proposed Project would interfere with, or remove access to, a migratory wildlife corridor or impede use of native wildlife nursery sites. No surface water bodies, streams or waterways occur on the Project site. The Project site does not provide nursery sites for wildlife, nor is it conducive to function as a corridor for migratory wildlife. Street trees would be planted in the public right of way and adjacent to the surface parking. The MBTA implements the US' commitment to four treaties with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. Nesting migratory birds are protected under the MBTA (US Code, Title 16, Sections 703–712) and California Fish and Game Code Sections

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13 City of Los Angeles Department of City Planning. "Parcel Profile Report." ZIMAS. Accessed September 2024. http://zimas.lacity.org/.

14 US Environmental Protection Agency. NEPAssist. Accessed September 2024. www.epa.gov/nepa/nepassist.

15 City of Los Angeles Department of City Planning. "Los Angeles Citywide General Plan Framework." Draft Environmental Impact Report. January 19, 1995. P. 2-18-4.

16 Los Angeles County. "Figure 9.3 Significant Ecological Areas and Coastal Resource Areas Policy Map." Los Angeles County General Plan. October 6, 2015. Updated September 2021. Accessed September 2024. https://planning.lacounty.gov/long-range-planning/general-plan/.

17 California Department of Fish and Wildlife. Biographic Information and Observation System (BIOS). Accessed September 2024. www.wildlife.ca.gov/Data/BIOS.

18 California Department of Fish and Wildlife. CDFW Lands. Accessed September 2024. https://www.wildlife.ca.gov/Lands.

19 California Department of Fish and Wildlife. National Wetlands Inventory. Accessed September 2024. https://www.fws.gov/program/national-wetlands-inventory.

20 US Environmental Protection Agency. *NEPAssist*. Accessed September 2024. www.epa.gov/nepa/nepassist.

3503 et seq. Compliance with federal MBTA and California Fish and Game Code would reduce the impact to a less than significant level. Therefore, the Project would not interfere with the movement of any native resident or migratory species or impede the use of native wildlife nursery sites. No impact would occur, and no mitigation measures are required.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (e.g., oak trees or California walnut woodlands)?

No Impact. A significant impact would occur if the proposed Project would be inconsistent with local regulations pertaining to biological resources. The City Protected Tree Ordinance (No. 186,873) requires the protection Southern California native tree species such as oak trees, Southern California black walnut, western sycamore, and California bay trees and protected shrubs such as Mexican Elderberry and Toron. As detailed in **Appendix B**, there are no protected trees or shrubs on the site that would be considered protected native within the City of Los Angeles Native Tree Protection Ordinance. Additionally, there are no street trees in the parkway perimeter of the Project site. The proposed Project would be required to comply with the provisions of the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code (CFGC). Both the MBTA and CFGC protect migratory birds that may use trees on or adjacent to the Project site for nesting, and may be disturbed during construction of the proposed Project. As mentioned previously, no protected trees are currently onsite.[21] Therefore, there would be no impact relating to conflicts with local policies and ordinances protecting biological resources. No impacts would occur, and no mitigation measures are required.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project site is located in an urbanized area and is currently developed with an existing warehouse building. As described previously, the Project site does not support any habitat or natural community.[22,23] No Conservation Plan, Natural Community Conservation Plan, or other approved habitat conservation plans apply to the Project site.[24] Thus, the Project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other related plans. No impact would occur, and no mitigation measures are required.

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21 See **Appendix B**.

22 City of Los Angeles Department of City Planning. "Parcel Profile Report." ZIMAS. Accessed September 2024. http://zimas.lacity.org/.

23 US Environmental Protection Agency. NEPAssist. Accessed September 2024. www.epa.gov/nepa/nepassist.

24 California Department of Fish and Wildlife. California Regional Conservation Plans. October 2017.

Cumulative Impacts

Similar to the proposed Project, future related projects would be located in highly urbanized and developed areas that most likely do not contain significant biological resources, such as candidate, sensitive or special status species, riparian habitat, sensitive natural communities, and wetlands, and are not part of a wildlife corridor or subject to a habitat conservation plan, a natural community conservation plan, or other such plan. The proposed Project would not result in any significant impacts on biological resources. Therefore, cumulative impacts related to biological resources would be less than significant.

V. CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☒	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

The following section summarizes and incorporates by reference information from the AB52 Consultation conducted by the City and the California Historical Resources Information System (CHRIS) prepared by PaleoWest, dated August 29, 2023, on behalf of the Applicant. The AB52 Consultation and CHRIS report is included as **Appendix C** of this ND.

a. Cause a substantial adverse change in the significance of a historical resource pursuant to State CEQA Guidelines §15064.5?

No Impact. A significant impact would occur if the proposed Project would substantially alter the environmental context of or remove identified historical resources. Section 15064.5 defines historic resources as resources listed or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources, resources included in a local register of historical resources or identified as significant in an historical resources survey meeting the requirements of PRC section 5024.1(g), and other resources considered to be historical resources by the lead agency based on substantial evidence. Generally, a resource is considered "historically significant" if it meets one of the following criteria:

i. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
ii. Is associated with the lives of persons important in our past;
iii. Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possesses high artistic values;
iv. Has yielded, or may be likely to yield, information important in prehistory or history.

The Project site is currently developed with an existing warehouse building used to store wholesale food products for third party users. Additionally, the building has not been identified as a historic resource by local or State agencies, and the Project site has not been determined to be eligible for listing in the National Register of Historic Places, California Register of Historical

Resources, the Los Angeles Historic-Cultural Monuments Register, and/or any local register. There are no identified historical resources on site according to Los Angeles Historic Resources Inventory[25] (OHR 2019) and SurveyLA for Wilmington-Harbor City.[26] Additionally, a California Historical Resources Information System (CHRIS) record search was conducted on August 15, 2023 (refer to **Appendix C.2**). No previously documented cultural resources lie within or immediately adjacent to the Project area nor are they listed on the Built Environment Resources Directory (BERD). Moreover, the City of Los Angeles Office of Historic Resources concluded that the Project site is not a historical resource for purposes of CEQA. No impacts would occur, and no mitigation measures are required.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines §15064.5?

Less than Significant Impact. A significant impact would occur if a known or unknown archaeological resource would be removed, altered, or destroyed as a result of the proposed development. Section 15064.5 of the State CEQA Guidelines defines significant archaeological resources as resources that meet the criteria for historical resources or resources that constitute unique archaeological resources. CEQA Guidelines Section 15064.5(a)(3)(D) generally defines archaeological resources as any resource that "has yielded, or may be likely to yield, information important in prehistory or history." Archaeological resources are features, such as tools, utensils, carvings, fabric, building foundations, etc., that document evidence of past human endeavors and that may be historically or culturally important to a significant earlier community.

The Project site is located within an urbanized area of the City and has been subject to grading and development in the past. Therefore, surficial archaeological resources that may have existed at one time have likely been previously disturbed. No excavation activities are proposed as the Project would include 7,000 cubic yards of soil to be imported during the grading phase. Although no excavation activities are anticipated, in the event that any subsurface cultural resources are encountered at the Project site during construction or the course of any ground disturbance activities, all such activities shall halt immediately, pursuant to State Health and Safety Code Section 7050.5. At which time the applicant shall notify the City and consult with a qualified archaeologist who shall evaluate the find in accordance with Federal, State, and local guidelines, including those set forth in the California Public Resources Code Section 21083.2 and shall determine the necessary findings as to the origin and disposition to assess the significance of the find. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined to be unnecessary or infeasible by the City. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. The Project would not cause a substantial adverse change in the significance of an archaeological resource. With the

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25 City of Los Angeles Office of Historic Resources (OHR). "HistoricPlacesLA." Los Angeles Historic Resources Inventory Map. Accessed September 2024. http://www.historicplacesla.org/map.

26 City of Los Angeles SurveyLA Results: Wilmington – Harbor City. Accessed September 2024. https://planning.lacity.gov/preservation-design/survey-la-results-wilmington-harbor-city.

implementation of regulatory requirements, impacts to archaeological resources would be less than significant, and no mitigation measures are required.

c. Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant Impact. A significant impact would occur if previously interred human remains would be disturbed during excavation of the Project site. As discussed previously, the Project site is located within an urbanized area and has been subject to previous grading and development. No excavation activities are proposed as the Project would include 7,000 cubic yards of soil to be imported during the grading phase; thus the finding of human remains would be minimal. While no formal cemeteries, other places of human interment, or burial grounds or sites are known to occur within the Project area, there is always a possibility that human remains can be encountered during construction. In addition, In the event that human skeletal remains are encountered at the Project site during construction or the course of any ground disturbance activities, all such activities shall halt immediately, pursuant to State Health and Safety Code Section 7050.5 which requires that no further ground disturbance shall occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to California Public Resources Code Section 5097.98. In the event human skeletal remains are discovered during construction or during any ground disturbance actives, the following procedures shall be followed:

- Stop immediately and contact the County Coroner:
  - 1104 N. Mission Road Los Angeles, CA 90033 323-343-0512 (8 a.m. to 5 p.m. Monday through Friday) or 323-343-0714 (After Hours, Saturday, Sunday, and Holidays)
    - If the remains are determined to be of Native American descent, the Coroner has 24 hours to notify the Native American Heritage Commission (NAHC).
    - The NAHC will immediately notify the person it believes to be the most likely descendent of the deceased Native American.
    - The most likely descendent has 48 hours to make recommendations to the Applicant, for the treatment or disposition, with proper dignity, of the human remains and grave goods.
    - If the Applicant does not accept the descendant's recommendations, the owner or the descendent may request mediation by the NAHC.
    - The most likely descendent has 48 hours to make recommendations to the Applicant, for the treatment or disposition, with proper dignity, of the human remains and grave goods.
    - If the Applicant does not accept the descendant's recommendations, the owner or the descendent may request mediation by the NAHC.

Therefore, impacts related to human remains would be less than significant, and no mitigation measures are required.

Cumulative Impacts

The individual Project-level impacts associated with cultural resources were found to be less than significant and no mitigation would be required. The proposed Project would be required by law to comply with all applicable federal, State and local requirements related to historical, cultural and archaeological resources. Similar to the proposed Project, any future related projects would also be required to comply with all such requirements and regulations, to be consistent with the provisions set forth by CEQA and the CEQA Guidelines, including the implementation of all feasible mitigation measures, should a significant Project-related and/or cumulative impact be identified. As such, cumulative impacts would be less than significant.

VI. ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

This section analyzes the Project's potential impacts on energy resources, focusing on electricity and transportation-related energy (petroleum-based fuels). This analysis addresses both construction and operational impacts associated with the consumption of energy resources. This section evaluates the demand for energy resources attributable to the Project and determines whether the current and planned electrical and petroleum-based fuel supplies and distribution systems are adequate to meet the Project's forecasted energy consumption. The information presented herein is based, in part, on the California Emissions Estimator Model (CalEEMod) outputs as calculated for **Section III: Air Quality** and **Section VIII: Greenhouse Gas Emissions**, and on the calculations for this section as presented in **Appendix D: Energy Calculations.**

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. A significant impact would occur if the project would substantially increase demand for energy resources, which exceeds the available supply. The Project would be constructed in accordance with all applicable laws and regulations, including applicable State and federal laws, and building regulations pursuant to the LAMC and Los Angeles Green Building Code (LA Green Building Code) that are intended to promote efficient utilization of resources and minimize environmental impacts.

Construction

The Project would utilize construction contractors who demonstrate compliance with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. Compliance with anti-idling and emissions regulations would result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption, as would use of haul trucks with larger capacities.

Construction of the proposed Project would require the use of various forms of energy. **Table 4.6-1: Summary of Energy Use During Construction** summarizes the quantity of petroleum fuels and electricity that would be consumed during construction. As shown in **Table 4.6-1**, 46,651 gallons of diesel fuel, 4,445 gallons of gasoline fuel, and 1,763 kilowatt-hours (kWh) of electricity would be consumed during construction. When compared to the national oil supply in 2023 of 17.7 million barrels per day,[27] and the City's estimated power demand of 22,452 gigawatt-hours,[28] the oil and electricity usage during construction would be minimal. Moreover, the Project site is currently developed with a solar panel system located on-site which has a 1.5 MWh capacity.

Although construction would consume energy resources, construction activities would be temporary and would cease at the end of construction; therefore, there would be no long-term energy impacts associated with construction activities. The adopted energy conservation plans do not specifically discuss energy uses from construction activities. For this reason, and because the amount of fuel and electricity used during construction would be minimal and met by existing sources, impacts from construction would be less than significant.

TABLE 4.6-1: SUMMARY OF ENERGY USE DURING CONSTRUCTION

Fuel Type	Quantity
Diesel	
Off-Road Construction Equipment	34,846 Gallons
On-Road Motor Vehicles	11,805 Gallons
Total	46,651 Gallons
Gasoline	
Off-Road Construction Equipment	0 Gallons
On-Site Motor Vehicles	4,445 Gallons
Total	4,445 Gallons
Electricity	**1,763 kWh**

*Note: Refer to **Appendix D** for Energy Calculations.*

Operation

During operation, energy would be consumed for a variety of purposes, including electricity consumption for lighting, appliances, heating, ventilation, and air conditioning (HVAC) equipment,

27 US Energy Information Administration. "Annual Energy Outlook 2020: Table 11." Petroleum and Other Liquids Supply and Disposition. Accessed September 2024. https://www.eia.gov/outlooks/aeo/data/browser/#/?id=11-AEO2020&cases=ref2020&sourcekey=0.

28 City of Los Angeles Department of Water and Power. 2018 Retail Electric Sales and Demand Forecast. November 2018. Accessed September 2024. https://rates.ladwp.com/Admin/Uploads/Load%20Forecast/2019/04/2018%20Load%20Forecast_Final.pdf.

water supply and delivery, and other commercial operations that include transportation fuel consumption from motor vehicles driving to and from the site.

The Project would implement all applicable mandatory measures within the LA Green Building Code that would have the effect of reducing the Project's energy use. The Project would comply with City Ordinance No. 179,820 (Green Building Ordinance), which establishes a requirement to incorporate green building practices into projects that meet certain threshold criteria. The Project would also comply with the lighting power requirements in the California Energy Code, California Code of Regulations (CCR), Title 24, Part 6.

An energy report for the Project site shows that the existing uses generated approximately 1,524 megawatt-hours (MWh) in 2021.[29] Electricity demand would decrease to approximately 1,433 MWh once the Project is built out.[30] This decrease is the result of higher energy efficiency standards such as Title 24. Electricity demand at the Project site would be met by the existing solar panel system located on-site which has a 1.5 MWh capacity.

In addition to decreasing electricity consumption, the Project would be designed and operated in accordance with the applicable State Building Code Title 24 regulations and the LA Green Building code, which impose energy conservation measures. Adherence to the aforementioned energy requirements will ensure conformance with the State's goal of promoting energy efficiency. The Project would not require the acquisition of additional electricity supplies beyond those that exist or anticipated by the LADWP. The Project would be in compliance with Title 24 of the CCR (CalGreen) requiring building energy efficiency standards and would also be in compliance with the LA Green Building Code.

Trip generation estimates for the Project were calculated based on results from the City of Los Angeles VMT calculator (refer to **Appendix G.1**). As shown, the Project would result in a net daily increase of 1,092 VMT. This would result in a daily increase in consumption of approximately 26 gallons of vehicle fuel.[31] When compared to the national crude oil supply in 2026 of 17.9 million barrels per day,[32] the crude oil usage during operation would be minimal.

As such, impacts related to energy consumption would be less than significant and no mitigation measures are required.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. State plans adopted for the purposes of promoting energy efficiency include the California Renewable Portfolio Standard, the Clean Energy and Pollution Reduction Act of 2015 (Senate Bill 350), the CARB's "In-Use Off-Road Diesel Fueled Fleets

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29 See **Appendix D** for energy report.

30 See **Appendix D** for energy calculations.

31 See **Appendix D** for energy calculations.

32 US Energy Information Administration. "Annual Energy Outlook 2020: Table 11." Petroleum and Other Liquids Supply and Disposition. Accessed September 2024. https://www.eia.gov/outlooks/aeo/data/browser/#/?id=11-AEO2020&cases=ref2020&sourcekey=0.

Regulation" and "Advanced Clean Cars Program," California Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, CCR Part 6), and the California Green Building Standards Code (CALGreen, CCR Part 11).

Local plans adopted for the purposes of promoting energy efficiency include the City of Los Angeles Sustainable City Plan, the LAGBC, the LADWP 2017 Power Strategic Long-Term Resource Plan. In accordance with Senate Bill 1078, LADWP is required to procure at least 33 percent of its energy portfolio from renewable sources by 2020.

The current Title 24 standards include efficiency improvements to the residential standards for attics, walls, water heating, and lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers (ASHRAE) 90.1 2013 national standards. The Project would be constructed in accordance with all applicable laws and regulations, including State and federal laws, and building regulations pursuant to the LAMC and LA Green Building Code that are intended to promote efficient utilization of resources and minimize environmental impacts. Thus, the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and impacts would be less than significant and no mitigation measures are required.

Cumulative Impacts

The proposed Project would be constructed in accordance with all applicable laws and regulations, including applicable State and federal laws, and building regulations pursuant to the LAMC and the LA Green Building Code. The proposed Project's impacts related to energy consumption during construction and operation would be less than significant. Future related projects would also be subject to applicable regulations, would not conflict with or obstruct State or local plans for renewable energy or energy efficiency. Thus, cumulative impacts resulting from the proposed Project would be less than significant.

VII. GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact. A significant impact would occur if the proposed Project would cause personal injury or death or result in property damage as a result of a fault rupture occurring on the Project site and if the Project site is located within a State-designated Alquist-Priolo Zone or other designated fault zone. Fault rupture occurs when movement on a fault deep within the earth breaks through to the surface. Based on criteria established by the California Geological Survey (CGS), faults can be classified as active, potentially active, or inactive. Active faults are those having historically produced earthquakes or shown evidence of movement within the past 11,000 years (during the Holocene Epoch). Potentially active faults have demonstrated displacement within the last 1.6 million years (during the Pleistocene Epoch) while not displacing Holocene Strata. Inactive faults do not exhibit displacement younger than 1.6 million years before the present. In addition, there are buried thrust faults, which are faults with no surface exposure. Due to their buried nature, the existence of buried thrust faults is usually not known until they produce an earthquake.

The CGS establishes regulatory zones around active faults, called Alquist-Priolo Earthquake Fault Zones (previously called Special Study Zones). These zones, which extend from 200 to 500 feet on each side of the known fault, identify areas where a potential surface fault rupture could prove hazardous for buildings used for human occupancy. Development projects located within an Alquist-Priolo Earthquake Fault Zone are required to prepare special geotechnical studies to characterize hazards from any potential surface ruptures. In addition, the City of Los Angeles designates Fault Rupture Study Areas along the sides of active and potentially active faults to establish areas of potential hazard due to fault rupture.

The Project site is not within a currently established Alquist-Priolo Earthquake Fault Zone.[33] In addition, according to the CGS, the Project site is not located in an Earthquake Fault Zone.[34] The nearest fault is the Newport – Inglewood Fault Zone, approximately 2.8 miles from the Project site. Therefore, since no known faults are directly beneath the Project site, the Project would not exacerbate existing environmental conditions such that rupture of a known earthquake fault would occur because of the Project. The Project would not involve mining operations, deep excavation into the earth, or boring of large areas, which could create unstable seismic conditions or stresses in the Earth's crust.

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33 City of Los Angeles Department of City Planning. "Parcel Profile Report." ZIMAS. Accessed September 2024. http://zimas.lacity.org/.

34 California Department of Conservation. Earthquake Zones of Required Investigation. Accessed September 2024. https://maps.conservation.ca.gov/cgs/EQZApp/app/.

Therefore, the Project would not result in the rupture of a known earthquake fault caused in whole or in part by the Project's exacerbation of the existing environmental conditions and impacts would be less than significant, and no mitigation measures are required.

ii. Strong seismic ground shaking?

Less than Significant Impact. A significant impact would occur if the proposed Project would cause personal injury or death or resulted in property damage as a result of seismic ground shaking. The Project site is located in the seismically active Southern California region, which generally experiences moderate to strong ground shaking in the event of an earthquake. However, as stated in the previous discussion, no active faults are known to pass directly beneath the Project site and, therefore, the Project would not exacerbate existing environmental conditions (i.e., trigger an earthquake by disrupting a known earthquake fault) such that people or structures would be exposed to strong seismic ground shaking.

Although the Project would not exacerbate existing environmental conditions such that people or structures would be exposed to strong seismic ground shaking, the following discussion about seismic building codes is provided for informational purposes only. State and local code requirements ensure that buildings are designed and constructed in a manner that, although the buildings may sustain damage during a major earthquake, would reduce the substantial risk that buildings would collapse. As with other development projects in the City, the Project would comply with the Los Angeles Building Code, which incorporates current seismic design provisions of the latest California Building Code with City amendments. The California Building Code incorporates the latest seismic design standards for structural loads and materials, as well as provisions from the National Earthquake Hazards Reduction Program to lessen the effect of losses from an earthquake and maximize earthquake safety. The Los Angeles Department of Building and Safety is responsible for implementing the provisions of the Los Angeles Building Code. The Project would therefore be required to comply with the plan check review and permitting requirements of the Los Angeles Department of Building and Safety, including the incorporation of the recommendations provided in a final, site-specific geotechnical report. In addition, before permits can be issued for construction, the Project must demonstrate compliance with the applicable provisions of seismic safety plans and regulations, including, but not limited to, the Seismic Safety Act and Seismic Hazards Mapping Act.

Furthermore, the Project would not involve mining operations, deep excavation into the earth, or boring of large areas, which could create unstable seismic conditions like strong seismic ground shaking. Based on this, development of the Project would not result in strong seismic ground shaking caused in whole or in part by the Project's exacerbation of the existing environmental conditions. Impacts would be less than significant, and no mitigation measures are required.

iii. Seismic-related ground failure, including liquefaction?

Less than Significant Impact. A significant impact may occur if a proposed Project site is located within a liquefaction zone. Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subjected to high-intensity ground shaking.

Liquefaction occurs when three general conditions exist: shallow groundwater; low density, fine, clean sandy soils; and strong ground motion.

The City of Los Angeles does not classify the Project site as part of a potentially liquefiable area[35] or as a liquefaction zone as classified by the State of California.[36] The Seismic Hazards Map of the State of California does not classify the Project site as within a liquefiable area.

Development of the Project would not exacerbate existing conditions that would cause people or structures to be exposed to strong seismic ground shaking.[37] Additionally, the Project does not include any excavation activities during construction. Thus, not all three conditions are met (i.e., shallow groundwater, sandy soils, and strong ground motion) that could cause liquefaction. Therefore, based on these considerations, the Project would not exacerbate existing environmental conditions that could cause seismic-related ground failure, including liquefaction. As such, impacts associated with liquefaction would be less than significant, and no mitigation measures are required.

iv. Landslides?

No Impact. A significant impact would occur if the proposed Project would be implemented on a site that would be located in a hillside area with unstable geological conditions or soil types that would be susceptible to failure when saturated. Landslides generally occur in loosely consolidated, wet soil, and/or rocks on steep sloping terrain. The Project site and surrounding area are fully developed and generally characterized by flat topography. There is no elevation difference across the Project site.[38]

The Project site is not located within a City Hillside Grading Area or a Hillside Ordinance Area, or a landslide area, as mapped by the City.[39] In addition, the Project would not substantially alter the existing topography of the Project site. Specifically, the Project does not propose creating any steep slopes, and, as such, the Project site would remain flat.

Therefore, the Project would not exacerbate existing conditions that would result in landslides. Accordingly, no impact would occur and no mitigation measures are required.

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35 City of Los Angeles Department of City Planning. "Parcel Profile Report." ZIMAS. Accessed September 2024. http://zimas.lacity.org/.

36 California Department of Conservation. Earthquake Zones of Required Investigation. Accessed September 2024. https://maps.conservation.ca.gov/cgs/EQZApp/app/.

37 California Department of Conservation. Earthquake Zones of Required Investigation. Accessed September 2024. https://maps.conservation.ca.gov/cgs/EQZApp/app/.

38 California Department of Conservation. Earthquake Zones of Required Investigation. Accessed September 2024. https://maps.conservation.ca.gov/cgs/EQZApp/app/.

39 City of Los Angeles Department of City Planning. "Parcel Profile Report." ZIMAS. Accessed September 2024. http://zimas.lacity.org/.

b. Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. A significant impact would occur if construction activities or future uses would result in substantial soil erosion or loss of topsoil. Construction of the proposed Project would result in ground surface disturbance of the Project site. The site is currently developed with an existing warehouse building and associated parking. As such, there are no open spaces with exposed topsoil. Additionally, no excavation activities are expected to occur during construction.

Although Project development has the potential to result in the erosion of soils, this potential would be reduced by implementation of standard erosion controls imposed by the City through grading and building permit regulations. Specifically, all grading activities would require grading permits from the Los Angeles Department of Building and Safety (LADBS), which would include requirements and standards designed to limit potential effects associated with erosion to acceptable levels. In addition, on-site grading and site preparation would comply with all applicable provisions of Chapter IX, Article 1 of the LAMC, which addresses grading, excavations, and fills.

The Project would be required to comply with the City's Low Impact Development (LID) Ordinance and implement best management practices (BMPs), as well as standard erosion controls to limit stormwater runoff, which can contribute to erosion. Additionally, proper grading practices during construction must be adhered to in accordance with City regulations. Regarding soil erosion during Project operations, the potential is relatively low since the Project site would be fully developed, except for typical landscaping, which would include ground cover and trees to prevent soil erosion.

Therefore, with compliance with applicable regulatory requirements, impacts regarding soil erosion or the loss of topsoil would be less than significant, and no mitigation measures are required.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less Than Significant Impact. A significant impact would occur if any unstable geological conditions would result in any type of geological failure, including lateral spreading, off-site landslides, liquefaction, or collapse. No largescale extraction of groundwater, gas, oil or geothermal energy is occurring or planned at the Project site or in the general Project vicinity. Therefore, the Project site is not located on a geologic unit or soil that is unstable. Additionally, no excavation activities are proposed as the Project would include 7,000 cubic yards of soil to be imported during the grading phase.

The Project site is not located near slopes or geologic features that would result in on- or off-site landsliding or lateral spreading. As such, the Project would not exacerbate existing conditions, such as unstable geologic units or unstable soil. In addition, as discussed previously, based on the depth to groundwater, liquefaction is unlikely at the Project site.

Furthermore, there is no evidence of natural or manmade voids or low density soils that could lead to ground subsidence or collapse. As such, impacts would be less than significant, and no mitigation measures are required.

d. Be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant Impact. A significant impact would occur if the proposed Project would be built on expansive soils without proper site preparation or design features to provide adequate foundations for Project buildings, thus, posing a hazard to life and property. Expansive soils are typically associated with fine-grained clayey soils that have the potential to shrink and swell with repeated cycles of wetting and drying.

The Project site and immediate vicinity are fully developed, so no soil would be exposed to water and swell. The Project does not propose to expose the underlying soils permanently or inject soils with water that could cause it to swell as no excavation activities are expected to occur during construction. Therefore, the Project would not exacerbate any existing environmental conditions that could create substantial risk to life or property due to expansive soil.

Furthermore, the Project would comply with the LABC, and all on-site grading and site preparation would comply with the applicable provisions of the LAMC Chapter IX, Division 70, which addresses grading, excavation, and fills. As such, impacts related to expansive soils would be less than significant, and no mitigation measures are required.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. A project would cause a significant impact if adequate wastewater disposal is not available. The Project site is located within a community served by existing wastewater infrastructure. The Project's wastewater demand would be accommodated by connections to the existing wastewater infrastructure. The Project would not require the use of septic tanks or alternative wastewater disposal systems. Therefore, the Project would have no impact related to the ability of soils to support septic tanks or alternative wastewater disposal systems, and no mitigation measures are required.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. A significant impact would occur if excavation or construction activities associated with the proposed Project would disturb paleontological or unique geological features. Paleontological resources are the fossilized remains of organisms that have lived in a region in the geologic past and whose remains are found in the accompanying geologic strata. This type of fossil record represents the primary source of information on ancient life forms since the majority of species that have existed on earth from this era are extinct. PRC Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Furthermore, California Penal Code Section 622.5 includes penalties for damage or removal of paleontological resources.

The Project site is located within an urbanized area of the City and has been subject to prior grading and development. Therefore, surficial paleontological resources that may have existed at one time have likely been previously disturbed. As discussed previously, no excavation activities are expected to occur during construction. Therefore, the possibility does not exist that paleontological artifacts would be recovered during prior construction or other human activity. Nonetheless, pursuant to the California Health and Safety Code Section 7050.5 and PRC Section 5097.98, in the event that any prehistoric subsurface cultural resources are encountered at the Project site during construction or the course of any ground disturbance activities, all such activities shall halt immediately, at which time the Applicant shall notify the City and consult with a qualified paleontologist to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined to be unnecessary or infeasible by the City. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted.

Therefore, with compliance with the California Health and Safety Code Section 7050.5 and PRC Section 5097.98, the Project's impact on paleontological resources would be less than significant, and no mitigation measures are required.

Cumulative Impacts

Any future cumulative projects would be required to assess impacts to geologic features, soils and paleontological resources through the environmental review (CEQA) process. Additionally, as needed, projects would incorporate individual mitigation for site-specific geological units present on each individual project site. The proposed Project would have less than significant impacts and no mitigation would be required. Therefore, the proposed Project, in combination with past, present, and reasonably foreseeable future projects adjacent to the Project site would result in less-than-significant cumulatively considerable impacts.

VIII. GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

The Scoping Plan is a greenhouse gas emission (GHG) reduction roadmap developed and updated by the California Air Resources Board (CARB) at least once every five years, as required by Assembly Bill (AB) 32. It lays out the transformations needed across various sectors to reduce GHG emissions and reach the State's climate targets. CARB published the Final 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan Update) in November 2022, as the third update to the initial plan that was adopted in 2008. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 target of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business-as-usual activities (CARB 2008, Climate Change Scoping Plan.) The 2008 Scoping Plan included a mix of incentives, regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California's GHG targets. The 2013 Scoping Plan Update (adopted in 2014) assessed progress toward achieving the 2020 target and made the case for addressing short-lived climate pollutants (SLCPs) (CARB 2014. First Update to the Climate Change Scoping Plan). The 2017 Scoping Plan Update (CARB 2017. California's 2017 Climate Change Scoping Plan), shifted focus to the newer Senate Bill (SB) 32 goal of a 40 percent reduction below 1990 levels by 2030 by laying out a detailed cost-effective and technologically feasible path to this target, and also assessed progress towards achieving the AB 32 goal of returning to 1990 GHG levels by 2020. The 2020 goal was ultimately reached in 2016, four years ahead of the schedule called for under AB 32.

The 2022 Scoping Plan Update is the most comprehensive and far-reaching Scoping Plan developed to date. It identifies a technologically feasible, cost-effective, and equity-focused path to achieve new targets for carbon neutrality by 2045 and to reduce anthropogenic GHG emissions to at least 85 percent below 1990 levels, while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan.[40] The 2030 target is an interim but important

[40] CARB. California's 2017 Climate Change Scoping Plan. 2017. Accessed September 2024. ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf.

stepping stone along the critical path to the broader goal of deep decarbonization by 2045. The relatively longer path assessed in the 2022 Scoping Plan Update incorporates, coordinates, and leverages many existing and ongoing efforts to reduce GHGs and air pollution, while identifying new clean technologies and energy. Given the focus on carbon neutrality, the 2022 Scoping Plan Update also includes discussion for the first time of the natural and working lands sectors as sources for both sequestration and carbon storage, and as sources of emissions as a result of wildfires.

The 2022 Scoping Plan Update reflects existing and recent direction in the Governor's Executive Orders and State Statutes, which identify policies, strategies, and regulations in support of and implementation of the Scoping Plan. Among these include Executive Order B-55-18 and AB 1279 (The California Climate Crisis Act), which identify the 2045 carbon neutrality and GHG reduction targets required for the Scoping Plan.

Aligning local jurisdiction action with State-level priorities to tackle climate change and the outcomes called for in the 2022 Scoping Plan Update is identified as critical to achieving the statutory targets for 2030 and 2045. The 2022 Scoping Plan Update discusses the role of local governments in meeting the State's GHG reductions goals. Local governments have the primary authority to plan, zone, approve, and permit how and where land is developed to accommodate population growth, economic growth, and the changing needs of their jurisdictions. They also make critical decisions on how and when to deploy transportation infrastructure, and can choose to support transit, walking, bicycling, and neighborhoods that do not force people into cars. Local governments also have the option to adopt building ordinances that exceed Statewide building code requirements, and play a critical role in facilitating the rollout of Electric Vehicle (EV) infrastructure. As a result, local government decisions play a critical role in supporting State-level measures to contain the growth of GHG emissions associated with the transportation system and the built environment—the two largest GHG emissions sectors over which local governments have authority. The City has taken the initiative in combating climate change by developing programs in the General Plan (Housing Element, Mobility Plan 2035) and regulations such as requirements for All-Electric Buildings, the Green New Deal Green Building Code, converting the City's fleet to zero emission vehicles, and energy emissions retrofits.

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. The analysis of the Project's GHG emissions consists of a quantitative analysis of the GHG emissions generated by the construction and operation activities and a qualitative analysis of the Project's consistency with adopted GHG-related legislation, plans, and policies. This approach is in accordance with CEQA Guidelines Section 15064.4(a), which affirms the discretion of a lead agency to determine, in the context of a particular project, whether to use quantitative and/or qualitative methodologies to determine the significance of a project's impacts.

The total GHG emissions from the Project were quantified to determine the level of the Project's estimated annual GHG emissions. As with the Air Quality section calculations, construction

emissions were estimated using CalEEMod by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile-source emissions factors. SCAQMD's Draft Guidance Document—Interim CEQA Greenhouse Gas (GHG) Significance Threshold recognizes that construction-related GHG emissions from projects occur over a relatively short-term period of time and contributes a relatively small portion of a project's overall lifetime GHG emissions. The guidance recommends that a project's construction-related GHG emissions be amortized over a 30-year project lifetime so that GHG reduction measures will address construction GHG emissions as part of the operation GHG reduction strategies.

CalEEMod was also used to estimate operational GHG emissions from electricity, natural gas, solid waste, water and wastewater, fireplaces, and landscaping equipment. CalEEMod calculates energy use from systems covered by Title 24 (e.g., heating, ventilation, and air conditioning [HVAC] system, water heating system, and lighting system); energy use from lighting; and energy use from office equipment, appliances, plug-ins, and other sources not covered by Title 24 or lighting. Mobile-source emissions were estimated based on the CARB EMFAC model and the Project's Transportation Assessment.

With regard to energy demand, the consumption of fossil fuels to generate electricity and to provide heating and hot water generates GHG emissions. Energy demand rates were estimated based on square footage as well as predicted water supply needs for this use. Energy demand (off-site electricity generation and on-site natural gas consumption) for the Project was calculated within CalEEMod using the CEC's CEUS data set, which provides energy demand by building type and climate zone.

Emissions of GHGs from solid waste disposal were also calculated using CalEEMod software. The emissions are based on the waste disposal rate for the land uses, the waste diversion rate, and the GHG emission factors for solid waste decomposition. The GHG emission factors, particularly for methane, depend on characteristics of the landfill, such as the presence of a landfill gas capture system and subsequent flaring or energy recovery. The default values, as provided in CalEEMod, for landfill gas capture (e.g., no capture, flaring, energy recovery), which are Statewide averages, were used in this assessment.

Emissions of GHGs from water and wastewater result from the required energy to supply and distribute the water and treat the wastewater. Wastewater also results in emissions of GHGs from wastewater treatment systems. Emissions are calculated using CalEEMod and are based on the water usage rate for the restaurant use; the electrical intensity factors for water supply, treatment, and distribution and for wastewater treatment; the GHG emission factors for the electricity utility provider; and the emission factors for the wastewater treatment process.

As shown in **Table 4.8-1: Construction GHG Emissions**, total construction emissions would be 394 metric tons of CO2e (MTCO2e). One-time, short-term emissions are converted to average annual emissions by amortizing them over the service life of a building. For buildings in general, it is reasonable to look at a 30-year time frame because this is a typical interval before a new

building requires its first major renovation.[41] As shown in **Table 4.8-1**, when amortized over an average 30-year Project lifetime, average annual construction emissions from the Project would be 13 MTCO2e per year.

TABLE 4.8-1: CONSTRUCTION GHG EMISSIONS

Construction Phase	MTCO2e/Year
2026	393
2027	1
Overall Total	**394**
30-Year Annual Amortized Rate	**13**

Notes: GHG = greenhouse gas; MTCO2e = metric tons of carbon dioxide equivalent.

Source: Refer to **Appendix A**: **Air Quality Study**.

Operation of the Project has the potential to generate GHG emissions through vehicle trips traveling to and from the Project site. As mentioned previously, the facility currently provides cooler and freezer temperature storage and operates 5 days a week (Monday through Friday) for 16 hours per day, at a quantity of two 8-hour shifts per day. Following the expansion, the facility would also operate on Saturdays for one 8-hour shift. The new expanded facility would add approximately a maximum of 30 employees resulting in a total of 180 employees. Approximately 80 percent (144 employees) will work the day shift and approximately 20 percent (36 employees) will work the night shift. Similar to existing conditions, approximately 30 percent of the employees will continue to carpool or use public transportation. Therefore, approximately 126 cars will arrive and depart from the facility per day. The expansion would result in an addition of approximately 40 trucks/container arriving and departing the Project site per day, resulting in a total of 160 trucks/containers per day. Truck activity would continue to be conducted by appointment only, therefore no trucks would be idling off-site. Truck trips converted to PCE units at a ratio of 1.5 passenger cars results in 480 trips. As such, the proposed expansion would result in 732 daily trips.[42] In addition, emissions would result from area sources on site, such as natural gas combustion, landscaping equipment, and use of consumer products. Emissions from mobile and area sources and indirect emissions from energy and water use, wastewater, as well as waste management would occur every year after full development of the Project. Moreover, the Project site is currently developed with a solar panel system located on-site which has a 1.5 MWh capacity. Operational Project emissions from area sources, energy sources, mobile sources, solid waste, and water and wastewater conveyance are shown in **Table 4.8-2: Operational GHG Emissions** below. As shown in **Table 4.8-2**, average annual operational emissions from the

41 International Energy Agency (IEA). Energy Efficiency Requirements in Building Codes. Energy Efficiency Policies for New Buildings, IEA Information Paper. 2008.

42 126 employees arriving trips + 126 employees departing trips + 480 PCE trips = 732 daily trips

facility would be 5,153 MTCO2e per year, resulting in a net increase of 1,343 MTCO2e per year from the proposed Project.

TABLE 4.8-2: OPERATIONAL GHG EMISSIONS

Source	Unmitigated MTCO2e per year
Construction (amortized)	13
Area	6
Energy	1,806
Mobile	1,773
Waste	83
Water	228
Refrigeration	1,244
Subtotal	*5,153*
Existing	3,810
Net Total	**1,343**

Abbreviation: MTCO2e = metric tons of carbon dioxide emissions.

Source: Refer to **Appendix A: Air Quality Study**.

The City has not adopted a numerical significance threshold for assessing impacts related to GHG emissions. Nor have SCAQMD, OPR, CARB, CAPCOA, or any other State or regional agency adopted a numerical significance threshold for assessing GHG emissions that is applicable to the Project. Assessing the significance of a project's contribution to cumulative global climate change involves: (1) developing pertinent inventories of GHG emissions, and (2) considering project consistency with applicable emission reduction strategies and goals. This evaluation of consistency with such plans is the sole basis for determining the significance of the Project's GHG-related impacts on the environment. As discussed below, the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. As such, impacts would be less than significant.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. A significant impact would occur if the Project conflicted with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs. Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, focuses on reducing GHG emissions in California.[43] GHGs, as defined under AB 32, include carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32

[43] California Air Resources Board (CARB). "Assembly Bill 32 Overview" (last reviewed August 4, 2014). Accessed September 2024. http://www.arb.ca.gov/cc/ab32/ab32.htm

requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. In November 2017, CARB adopted an updated Climate Change Scoping Plan, which details strategies to meet that goal.

The Project would be designed in accordance with the latest Title 24 Energy Efficiency Standards, which represent an approximate improvement of 30 percent beyond the 2008 Standards that were used in assumptions for the City's CAP GHG analysis. Conformance with the latest standards is consistent with the City's objectives to reduce GHG emissions to meet regional and Statewide emission reduction targets. Therefore, the Project does not interfere with the State's implementation of (i) Executive Order B-30-15 and Senate Bill 32's target of reducing Statewide GHG emissions to 40 percent below 1990 levels by 2030 or (ii) Executive Order S-3-05's target of reducing Statewide GHG emissions to 80 percent below 1990 levels by 2050 because it does not interfere with the State's implementation of GHG reduction plans described in the CARB's updated Scoping Plan.

Similar to existing conditions, approximately 30 percent of the employees will continue to carpool or use public transportation. The Project's convenient access to public transit and opportunities for walking would result in a reduction of vehicle trips, vehicle miles traveled (VMT) and GHG Emissions. Specifically, the Project site is located in a transit-rich neighborhood services by the Los Angeles County Metropolitan Transit Authority (Metro) and LADOT bus lines such as the Pacific Coast Highway at Blinn Avenue bus stop located to the south along Pacific Coast Highway.

The Project would be designed in accordance with applicable energy, water, and waste efficiency measures specified in the Title 24 Building Energy Efficiency Standards, CALGreen standards, and City of Los Angeles Green Building Code. The primary measure of whether a project would have an impact on GHG emissions is whether it would conflict with applicable regulatory plans and policies intended to reduce GHG emissions; in this case, specifically the Southern California Association of Governments' (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal). Key policies of SCAG's 2020-2045 RTP/SCS include improving access and mobility and encouraging efficient transportation infrastructure and pedestrian improvements. The Project includes the expansion of an existing warehouse facility and would not result in a substantial increase in population within the City. Therefore, the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant, and no mitigation measures are required.

Cumulative Impacts

To achieve Statewide goals, CARB is in the process of establishing and implementing regulations to reduce Statewide GHG emissions. Currently, there is no generally accepted methodology that exists to determine whether GHG emissions associated with a specific project represent new emissions or existing and/or displaced emissions. Therefore, consistent with CEQA Guidelines Section 15064h (3), the City as a lead agency, has determined that a project's contribution to cumulative GHG emission and global climate change would be less than significant if a project is consistent with the applicable regulatory plans and polices to reduce GHG emissions.

Accordingly, the analysis herein considered the potential for the proposed Project to contribute to the cumulative impact of global climate change. As stated previously, the proposed Project would not conflict with applicable plans, and future related projects would also be required to show consistency with applicable plans. As such, cumulative impacts would be less than significant during construction and operation.

IX. HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

The following section summarizes and incorporates by reference information from the ESA Phase I dated August 26, 2022, the CalGEM Well Finder, the Department of Conservation Construction Site Well Review dated July 5, 2023, the Asbestos Survey Report dated August 17, 2022, the methane report dated August 9, 2022 and Phase II dated September 14, 2023 all prepared by

Converse Consultants on behalf of the Applicant. The reports are included as **Appendix E.1** through **E.6** of this ND.

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. A significant impact would occur if the proposed Project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The types and amounts of hazardous materials to be used for the Project would be typical of those used during construction activities and those typically used in the operation of cold storage facilities, as discussed in the following analysis.

Construction

The Project would not involve the routine transport of hazardous materials to and from the Project site during construction. During demolition and building construction, hazardous materials such as fuel and oils associated with construction equipment, as well as coatings, paints, adhesives, and caustic or acidic cleaners could be routinely used on the Project site through the duration of construction. While some hazardous materials used during construction could require disposal, such activity would occur only for the duration of construction and would cease upon completion of the Project. As such, construction of the Project would not involve the routine disposal of hazardous materials. Notwithstanding, all potentially hazardous materials used during construction of the Project would be used and disposed of in accordance with manufacturers' specifications and instructions, thereby reducing the risk of hazardous materials use. In addition, existing regulations are aimed at establishing specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. The Project would comply with all applicable federal, State, and local requirements concerning the use, storage, and management of hazardous materials. Consequently, Project construction activities would not create a significant hazard to the public or the environment through the use of hazardous materials during construction, and development of the Project on the Project site would not exacerbate the current environmental conditions so as to create a significant hazard to the public or the environment. Therefore, impacts related to the routine transport, use, or disposal of hazardous materials during construction would be less than significant, and no mitigation measures are required.

Operation

As mentioned previously, the overall operation of the warehouse building would remain unchanged following the expansion. Operation of the Project would involve the routine use of small quantities of potentially hazardous materials typical of those used in residential and commercial uses, including cleaning products, paints, and those used for maintenance of landscaping. Operation of the Project could also involve the routine use of potentially hazardous materials typical of those used in a small medical facility, including biohazards waste and cleaning agents. As with Project construction, all hazardous materials used on the Project site during operation would be used, stored, and disposed of in accordance with all applicable federal, State

and local requirements. Therefore, with implementation of appropriate hazardous materials management protocols at the Project site and compliance with all applicable local, State, and federal laws and regulations relating to environmental protection and the management of hazardous materials, impacts associated with the routine transport, use, or disposal of hazardous materials during operation of the Project would be less than significant and no mitigation measures are required.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. A significant impact would occur if the proposed Project created a significant hazard to the public or environment due to a reasonably foreseeable release of hazardous materials. According to the Phase I ESA Report (refer to **Appendix E.1**), methane gas issues, soil and groundwater contamination were identified within the Project site. Based on prior Project site investigations conducted between 1988 and 1994, it was determined that no further action regarding the contaminated groundwater was warranted, and the contaminated soil was remediated. The Phase I ESA Report identified three (3) Recognized Environmental Conditions (RECs) relating to (1) methane gas, (2) groundwater contamination and (3) soil staining. Methane gas was identified as a REC and methane gas should continue to be monitored. Second, the refining operations within the vicinity of the Project site were speculated as the cause of groundwater contamination and was identified as a REC. Soil staining observed at the north end of the railroad from wastewater generated from the wash down of equipment was identified as a REC. Thus, soil sampling of the discolored soil should be conducted, and based on the sample results, soil should be disposed of appropriately.

The Project site's historical use for coke-calcining operations and receiving illegal contaminated soil was identified as a Historical Recognized Environmental Condition (HREC), which was granted closure on the remediation. The stained soil observed northwest of the Project site building was identified as an environmental concern as the water used to wash down concrete at the Project site was generated with a cleaning solution. This operation should cease, and all wastewater diverted to the clarifier as intended. Additionally, an online research was completed with the California Department of Conservation's CalGEM (refer to **Appendix E.2**), which identified one (1) plugged and abandoned oil and gas well on the north side of the Project site, as the Project site is in the Wilmington Oil Field. While such wells can be considered environmental concerns due to their potential for subsurface or surface integrity issues, the identified well is appropriately documented as plugged and abandoned. No evidence has been provided to suggest that this well poses a significant hazard under current conditions. Additionally, a Construction Site Well Review (refer to **Appendix E.3**) was conducted by the California Geologic Energy Management Division (CalGEM). It was determined the planned construction activities for the proposed project will not directly interact with or affect the integrity of the abandoned well, as the project design avoids any subsurface activities in its vicinity. Therefore, no further action or mitigation is warranted with respect to this well, and the project is not anticipated to result in any adverse impacts related to its presence.

A Phase II ESA Report (refer to **Appendix E.6**), was prepared to evaluate the remaining RECs, environmental concerns, and to identify if potential target analytes were present at concentrations greater than threshold criteria. Data indicated that the total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals are a concern. **Appendix E.6** included a total of four (4) borings to depths of 8 feet below ground surface (bgs) and soil samples were collected from each boring at depths of two (2), four (4) and eight (8) feet bgs. Soil samples analyzed for TPH, VOCs, SVOCs, and Title 22 Metals. Based on the assessments conducted, a total of 12 metals were detected in the soil samples.

With the exception of arsenic, all other metal concentrations are less than their respective screening levels for both residential and commercial use, and all reported metals concentrations were less than their respective hazardous waste threshold values. Arsenic concentrations in two (2) samples exceeded the DTSC regional background level, however, in the shallower samples, arsenic levels were less than the regional background level. TPH-Diesel concentrations exceeded the residential screening level but were less than the commercial level. All other reported TPH concentrations including those in the gasoline and diesel range were reported to be less than their respective residential screening levels. Seven (7) SVOCs were reported in sample K2-2, and no other SVOCs were detected in any other samples. Benzo(a)pyrene was found to exceed the residential screening level; however, it was less than the commercial screening level. All other SVOC concentrations were less than their respective residential and commercial screening levels. One (1) VOC was reported in one (1) of the samples analyzed. The PCE concentration in sample K3-4 was less than the residential and commercial screening levels.

Based on the findings, wastewater from equipment wash down operations does not appear to be affecting soil conditions as no compounds were reported in samples in excess of residential screening levels. The shallow soil sample by the Project site's loading docks was reported to have TPH diesel and SVOC concentrations that exceed screening levels for residential land use, but no significant impacts were identified in the deep sample from 4 feet bgs. Samples where water appears to pond around the rail lines were reported to have concentrations of TPH-diesel and/or arsenic in excess of residential or background levels. Concentrations in the shallower samples from these locations were less than screening levels. The identified impacts appear to generally be limited in vertical extent, and/or to not pose a significant exposure risk. Additionally, aside from arsenic, all reported concentrations are less than screening levels for commercial and industrial land uses. Arsenic concentrations exceeding the DTSC regional background level were covered by at least two (2) feet of soils that have concentrations within the background range, and all arsenic concentrations are less than hazardous waste thresholds. Therefore, according to the Phase II ESA Report prepared for the Project site, no further assessment would be required.

Methane

The Project site is located in a Methane Zone.[44] These areas have a risk of methane intrusion emanating from geologic formations. The areas have developmental regulations that are required by the City of Los Angeles pertaining to ventilation and methane gas detection systems.

The City requires the following for projects located within a Methane Zone: prior to the issuance of a building permit, the Applicant will be required to have the Project site to be independently analyzed by a qualified engineer, as defined in Ordinance No. 175,790 and Section 91.7102 of the LAMC. As a matter of regulatory compliance, the engineer will be required to measure subsurface soil gas concentrations and pressures of methane at the Project site and investigate and design a methane mitigation system in compliance with the LADBS Methane Mitigation Standards for the appropriate Site Design Level, which will prevent potential methane gas seepage into the building.[45]

According to the Methane Report (refer to **Appendix E.5**), a methane investigation was conducted with consisted of the installation of eight (8) shallow probes at a depth of 5 feet bgs and four (4) deep probe sets were installed at 5, 10 and 20 feet below the lowest proposed bottom of footings. The result of the investigation revealed methane levels between 0.0 percent and 1.0 percent for the shallow probes and 0.0 percent to 8.4 percent for the deep probes. Based on the reported methane levels, the Site would fall under Methane Zone Site Design Level V (methane concentrations greater than 12,500 ppmv). Sites located within Methane Zones have the potential to be affected by the release or explosion of methane gas. The proposed Project would be required to comply with the regulatory compliance measures for sites located within the Methane Zone, pursuant to LAMC Sec. 91.7103 and as enforced by the LADBS Methane Mitigation Standards. The proposed Project would adhere to methane mitigation requirements for Site Design Level V, and would require a passive system to be installed along with compliance with the Los Angeles Methane Seepage Regulations. The passive system would include a subslab vent system, vent risers and an impervious membrane. Additionally, the active system would include a gas detection and alarm, mechanical ventilation of the lowest occupied space, mechanical extraction and a control panel with trench dams and conduit or cable seal fittings.

Additionally, the Applicant will be required to implement the engineer's design recommendations subject to the California Division of Oil, Gas, and Geothermal Resources (DOGGR), LADBS and Los Angeles Fire Department (LAFD) plan review and approval. Construction workers would be protected from methane exposure through compliance requirements regulated by the Division of Occupational Safety and Health (Cal/OSHA).

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44 City of Los Angeles. Methane and Methane Buffer Zones. Accessed September 2024. https://www.geoforward.com/los-angeles-methane-zones/.

45 LADBS. Methane Mitigation Standards. Accessed September 2024. https://www.ladbs.org/services/core-services/plan-check-permit/methane-mitigation-standards.

As such, with adherence to regulatory compliance measures, impacts would be less than significant.

Asbestos

According to the Asbestos Report (refer to **Appendix E.4**), an asbestos survey was conducted in the interior and exterior areas of the Project site for suspect asbestos-containing materials (ACMs) and homogenous areas (areas that have uniform color, texture, and appearance). The sampled suspect materials did not contain any asbestos. However, the following suspect materials were not sampled due to the non-destructive survey: roofing materials, CMU mortar and possible adhesive material on insulated wall panels. Pursuant to federal and State regulations, all suspect ACMs should either be presumed to contain asbestos or adequate rebuttal sampling should be conducted by an accredited Building Inspector prior to demolition or renovation. When following asbestos-related regulations, the possibility of exposure to airborne asbestos fibers from asbestos removal projects is limited. The Project would be required to comply with SCAQMD Rule 1403 to ensure proper removal of ACMs during demolition activities.[46] Disturbance of any asbestos-containing material (ACM) would be handled in accordance with applicable local and State regulations, which include SCAQMD Rule 1403 and Cal/OSHA Asbestos Construction Standard Title 8 CCR 1529.

Lead

Due to the age of the building on the Project site, there is a potential that lead-based paint (LBP) is present. Cal/OSHA regulations require that specific work practices be implemented when handling construction materials and debris that contain lead-containing materials. Construction activities that disturb materials or paints containing any amount of lead may be subject to certain requirements of the OSHA lead standard contained in 29 Code of Federal Regulations (CFR) 1910.1025 and 1926.62. Local and State regulations may apply to LBP in association with building demolition/renovations and worker/occupant protection. Regulations that would be followed during demolition include Construction Safety Orders 1532.1 (pertaining to lead) from Title 8 of the California Code of Regulations, and lead exposure guidelines provided by the US Department of Housing and Urban Development (HUD).[47]

Polychlorinated Biphenyl

Polychlorinated biphenyls (PCBs) were historically used as coolants and lubricants in transformers, capacitors, and other electrical equipment beginning in 1929 because they do not burn easily and serve as a good insulating material. Although the Department of Toxic Substances

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46 SCAQMD. Fugitive Dust Rule 403. Accessed September 2024. http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.

47 U.S. Department of Housing and Urban Development. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. Accessed September 2024. https://www.hud.gov/program_offices/healthy_homes/lbp/hudguidelines.

Control (DTSC) is a lead regulatory agency for site cleanups in California, engagement with the US EPA is required when addressing PCB-contaminated sites. Since Toxic Substances Control Act (TSCA) PCB regulations are not delegated, US EPA is the regulatory lead for the cleanup of PCBs under the TSCA PCB cleanup requirements in 40 CFR 761.

Two (2) pad-mounted electrical transformers were observed on site. The transformers are owned and operated by the Department of Water and Power (DWP). No stating was observed on concrete pads beneath the equipment. The ballasts do not represent a recognized environmental concern but should be handled in accordance with 40 CFR 761 upon demolition or renovation.

Underground Storage Tanks (UST)

Several adjacent sites were identified from regulatory listings as having USTs, however, no specific information was provided as these facilities were not listed on the RWQCB Geotracker website and the groundwater beneath the Property has been identified with low level of VOCs.

Compliance with the following regulations will ensure the safe removal of any potential USTs: Los Angeles Fire Code, Division 5 and 31;[48] California Health & Safety Code, Division 20, Chapter 6.7;[49] CCR, Title 23, Division 3, Chapter 1654; and LAMC Article 7 of Chapter V, Section 120, 2301 and 5003. With compliance with these regulatory requirements, the Project would not result in a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment. Therefore, impacts would be less than significant, and no mitigation measures are required.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. No schools are located within a one-quarter mile radius from the Project site. As discussed previously, construction of the Project would involve the use of those hazardous materials that are typically necessary for construction of a mixed-use building containing residential and commercial uses. As such, the transport, use, and disposal of construction-related hazardous materials would occur in conformance with all applicable local, State, and federal regulations governing such activities. In addition, construction of the Project would involve expansion of the existing warehouse building which, due to its age, may contain asbestos and lead-based paints and materials. The removal of any asbestos-containing materials would be required to comply with all applicable existing rules and regulations, including SCAQMD Rule 1403 (Asbestos Demolition and Renovation Activities) and Cal/OSHA regulations regarding lead-based paint. Thus, construction activities associated with the Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste

48 LAFD. UST Tank Abandonment Guidelines. Accessed March 2020. https://www.lafd.org/fire-prevention/cupa/ust-tank-abandonment-guidelines.

49 California Water Boards. Underground Storage of Hazardous Substances. Accessed September 2024. https://www.waterboards.ca.gov/ust/regulatory/docs/hs_chp7_w_additions.pdf.

within one-quarter mile of an existing or proposed school. As such, impacts would be less than significant and no mitigation measures are required.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant Impact. A significant impact would occur if the Project site is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would create a significant hazard to the public or the environment. California Government Code Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to develop and update annually the Cortese List, which is a "list" of hazardous waste sites and other contaminated sites. While California Government Code Section 65962.5 makes reference to the preparation of a "list," many changes have occurred related to web-based information access since 1992 and information regarding the Cortese List is now compiled on the websites of the DTSC (EnviroStor), the State Water Board (GeoTracker), and CalEPA. Based on a review of these databases, the Project site is not located on a list of hazardous material sites compiled pursuant to Section 65962.5. Additionally, the Project site is not included on any State hazardous site list and would not pose an environmental hazard to people on the Project site or to surrounding sensitive uses.[50] As such, the Project would not exacerbate existing conditions. Impacts would be less than significant, and no mitigation measures are required.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. A significant impact may occur if a project is located within a public airport land use plan area, or within two miles of a public airport, and subject to a safety hazard. The Project site is not located within 2 miles of an airport or within an airport planning area. The nearest airport is the Long Beach Airport located approximately 4.5 miles northeast of the Project site. Given the distance between the Project site and Long Beach Airport, the Project would not have the potential to exacerbate current environmental conditions that would result in a safety hazard or excessive noise. Therefore, no impact would occur and no mitigation measures are required.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. A significant impact may occur if a project were to interfere with roadway operations used in conjunction with an emergency response plan or emergency evacuation plan or would generate traffic congestion that would interfere with the execution of such a plan. According to the Safety Element of the City of Los Angeles General Plan and County of Los Angeles Department of Public Works, the nearest designated disaster route to the Project site is along Alameda Street. However, due to the orientation Alameda Street and the Project site

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50 State of California Department of Toxic Substances Control. "Hazardous Waste and Substances Site List." EnviroStor. Accessed September 2024. https://www.envirostor.dtsc.ca.gov/public/.

the nearest accessible designated disaster route is along Pacific Coast Highway.[51,52] While it is expected that the majority of construction activities for the Project would be confined to the Project site, limited off-site construction activities may occur in adjacent street rights-of-way during certain periods of the day, which could potentially require temporary lane closures. However, if lane closures are necessary, the remaining travel lanes would be maintained in accordance with standard construction management plans that would be implemented to ensure adequate circulation and emergency access. Operation of the Project would generate traffic in the Project vicinity and but would not result in modifications to site access. The Project would comply with LAFD access requirements and would not impede emergency access within the Project vicinity. The Project would not cause an impediment along the City's designated disaster routes or impair the implementation of the City's emergency response plan, and, as such, impacts related to the implementation of the City's emergency response plan would be less than significant and no mitigation measures are required.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. A significant impact would occur if the proposed Project exposed people and structures to high risk of wildfire. The Project site is located in an urbanized area without wildlands in its vicinity. The Project site is not located within a City-designated Very High Fire Hazard Severity Zone[53] or a City-designated fire buffer zone.[54] Furthermore, the Project would be developed in accordance with LAMC requirements pertaining to fire safety. In addition, the proposed residential, educational, and commercial uses would not create a fire hazard that has the potential to exacerbate the current environmental condition relative to wildfires. Therefore, the Project would not expose people or structures, directly or indirectly, to a significant risk of loss, injury, or death as a result of exposure to wildland fires. No impact would occur and no mitigation measures are required.

Cumulative Impacts

Cumulative impacts related to hazards and hazardous materials would result from projects that combine to increase exposure to hazards and hazardous materials. The individual Project-level impacts associated with hazards and hazardous materials were found to be less than significant with adherence to regulatory compliance measures. Similarly, potential cumulative projects would

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51 City of Los Angeles Department of City Planning. "General Disaster Prevention, Response and Recovery." General Plan Safety Element. November 2021. Accessed September 2024. https://planning.lacity.org/plans-policies/general-plan-overview.

52 Los Angeles County Department of Public Works. "Disaster Route Maps." City of Los Angeles Central Area. May 2014. Accessed September 2024. https://planning.lacounty.gov/generalplan/figures2015.

53 City of Los Angeles Department of City Planning. "Parcel Profile Report." ZIMAS. Accessed September 2024. http://zimas.lacity.org/.

54 City of Los Angeles Department of City Planning. "General Plan Land Use in Very High Fire Hazard Severity Zones." General Plan Safety Element. November 2021. Accessed September 2024. https://planning.lacity.org/plans-policies/general-plan-overview.

be required to comply with all such requirements and regulations, to be consistent with the provisions set forth by CEQA and the CEQA Guidelines, and to implement all feasible mitigation measures should a significant project-related and/or cumulative impact be identified.

Development of similar future projects would cumulatively increase development intensity, population, and traffic in the region, thereby exposing a greater number of people to potential hazards in the area (e.g., hazardous materials and/or waste contamination, and fire). As described previously, the proposed Project and other potential future projects would be required to comply with applicable local, State, and federal requirements concerning hazardous materials. Additionally, adverse effects of hazards and hazardous materials tend to be localized; therefore, impacts from nearby projects would be limited, if any, and the Project site would be primarily affected by the proposed Project activities. Therefore, the proposed Project would not contribute to any significant cumulative hazardous materials impacts.

X. HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i. Result in substantial erosion or siltation on- or off-site;				
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;				
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				
iv. Impede or redirect flood flows?				
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. A significant impact would occur if the proposed Project discharges water that does not meet the quality standards of agencies which regulate surface water quality and water discharge into storm water drainage systems, or does not comply with all

applicable regulations as governed by the Los Angeles Regional Water Quality Control Board (LARWQCB).

Construction

During Project construction and demolition activities, stormwater runoff from the Project site could cause erosion and/or transport sediment off site and into municipal storm drain systems. Thus, pollutant discharges associated with storage, handling, use, and disposal of chemicals, adhesives, coatings, lubricants, and fuel could result in adverse impacts to water quality. The Project would be required to implement a Stormwater Pollution Prevention Plan (SWPPP) under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order No. 2009-0009-DWQ, as well as its subsequent amendments 2010-0014-DWQ and 2012-0006-DWQ). The SWPPP would set forth Best Management Practices (BMPs) for stormwater and non-stormwater discharges, including, but not limited to, sandbags, storm drain inlets protection, stabilized construction entrance/exit, wind erosion control, and stockpile management, to minimize the discharge of pollutants in stormwater runoff during construction. The SWPPP would be carried out in compliance with State Water Resources Control Board requirements and would also be subject to review by the City for compliance with the City of Los Angeles' Best Management Practices Handbook, Part A Construction Activities. In addition, Project construction activities would occur in accordance with City grading permit regulations (Chapter IX, Division 70 of the LAMC), such as the preparation of an erosion control plan, to reduce the effects of sedimentation and erosion.

With compliance with these existing regulatory requirements, impacts to water quality and waste discharge requirements during construction would be less than significant, and no mitigation measures would be required.

Operation

Operation of the Project would introduce sources of potential water pollution that are typical of commercial developments, including studio uses (e.g., cleaning solvents, pesticides for landscaping, and petroleum products associated with circulation areas). Stormwater runoff from precipitation events could also potentially carry urban pollutants into municipal storm drains. However, in accordance with the City's LID Ordinance (Ordinance No. 181,899), best management practices (BMPs) would be implemented on-site to address City and State water quality requirements. The Project would not violate any water quality standards or waste discharge requirements through compliance with these regulatory requirements for stormwater and non-stormwater discharges; i.e., implementation of LID standards and best management practices. Therefore, impacts to surface water quality would be less than significant and no mitigation measures are required.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. A significant impact would occur if the proposed Project would substantially deplete groundwater or interferes with groundwater recharge. Implementation of the proposed Project would not result in a substantial change in the amount of pervious and impervious surface across the Project site nor would it impede sustainable groundwater management of the basin. Similar to existing conditions, redevelopment of the Project site would result in a negligible amount of on-site groundwater recharge opportunities and would not impact groundwater wells, change the rate or direction of flow of groundwater, impact groundwater recharge areas, or impede sustainable groundwater management of the basin. As explained previously, the excavations and grading activities would be limited, therefore excavation activities are not likely to interfere with the groundwater table. As such, impacts would be less than significant and no mitigation measures are required.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site;

Less Than Significant Impact. A significant impact would occur if the proposed Project would substantially alter the drainage pattern of an existing stream or river such that flooding would result. The Project site is located in a highly urbanized area. There are no natural water courses on the Project site or in the vicinity. As discussed previously, the Project is developed with paved surfaces, and current stormwater runoff flows to the local storm drain system. Additionally, the LID will improve the drainage pattern with less runoff leaving the Project site. As such, the proposed Project would not result in a substantial alteration to the existing drainage pattern or to any drainage course; no erosion or siltation impacts related to such alteration would occur. Impacts would be less than significant, and no mitigation measures are required.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Less Than Significant Impact. A significant impact would occur if the proposed Project would substantially alter the drainage pattern of an existing stream or river such that flooding would result. There are no streams or rivers within or immediately surrounding the Project site. Construction activities on the Project site may temporarily on the Project site may temporarily alter the existing drainage patterns of the site and reduce off-site flows. However, construction and operation of the proposed Project would not result in a significant increase in site runoff or any changes in the local drainage patterns that would result in flooding on or off site with implementation of the LID program. As such, impacts would be less than significant and no mitigation measures are required.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

Less Than Significant Impact. A significant impact would occur if runoff water would exceed the capacity of existing or planned storm drain systems serving the Project site, or if the proposed Project would substantially. The City's Stormwater and Urban Runoff Pollution Control regulations (Ordinance No. 172,176 and No. 173,494) contain requirements for construction activities and operation of development and redevelopment projects to integrate low impact development practices and standards for stormwater and other related requirements in the City's Development BMPs Handbook. Such regulations and practices are designed in consideration of existing and planned stormwater drainage systems. Conformance would be ensured during the permitting process with the Department of Building & Safety and impacts would remain less than significant and no mitigation measures are required.

iv. Impede or redirect flood flows?

No Impact. A significant impact would occur if the proposed Project would be located within a 100-year or 500-year floodplain or would impede or redirect flood flows. The Project site is not located within a 100-year or 500-year flood hazard area as mapped by the Federal Emergency Management Agency (FEMA) or by the City of Los Angeles.[55,56] Thus, the Project would not impede or redirect flood flows. No impacts would occur, and no mitigation measures would be required.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. A significant impact would occur if the proposed Project would be located within an area susceptible to inundation by seiche, tsunami, or mudflow. As discussed previously, the Project site is not located within a 100-year flood hazard area as mapped by FEMA or by the City of Los Angeles.[57,58] In addition, the Safety Element of the City of Los Angeles General Plan does not map the Project site as being located within a flood control basin or within a potential inundation area.[59] The Project site is located approximately five (5) miles north of the Pacific Ocean, and the Safety Element of the General Plan does not map the Project site as being located within an area potentially affected by a tsunami.[60] Therefore, no tsunami or tsunami events would

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55 Federal Emergency Management Agency (FEMA). Flood Insurance Rate Map, Panel Number 06037C 1595F. Effective September 26, 2008.

56 City of Los Angeles. "Tsunami." 2018 Local Hazard Mitigation Plan. Flood, Figure 12-1, p. 12-4..

57 Federal Emergency Management Agency (FEMA). Flood Insurance Rate Map, Panel Number 06037C 1595F. Effective September 26, 2008.

58 City of Los Angeles. 2018 Local Hazard Mitigation Plan. Flood, Figure 10-11, p. 10-33.

59 City of Los Angeles. "Tsunami." 2018 Local Hazard Mitigation Plan. Flood, Figure 12-1, p. 12-4.

60 City of Los Angeles. "Tsunami." 2018 Local Hazard Mitigation Plan. Flood, Figure 12-1, p. 12-4.

be expected to impact the Project site. No impacts would occur, and no mitigation measures would be required.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. The proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The proposed Project would not result in a significant increase in site runoff, or any changes in the local drainage patterns. Runoff from the Project site currently is and would continue to be collected on the site and directed toward existing storm drains having adequate capacity in the Project vicinity.

Potential pollutants generated by the Project would be typical of land uses within the Project vicinity and may include sediment, nutrients, pesticides, pathogens, trash and debris, oil and grease, and metals. The implementation of BMPs required by the City's LID Ordinance would target these pollutants that could potentially be carried in stormwater runoff. Since the existing Project site does not have any structural or LID BMPs to treat or infiltrate stormwater, implementation of the LID features proposed as part of the Project would result in an improvement in surface water quality runoff as compared to existing conditions. As such, the Project would not introduce new pollutants or an increase in pollutants that could conflict with or obstruct any water quality control plans. The increase in pervious areas would improve the groundwater recharge capacity of the Project site over existing conditions. Since the Project's LID BMP design is for biofiltration, treated runoff would be discharged into the storm drain system, away from the structures and groundwater table.

With compliance with existing regulatory requirements and implementation of LID BMPs, the Project would not conflict with or obstruct implementation of a water quality control plan or a sustainable groundwater management plan. Impacts would be less than significant, and no mitigation measures would be required.

Cumulative Impacts

The Project site is within an urbanized area with developed surrounding properties. Like the proposed Project, potential cumulative projects would adhere to the City’s Stormwater and Urban Runoff Pollution Control regulations, LID Ordinance and would implement appropriate stormwater pollution control measures and related BMPs into the design plans to ensure that water quality impacts are minimized. Therefore, cumulative impacts related to hydrology and water quality would be less than significant.

XI. LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Physically divide an established community?	☐	☐	☒	☐
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

a. Physically divide an established community?

Less than Significant Impact. A significant impact would occur if the proposed Project would be sufficiently large or configured in such a way so as to create a physical barrier within an established community. The Project site is currently developed with an existing warehouse building and associated parking. The Project site is located in a highly urbanized area characterized heavy industrial uses to the east, single-family residential uses to the west and commercial uses to the southwest. There is no existing residential use on the Project site or a residential use that would be physically separated or otherwise disrupted by the Project because the proposed development would remain within the boundary of the existing Project site. There are no vacant or undeveloped areas around the Project site, such that development of the Project could possibly divide an established community or result in a separation of uses or disruption of access between land uses around the Project site. Implementation of the Project would result in further infill of an already developed community and on a site that is already built out with an existing warehouse facility. The Project would not disrupt, divide, or isolate an existing neighborhood or community directly or indirectly, as all proposed improvements would occur within the limits of the Project site. Lastly, the Project does not propose a freeway or other large infrastructure or barrier that would divide a community. Therefore, the Project would not physically divide, disrupt, or isolate an established community. Therefore, the impact would be less than significant.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less than Significant Impact. A significant impact may occur if a project is inconsistent with the General Plan or zoning designations currently applicable to the Project site, and would cause adverse environmental effects, which the General Plan and zoning ordinance are designed to avoid or mitigate. The Project involves the expansion of an existing warehouse building which includes demolition and alteration of 27,157 square foot existing cold dock for a new freezer. The new freezer would be approximately 71,331 square feet, resulting in a net addition of approximately 44,174 square feet of new floor area. Properties surrounding the subject property

are zoned M3-1VL to the east along Alameda Street with heavy industrial uses, R1-1XL-O-CUGU to the west along Drumm Avenue with single-family residential uses and C1-1VL-O-CUGU to the southwest along Pacific Coast Highway with commercial uses.

The Project site is located within the Wilmington – Harbor Community Plan Area which designates the commercially-zoned portion of the subject property for Restricted Light Industrial land uses corresponding to the MR2 zone. The Project site is zoned [Q] MR2-1 VL-CUGU (Restricted Light Industrial) and [Q] M3-1VL-CUGU (Heavy Industrial). The proposed Project would not conflict with the Project site's General Plan designation of Light Industrial use. The Project site is currently developed with a one-story (varying heights between 26 to approximately 42 feet) 221,496 square foot cold storage facility used to store wholesale food products for third party users. The proposed Project would contain a maximum Floor Area Ratio (FAR) of 0.38:1 and would be 65 feet in height (not including rooftop equipment) which exceeds the 45-foot height limit currently allowed per the applicable zoning. Thus, in order to ensure the development of the proposed Project would not conflict with applicable zoning such as the current height limit, the Applicant would request entitlements as detailed below.

In order to facilitate the development of the proposed Project, the Applicant is requesting the following entitlements: (1) a General Plan Amendment from Light Industrial land use (45-foot height limit) to Light Industrial land use (site-specific 65-foot height limit), pursuant to LAMC Sec. 11.5.6-B; (2) a change of Height District from 1VL to 1L-D, pursuant to LAMC Sec. 12.32-B; (3) a Zoning Administrators' Determination to permit a Transitional Height of 65 feet in lieu of 61 feet otherwise permitted by LAMC Sec. 12.21.1-A,10 for building located 100 feet to 199 feet from lots classified in the R1 Zone, pursuant to LAMC Sec. 12.24-X,22; (4) Site Plan Review for a project adding more than 50,000 square feet of nonresidential floor area; and (5) a waiver of dedication and improvement requirements for public rights of way, in conjunction with the construction, use and maintenance of an approximately 60,403 square feet of cold storage area, mechanical area, and office area building additions.

The Project site is located within the CUGU District (ZI-2458). As previously described in **Section 3.2**, **Environmental Setting**, the Project site complies with the CUGU and does not require either a CUGU Adjustment or a CUGU Exception. Additionally, due to the proximity to an oil well located on the northern portion of the site, as identified in ZIMAS by ZI-1195, a construction site well review (CSWR) must be completed by the California Department of Conservation. However, the plugged and abandoned oil well would not require further action at this time. Furthermore, the Project site is located within ZI-2514 (Trucking Related Use Regulation Ordinance), which provides goals to safeguard the public health, welfare, and safety of the Wilmington and Harbor City communities, which are the most affected by trucking-related activities. The Project site is not within the boundaries of or subject to any specific plan, community design overlay, or interim control ordinance.

The Wilmington-Harbor Community Plan (Plan) seeks to protect residences from noxious environmental impacts of industrial activities. More specifically, the Plan identifies issues related to truck traffic invading local residential streets. As mentioned previously, the site currently provides vehicular and pedestrian access through the Coil Avenue security gate on the southwest

corner of the property through Pacific Coast Highway. The proposed Project's consistency with the Plan is addressed below in **Table 4.11-1: Consistency with the Wilmington-Harbor Community Plan**. The main path of access surrounding the facility is by driving along the south and west side of the facility. There are no active vehicle entrances or exits on the west side of facility along Drumm Avenue where residential uses are located. The overall operation of the warehouse building would remain unchanged following the expansion and would continue to protect the residences located along Drumm Avenue. Additionally, the Plan seeks to protect industrially zoned land, where it does not encroach into predominantly residential areas, to capitalize upon the District's strategic proximity to the Port of Los Angeles through the creation of new, diverse industrial activities and commensurate employment opportunities. In portions of Harbor City and Wilmington where industrial strips or pockets of land lie adjacent to residential areas, the Plan designates Limited or Light Industrial land uses with corresponding MR restricted zoning classifications, which are intended to stabilize the industrial land reserve while assuring that industrial development be compatible with adjacent land uses.

TABLE 4.11-1: CONSISTENCY WITH THE WILMINGTON-HARBOR COMMUNITY PLAN

Goals and Policies	Consistency Analysis
Preserving a strong industrial base to provide jobs for residents and promote economic vitality within the Plan area.	**Consistent**. The proposed Project's improvement and expansion of the existing warehouse building would continue to promote economic vitality within the Plan area and would expand the industrial employment for residents with the addition of approximately 30 new employees.
Protection of residents from noxious environmental impacts of industrial activities	**Consistent**. As discussed, the proposed Project would be consistent with applicable regulatory plans and policies to reduce GHG emissions. With respect to hazards and hazardous materials, the proposed Project would not emit hazardous emissions as the proposed Project's construction and operation would occur in conformance with all applicable local, State and federal regulations. Further, the proposed Project would adhere to applicable regulatory compliance measures to reduce the potential risk for the release or explosion of methane to affect the public or environment.
Adequate buffering of industrial areas from nearby residential and commercial uses.	**Consistent**. The proposed Project would not alter the overall operations of the Project site and would not substantially impact the surrounding areas, which consists of heavy industrial use, residential and limited commercial use. Further, the proposed Project would adhere to Ordinance No. 177243, which contains provisions to ensure there is adequate landscape buffering.
Illegal dumping and other criminal activities have occurred in some industrial areas.	**Consistent**. The proposed Project would continue to maintain the Project site's existing lighting and security measures. The Project site's security is available seven (7) days per week for 24 hours per

TABLE 4.11-1: CONSISTENCY WITH THE WILMINGTON-HARBOR COMMUNITY PLAN

Goals and Policies	Consistency Analysis
	day, and security devices are screened from public view. Additionally, the Project site provides ample lighting both externally and internally in order to maintain visibility in and around the structure to prevent any illegal activity within or surrounding the area.

As mentioned previously, the Applicant is requesting a change of the Height District from 1VL to 1L-D and would retain the General Plan designation of Light Industrial Use that currently exists on the site. Additionally, the Project conforms to the Plan by improving and expanding the existing warehouse building. This would maintain and expand the industrial employment within and immediately surrounding the community with the addition of approximately 30 new employees. The proposed Project's consistency with the City's General Plan is addressed below in **Table 4.11-2: Consistency with the General Plan Framework Element**. As such, the Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impacts would be less than significant, and no mitigation measures are required.

TABLE 4.11-2: CONSISTENCY WITH THE GENERAL PLAN FRAMEWORK ELEMENT

Goals and Policies	Consistency Analysis
Industrial growth that provides job opportunities for the City's residents and maintains the City's fiscal viability.	**Consistent**. The proposed Project would be consistent with the City's vision for industrial growth that provides employment opportunities for the City's residents. The proposed Project's improvement and expansion of the existing warehouse building would add approximately 30 new employees.
Accommodate the development of industrial uses in areas designated as "Industrial-Light," "Industrial-Heavy," and "Industrial-Transit."	**Consistent**. The proposed Project would remain consistent with the City's goal of accommodating the development of industrial uses in areas designated as "industrial-Transit" as the proposed Project would improve and expand the existing warehouse within an "Industrial-Transit" area.
Initiate programs for lot consolidation and implement improvements to assist in the retention/expansion of existing and attraction of new industrial uses, where feasible.	**Consistent.** The proposed Project would improve and expand the existing warehouse. The proposed Project would add a new freezer, remodel the existing interior freezer, designate room for a mechanical room, electrical room expansion, fire pump building and a new second floor building area for offices. As such, the proposed Project's implementation of improvements would assist in the expansion of existing industrial uses.

Cumulative Impacts

The proposed Project and any future related projects would not conflict with land use policies and would be consistent with the City's General Plan, designations and zoning. As such, both the proposed Project and potential related projects would not alter the existing land use patterns. Additionally, no existing residential uses exist on the Project site and the proposed Project would not disrupt or divide an existing community, as the improvements and expansion of the existing cold storage facility would occur within the limits of the Project site. Similar to the Project, potential cumulative projects would not contain existing residential uses on the site and proposed development would be bound to the limits of the Project site. Therefore, the Project in combination with potential related projects, would result in less than significant impacts to an established community and to any land use plan, policy or regulation.

XII. MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. A significant impact would occur if the proposed Project would result in the loss of availability of known mineral resources of regional value or locally-important mineral resource recovery site. The Project site is located in a highly urbanized portion of the City and is not used for mineral resource extraction. No State-designated or locally designated mineral resource zones exist in the City. According to the Conservation Element of the City of Los Angeles General Plan, Mineral Resources, Exhibit A, the Project site is not classified by the City as containing significant mineral deposits, but is classified as being located in a State Designated Oil Field. However, the Project site is currently developed and does not include active mineral resource extraction operations. Thus, implementation of the proposed Project would not result in the loss of availability of a known mineral resource that would be of local importance or value to the region or to the residents of the State. No impact would occur and no mitigation measures are required.

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. A significant impact would occur if the proposed Project would result in the loss of availability of known mineral resources of regional value or locally-important mineral resource recovery site. No mineral extraction operations currently occur on the Project site. Furthermore, the Project site is not located within a City-designated Mineral Resource Zone where significant mineral deposits are known to be present, or within a mineral producing area as classified by the

California Geologic Survey.[61,62,63] The Project site is also not located within a City-designated oil field or oil drilling area.[64,65] The Project site is located in a State Designated Oil Field, however, the site is currently developed and does not include active mineral resource extraction operations.[66] Therefore, the Project would not result in the loss of availability of a mineral resource or a mineral resource recovery site. No impact would occur, and no mitigation measures are required.

Cumulative Impacts

The Project site is within a State Designated Oil field; however, the Project site is developed and does not include active mineral resource extraction operations. Thus, the implementation of the proposed Project would not result in the loss of availability of a mineral resource or a mineral resource recovery site. The proposed Project would not impact mineral resources, and therefore no cumulative impacts related to mineral resources would occur.

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61 City of Los Angeles Department of City Planning. "Figure GS-1 Los Angeles Citywide General Plan Framework." Draft Environmental Impact Report. January 19, 1995.

62 California Department of Conservation. "Aggregate Sustainability in California." California Geologic Survey. 2018.

63 City of Los Angeles Department of City Planning. "Exhibit A." Conservation Element of the Los Angeles City General Plan. January 2001.

64 City of Los Angeles Department of City Planning. "Exhibit A." Conservation Element of the Los Angeles City General Plan. January 2001.

65 California Department of Conservation. DOC Maps. Accessed September 2024. https://maps.conservation.ca.gov/.

66 City of Los Angeles Department of City Planning. "Exhibit A." Conservation Element of the Los Angeles City General Plan. January 2001.

XIII. NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The following section summarizes and incorporates by reference information from the *Noise Study* prepared by Meridian Consultants, dated September 2024, on behalf of the Applicant. The Noise Study is included as **Appendix F** of this ND.

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. A significant impact would occur if exposure of persons to or generation of noise levels are in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

On-Site Construction Noise

Construction activities that would occur during the construction phases (demolition, grading, building construction, architectural coating, and paving) would generate both steady-state and episodic noise that would be heard both on and off the Project site.

Noise from construction activities would be affected by the amount of construction equipment, the location of this equipment, the timing and duration of construction activities, and the relative distance to noise-sensitive receptors. Construction activities that would occur during the construction phases would generate both steady-state and episodic noise that would be heard both on and off the Project site. Each construction phase involves the use of different types of

construction equipment and, therefore, has its own distinct noise characteristics. The Project would be constructed using typical construction techniques; no blasting or impact pile driving would be required.

The potential noise impact generated during construction depends on the phase of construction and the percentage of time the equipment operates over the workday. However, construction noise estimates used for the analysis are representative of worst-case conditions because it is unlikely that all the equipment contained on-site would operate simultaneously. As mentioned previously, properties surrounding the Project site are zoned M3-1VL, [Q]M3-1VL-CUGU and [Q]M3-1 (Heavy Industrial) to the north and east along Alameda Street, R1-1XL-O-CUGU (One-Family Residential) to the west along Drumm Avenue and [Q]C1-1VL-O-CUGU (Limited Commercial) to the southwest along Pacific Coast Highway. The estimated construction noise levels were calculated for each of the analyzed receptors, ranging between 85 feet to 950 feet from the Project Site (refer to **Appendix F**) during each of the construction phases. Given the physical size of the Project site and logistical limitations, and with the noise equipment located at the construction area nearest to the affected receptors to present a conservative impact analysis. This is considered a worst-case evaluation because construction of the Project would typically use fewer pieces of equipment simultaneously at any given time as well as operating throughout the construction site (i.e., most of the time construction equipment would be operating at distances further away from the off-site receptors than that assumed in the forecasting of Project construction noise levels). As such, Project construction would often generate lower noise levels than reported herein.

Table 4.13-1: Construction Maximum Noise Estimates presents the maximum noise impacts that are forecasted to occur at each of the receptor sites. As shown, average noise levels during construction would not result in an increase above the absolute threshold of 80 dBA during any phase of construction. As such, construction noise levels would not be considered significant.

TABLE 4.13-1: CONSTRUCTION MAXIMUM NOISE ESTIMATES

Noise Monitoring Site	Calculated Noise Level (Leq-1hour) by Construction Phase					Absolute Threshold	**Increase Above Significance Threshold**
	Demolition	Grading	Building Construction	Paving	Architectural Coating		
Site 1	77.4	76.3	77.6	74.3	64.1	80	No
Site 2	72.2	70.5	71.7	68.5	58.3	80	No
Site 3	64.9	64.0	65.3	62.0	51.8	80	No
Site 4	57.9	59.8	61.1	57.8	47.6	80	No
Site 5	66.6	67.5	68.8	65.5	55.3	80	No
Site 6	59.7	60.7	62.0	58.7	48.5	80	No

Source: Refer to **Appendix F** for Construction Noise Worksheets

Off-Site Construction Noise

Construction of the Project would require workers travelling to and from the Project site to work on the site, export soil, and deliver supplies to the site. Trucks traveling to and from the Project site would be required to travel along a haul route approved by the City. At the maximum, approximately 146 hauling trips per day would take place during the grading phase. Haul truck traffic would take the most direct route to the freeway ramp along Drumm Avenue and Pacific Coast Highway.

Noise associated with construction truck trips were estimated using the Caltrans Federal Highway Administration (FHWA) Traffic Noise Model based on the maximum number of truck trips in a day. Project truck trips which includes medium- and heavy-duty trucks would generate noise levels of approximately 58.9 to 63.7 dBA, respectively, measured at a distance of 25 feet from the adjacent sensitive receptor. As described in **Appendix F**, existing noise levels at the Project site range from 61.9 dBA to 76.9 dBA. The noise level increases from truck trips would be below the significance threshold of 5 dBA. As such, off-site construction noise impacts would be less than significant and no mitigation measures are required.

Operational Noise

The facility includes designated outdoor break areas for employees. Noise from these areas is primarily associated with conversation and general use during breaks. These areas are located at the eastern portion of the site and are shielded by the existing cold storage facility, acting as a physical barrier between the break areas and the adjacent sensitive residential receptors along Drumm Avenue, thus reducing the transmission of noise off-site.

As mentioned previously, the expansion would decrease the length of the existing double rail spur and would also decrease the number of trains unloading stations from 18 down to 6. Overall operation of the cold storage facility would remain unchanged following the expansion and existing noise levels are not anticipated to increase.

Truck activity at the facility is conducted by appointment only, with trucks entering and exiting from Coil Avenue. The expansion would result in addition of approximately 40 trucks/container arriving and departing the Project site per day, resulting in a total of 160 trucks/containers per day. Operational truck trips which can include medium- and heavy-duty trucks would generate noise levels of approximately 59.3 dBA to 64.1 dBA, respectively, measured at a distance of 25 feet from the adjacent sensitive receptor. As described in **Appendix F**, existing noise levels at the Project site range from 61.9 dBA to 76.9 dBA. The noise level increases from truck trips would be below the significance threshold of 5 dBA. As such, operational truck noise impacts would be less than significant, and no mitigation measures are required.

Fixed Mechanical Equipment

The Project would introduce various stationary noise sources, including heating, ventilation, and air conditioning systems, which would be located either on the roof, the side of a structure, or on the ground. All Project mechanical equipment would be required to be designed with appropriate

noise-control devices, such as sound attenuators, acoustics louvers, or sound screens/parapet walls, to comply with noise-limitation requirements provided in LAMC Section 112.02, which prohibits the noise from such equipment from causing an increase in the ambient noise level of more than 5 dBA. Therefore, operation of mechanical equipment on the Project building would not exceed the City's threshold of significance.

b. Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. Vibration is sound radiated through the ground. Vibration can result from a source (e.g., subway operations, vehicles, machinery equipment, etc.) causing the adjacent ground to move, thereby creating vibration waves that propagate through the soil to the foundations of nearby buildings. The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration levels. PPV is defined as the maximum instantaneous peak of the vibration level, while RMS is defined as the square root of the average of the squared amplitude of the level. PPV is typically used for evaluating potential building damage, while RMS velocity in decibels (VdB) is typically more suitable for evaluating human response.

The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for most people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration from traffic is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

In December 2023, Department of City Planning released their proposed updates to the construction noise and vibration thresholds. The proposed thresholds are intended to be suited to the generally urban nature of the City, while still recognizing the importance of human health, including sleep disruption. The Project would have a significant impact to vibration if it would exceed the following thresholds:

- Architectural Building Damage – Construction activities shall not exceed the following building damage thresholds for the identified structures:
- Fragile Buildings: 0.1 PPV
- Historic Buildings: 0.25 PPV
- Older[67] Residential Structures: 0.3 PPV

[67] Caltrans does not specify the age of the building to be considered. For vibration impact analyses, a building over 50 years can be considered an "older" residential structure.

- New Residential Structures: 0.5 PPV
- Modern Industrial/Commercial Buildings: 0.5 PPV

Ground-borne vibration impacts were evaluated by identifying potential vibration sources estimating the distance between vibration sources, vibration sensitive receptors, and surrounding structure locations; and making a significance determination based on the significance thresholds.

Construction activities for the Project have the potential to generate low levels of ground-borne vibration to vibration sensitive uses that include the surrounding residential uses. The operation of construction equipment generates vibrations that propagate through the ground and diminish in intensity with distance from the source. Vibration impacts can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage of buildings at the highest levels.

Table 4.13-2: On-Site Construction Vibration Impacts—Building Damage present construction vibration impacts associated with on-site construction in terms of building damage. As shown in **Table 4.13-2**, the forecasted vibration levels due to on-site construction activities would not exceed the building damage significance threshold at the surrounding residential uses. Therefore, construction vibration impacts would be less than significant and no mitigation measures are required.

TABLE 4.13-2 ON-SITE CONSTRUCTION VIBRATION IMPACTS – BUILDING DAMAGE

Site	Nearest Location	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment				Significance Threshold (PPV ips)
		Vibratory Roller	Loaded Trucks	Jackhammer	Small bulldozer	
1	1630 E. Sandison Street	0.033	0.012	0.006	0.000	0.3
2	1614 E. Cruces Street	0.013	0.005	0.002	0.000	0.3
3	1351 Drumm Avenue	0.002	0.001	0.000	0.000	0.3
4	1325 Drumm Avenue	0.001	0.000	0.000	0.000	0.3
5	1600 E. Sandison Street	0.003	0.001	0.000	0.000	0.3
6	1502 E. Cruces Street	0.001	0.000	0.000	0.000	0.3

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment.

TABLE 4.13-2 ON-SITE CONSTRUCTION VIBRATION IMPACTS – BUILDING DAMAGE

Site	Nearest Location	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment				Significance Threshold (PPV ips)
		Vibratory Roller	Loaded Trucks	Jackhammer	Small bulldozer	

Refer to **Appendix F** for construction vibration worksheets.

c. For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. A significant impact would occur if the proposed Project would expose people residing or working in the Project area to excessive noise levels from a public airport or public use airport. The Project site is not located within the vicinity of a private airstrip or two miles of a public airport. The Project site is not within the Airport Influence Area of any of the listed airports.[68] The Project would not expose residents to excessive noise levels from aircraft. Therefore, no impact would occur, and no mitigation measures are required.

Cumulative Impacts

The proposed Project would have less than significant impacts related to construction and operational noise and vibration impacts. Due to this distance and uncertainty of construction timing, existing urban development, and the proposed Project's less than significant noise impacts, development of cumulative projects would not result in an increase in ambient noise levels above a level of significance. Thus, cumulative noise impacts would be less than significant.

68 Los Angeles County Airport Land Use Commission. Airports-Los Angeles County. Accessed September 2024. https://planning.lacounty.gov/airport-land-use-planning/.

XIV. POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant Impact. A significant impact may occur if a project would locate new development such as homes, businesses, or infrastructure, with the effect of substantially inducing growth in the proposed area that would otherwise not have occurred as rapidly or in as great a magnitude.

SCAG Regional Comprehensive Plan. In October 2008, SCAG approved and adopted the 2008 Regional Comprehensive Plan (RCP) for the SCAG Region—Helping Communities Achieve a Sustainable Future. The RCP is a long-term comprehensive plan that provides a strategic vision for handling the region's land use, housing, economic, transportation, environmental, and overall quality-of-life needs. The 2008 RCP was intended to serve as an advisory document for local agencies in the SCAG region. The following principles are based on the region's adopted Compass Growth Vision Principles for Sustaining a Livable Region.

- *Improve mobility for all residents.* Improve the efficiency of the transportation system by strategically adding new travel choices to enhance system connectivity in concert with land use decisions and environmental objectives.
- *Foster livability in all communities.* Foster safe, healthy, walkable communities with diverse services, strong civic participation, affordable housing and equal distribution of environmental benefits.
- *Enable prosperity for all people.* Promote economic vitality and new economies by providing housing, education, and job training opportunities for all people.

- *Promote sustainability for future generations*. Promote a region where quality of life and economic prosperity for future generations are supported by the sustainable use of natural resources.

SCAG Regional Transportation Plan Sustainable Communities Strategy. On September 3, 2020, SCAG approved and adopted the 2020 – 2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 – 2045 RTP/SCS) a plan that the Regional Council now calls Connect SoCal. As a designated Metropolitan Planning Organization (MPO) under federal law, SCAG is responsible for developing and adopting a long-range RTP every four years. The Plan evolved out of a massive outreach undertaking involving a broad range of stakeholders across the region to update the shared vision for the region's sustainable future. The RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with Senate Bill 375, improve public health, and meet the National Ambient Air Quality Standards set forth by the federal Clean Air Act. The RTP/SCS focuses on the interconnected components of economic, social, and transportation investments required to achieve a sustainable regional multimodal transportation system. The goals and policies of the RTP/SCS require the participation of individual municipalities and multilevel investment of stakeholders throughout the region.

According to the growth estimates from SCAG's RTP/SCS, the City had an estimated employment population of 1,831,457 in 2020 and is projected to have an employment population of 2,169,100 in 2040. The warehouse would result in 180 employees, an increase of 30 employees when compared to the existing warehouse. The addition of employees would be less than 0.01 percent of SCAG's employment forecast for the City. While the proposed use would provide new employment opportunities, the proposed use is not considered a unique use that would draw substantial new residents to the area to fulfill jobs.

As such, the Project would not result in substantial indirect or induced unplanned population growth. Therefore, impacts would be less than significant and no mitigation measures are required.

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. A significant impact would occur if the proposed Project would displace a substantial quantity of existing residences or a substantial number of people. The Project would expand the current capacity of the existing warehouse. No displacement of existing people or housing would occur upon implementation of the Project. No impacts would occur and no mitigation measures are required.

Cumulative Impacts

Population growth in the City has the potential to result in cumulatively significant environmental impacts. City planning documents, such as the General Plan, have been prepared to be consistent with population forecasts identified for the region. As described previously, the proposed Project is not anticipated to cause significant population growth as employees are expected to be current residents of the City. Furthermore, any future development would be

required to comply with applicable federal, State and local regulations related to population and housing, including any potential affordable housing replacement requirements. Required compliance with these regulations would ensure impacts related to population and housing would be less than significant. Thus, impacts related to population and housing would not be cumulatively considerable.

XV. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☒	☐
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☒	☐

a. Fire protection?

Less Than Significant Impact. A significant impact would occur if the LAFD could not adequately serve the proposed Project, necessitating a new or physically altered station. Fire protection and emergency medical services to the Project site would continue to be served by the LAFD. The nearest LAFD station to the Project site is Station 38, located at 124 East I Street, approximately 1.22 miles southwest of the Project site. Fire Station 38's average response time is approximately six (6) minutes and is equipped with one (1) aerial ladder truck, a triple combination fire engine and one (1) rescue ambulance. Additionally, Station 49, located at 400 Yacht Street, is located approximately 1.88 miles to the south. The City's standard for distance to a fire station is 1-1/2 miles.[69] Given the proximity of the Project to Station 38, response time would not be substantial and new or expanded facilities would not be needed. Therefore, impacts would be less than significant, and no mitigation measures are required.

b. Police protection?

Less Than Significant Impact. A significant impact would occur if the Los Angeles Police Department (LAPD) could not adequately serve the proposed Project, necessitating a new or physically altered station. The Project site is located within the area served by the Harbor Community Station of the LAPD, located at 2175 John S. Gibson Boulevard (approximately 3.44 miles southwest of the Project site). The proposed Project includes improvements to the existing warehouse building, resulting in approximately 60,403 square feet of cold storage area,

69 City of Los Angeles Department of City Planning. "Chapter 9 Infrastructure and Public Services." General Plan Framework.

mechanical area, and office area building additions. The increase of 20 to 30 employees from the proposed Project expansion are expected to be current residents of the City. As such, the proposed Project would not result in any population and housing growth given the current uses on the Project site. Thus, it is not anticipated that there would be a need to build a new or expand an existing police station to serve the proposed Project and maintain acceptable service ratios, response times, or other performance objectives for police protection. Furthermore, the proposed Project would not impact or alter the current safety features of the Project site, and the overall general operation would remain unchanged following the expansion, including lighting and site security measures. The Project site's existing security is available seven (7) days per week for 24 hours per day, and security devices are screened from public view. Additionally, the Project site provides ample lighting both externally and internally in order to maintain visibility in and around the structure to prevent any illegal activity within or surrounding the area. Therefore, impacts would be less than significant, and no mitigation measures are required.

c. Schools?

Less Than Significant Impact. A significant impact would occur if the proposed Project would include substantial employment or population growth, which could generate a demand for school facilities that would exceed the capacity of the school district. The proposed Project is an expansion of the existing warehouse building. The proposed Project would result in a net increase of 20 to 30 employees. The Project would expand an existing, nonresidential use. As such, the proposed Project is not anticipated to generate a substantial increase in regional employment or population growth that would exceed the capacity of the school district. Further, the proposed Project would adhere to applicable impact fees. As authorized under Section 17620(a) of the California Education Code (CECC) and Section 65995(b) of the California Government Code (CGC), local school districts are authorized to impose and collect school impact fees for all residential and non-residential development activities that occur within their jurisdiction to off-set the additional costs associated with the new students. For new construction, the chargeable covered and enclosed space of commercial or industrial construction would not include the square footage of any existing structure on the site of construction as of the date the first building permit is issued for any portion of that construction._Therefore, impacts would be less than significant, and no mitigation measures are required.

d. Parks?

No Impact. A significant impact would occur if the proposed Project would exceed the capacity or capability of the local park system to serve the proposed Project. Parks and recreational facilities in the vicinity of the Project site are primarily operated and maintained by the Los Angeles Department of Recreation and Parks. Nearby parks and recreational facilities within an approximate two-mile radius of the Project site include but not limited to: East Wilmington Greenbelt Park (located approximately 0.12 mile southwest from the Project site); Banning Recreation Center (located approximately 0.70 mile west from the Project site); and Wilmington Town Square Park (approximately 1.22 miles southwest from the Project site).

As a screening criterion for impacts on parks, the *L.A. CEQA Thresholds Guide* considers whether a proposed Project would result in a net increase of 50 residential units or more that would adversely impact recreation and park services and/or facilities due to the Project's proximity, or expected usage of, those facilities or services. The Project does not meet this screening criterion. As such, no impacts would occur, and no mitigation measures are required.

e. Other public facilities?

Less Than Significant Impact. A significant impact would occur if the proposed Project would result in substantial employment or population growth that could generate a demand for other public facilities, including libraries, which exceed the capacity available to serve the Project site, necessitating new or physically altered public facilities, the construction of which would cause significant environmental impacts. As a screening criterion for impacts on libraries, the *L.A. CEQA Thresholds Guide* considers whether a proposed Project would result in a net increase of 75 residential units. The Project does not meet this screening criterion. As such, the Project would not result in significant impacts on library facilities. Impacts would be less than significant, and no mitigation measures are required.

Cumulative Impacts

As discussed previously, impacts to public services from the proposed Project would be less than significant. In addition, the proposed Project would not increase the demand for local schools, parks or public facilities. Thus, the proposed Project would not cumulatively combine with potential related projects to have an impact on such facilities. Cumulative projects would also be required to undergo environmental review, in compliance with the requirements of CEQA. Should potential impacts to public services be identified, appropriate mitigation would be prescribed that would reduce impacts to less-than-significant levels. Because the proposed Project would not create a significant impact on public services, and other potential cumulative projects would also be expected to avoid or mitigate impacts on public services, cumulatively significant impacts are anticipated to be less than significant.

XVI. RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

a. Would the project Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?

Less Than Significant Impact. A significant impact may occur if a project would include substantial employment or population growth which could generate an increased demand for public park facilities that exceeds the capacities of existing parks and causes premature deterioration of the park facilities. The Project involves the expansion of an existing warehouse building, that would result in a net increase of 20 to 30 employees. The Project does not propose the development of residential uses which would create a demand on nearby parks and/or recreational facilities. In conclusion, the Project would not substantially increase the demand for off-site public parks and recreational facilities, such that substantial physical deterioration of those facilities would occur or be accelerated. The impact on parks and recreational facilities would be less than significant and mitigation measures would not be required.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact. The Project site contains a small outdoor break area for employees consisting of tables and chairs; however, the Project site does not contain any recreational facilities. The Project would not include the development of public recreational facilities or require the expansion of recreational facilities. As mentioned previously, the Project involves the expansion of an existing warehouse building. The Project site is designated for light manufacturing land uses and zoned Restricted Light Industrial. Additionally, the proposed Project involves improvements and expansion of the existing warehouse facility which includes demolition and alteration of the 27,157 square foot existing cold dock for a new freezer resulting in an approximately 60,403 square feet of cold storage area, mechanical area, and office area. Therefore, the Project would not require the construction or expansion of recreational facilities. As such, impacts would be less than significant and no mitigation measures are required.

Cumulative Impacts

The proposed Project would have a less than significant impact on recreational facilities. The proposed Project involves the improvement and expansion of the existing cold storage facility, and the proposed Project does not propose the development of public recreational facilities. Furthermore, the proposed Project does not propose residential uses, which increases demand for recreational facilities. As such, the proposed Project would not cumulatively combine with potential related projects to have an impact on parks and recreational facilities. Cumulative impacts would be less than significant.

XVII. TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

The following section summarizes and incorporates by reference information from the City of Los Angeles VMT Calculator (refer to **Appendix G.1**) and the Transportation Study Assessment Referral Form (refer to **Appendix G.2**).

a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant Impact. A significant impact may occur if the project conflicts with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. Trip generation estimates for the Project were calculated based on the latest edition of the Institute of Transportation Engineers' *Trip Generation* manual (refer to **Appendix G**). The new expanded facility would add approximately a maximum of 30 employees and cars per day and a maximum of 40 trucks/containers per day, resulting in a total of 160 trucks/containers per day. The warehouse would result in 448 daily trips and 3,371 vehicle-miles travelled (VMT).

As stated per the Los Angeles Department of Transportation (LADOT) Transportation Assessment Guidelines (TAG),[70] a new development would have potential impacts when work VMT per employee drops 15 percent below the existing average work VMT per employee for the Area Planning Commission (APC). As detailed in **Appendix G.1**, the Project would add 125 net trips and 1,092 net daily VMT. It is important to note, these values do not take into account credits for Project Transportation Demand Management (TDM) features, such as 30 percent of the workforce at the current facility use carpool or public transportation. Furthermore, even without

[70] Los Angeles Department of Transportation (LADOT). Transportation Assessment Guidelines. July 2019.

taking into account credits from TDM features, the Project would not exceed the Harbor Area Planning Commission (APC) household VMT threshold of 9.2 and work VMT threshold of 12.3. As such, the Project would not conflict with a program, plan, ordinance or policy addressing the circulation system and impacts would be less than significant.

b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Less than Significant Impact. CEQA Guidelines section 15064.3, subdivision (b) states that land use projects that indicate VMT exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor, as is the Project, should be presumed to cause a less than significant transportation impact. Pursuant to CEQA Guidelines section 15064.3(b)(1), Projects that decrease VMT in the Project area compared to existing conditions should be presumed to have a less than significant transportation impact.

CEQA Guidelines section 15064.3, subdivision (b), also states that transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant transportation impact.

The significance of the Project's impact is measured against the VMT thresholds established in LADOT's TAG. As explained previously, the expansion would result in 125 net daily trips including 1,092 net daily VMT. The proposed Project is projected to be below the Household VMT per capita and Work VMT per employee thresholds identified above. As such, the proposed Project is not anticipated to cause a significant VMT impact based on the City's VMT criteria for the Central APC area. Impacts would be less than significant.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant Impact. A significant impact could occur if a project includes a new roadway design or introduces a new land use or features into an area with specific transportation requirements and characteristics that have not been previously experienced in that area, or if Project site access or other features were designed in such a way as to create hazard conditions. The Project would not include unusual or hazardous design features and the proposed Project is compatible with existing uses. The Project proposes a land use that complements the surrounding urban development and utilizes the existing roadway network. As explained previously, the Project site currently provides vehicular and pedestrian access through the Coil Avenue security gate on the southwest corner of the property. The main path of access surrounding the facility is by driving along the south and west side of the facility. There are no active vehicle entrances or exits on the west side of facility. There are two (2) access gates to and from Drumm Avenue, however these gates are restricted for use by only the Los Angeles Fire Department (LAFD). The overall general circulation will remain unchanged following the expansion. Therefore, Project's driveways would continue to conform to the City's design standards and provide adequate sight distance, sidewalks, and pedestrian movement controls meeting the City's requirements to protect pedestrian safety. Impacts would be less than significant, and no mitigation measures are required.

d. Result in inadequate emergency access?

Less than Significant Impact. A significant impact could occur if the Project design would not provide emergency access meeting the requirements of the LAFD, or in any other way threatened the ability of emergency vehicles to access and serve the Project site or adjacent uses. The nearest primary emergency route is Pacific Coast Highway, approximately 0.25 miles south of the Project site. Alameda Street is adjacent to the Project site on the east and serves as a secondary emergency route. As mentioned previously, there are two (2) access gates to and from Drumm Avenue, however these gates are restricted for use by only the LAFD. The overall general circulation will remain unchanged following the expansion. Development of the Project site would require temporary and/or partial street and sidewalk closures due to construction activities as the proposed Project includes expansion of the current facility. No hazardous design features are included in the access design or site plan for the Project that could impede emergency access. Furthermore, the Project would be subject to the site plan review requirements of the LAFD to ensure that all access roads, driveways, and parking areas would remain accessible to emergency service vehicles. The Project would not be expected to result in inadequate emergency access. Impacts would less than significant.

Cumulative Impacts

The TAG requires that the proposed Project be reviewed in combination with nearby related projects to determine if there may be a cumulatively significant impact resulting from inconsistency with a particular program, plan, policy or ordinance. As discussed under Threshold "A," the proposed Project would not exceed the Harbor APC household and work VMT thresholds, and the proposed Project would operate in conformance with and would not conflict with the City's *General Plan*, transportation plans, policies, programs and ordinances.

Development of the proposed Project in conjunction with any future related projects may result in an intensification of existing traffic in an already urbanized area of Los Angeles. Future related projects would also be subject to the LADOT approval process, including CEQA review. Additionally, potential related projects would incorporate any mitigation measures necessary to reduce potential traffic impacts, such that no significant traffic impacts would occur, should a significant project-related and/or cumulative impact be identified. Thus, the proposed Project would not contribute to a significant cumulative transportation impact when considered with related projects.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k)?

Less than Significant Impact. Assembly Bill 52 (AB 52) established a formal consultation process for California Native American Tribes to identify potential significant impacts to Tribal Cultural Resources, as defined in PRC §21074, as part of CEQA. As specified in AB 52, lead agencies must provide notice inviting consultation to California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed Project if the Tribe has submitted a request in writing to be notified of proposed Projects. The Tribe must respond in writing within 30 days of the City's AB 52 notice. The Native American Heritage Commission (NAHC) provided a list of Native American groups and individuals who might have knowledge of the religious and/or cultural significance of resources that may be in and near the Project site. An informational letter was mailed to a total of 11 Tribes known to have resources in this area, on April 3, 2023 describing the Project and requesting any information regarding resources that may

exist on or near the Project site. On April 13, 2023, one tribal response was received from the Gabrieleño Band of Mission Indians- Kizh Nation who requested a consultation. The consultation began on May 2, 2023 via email, when documentation was submitted with the request to condition for monitoring during construction in the event anything related to tribal resources is discovered during construction. On February 25, 2025, the City emailed the Gabrieleño Band of Mission Indians- Kizh requesting additional information. On March 6, 2025 the Kizh Nation resubmitted the same documentation and same condition.

At the conclusion of the consultation, the Department of City Planning issued a letter dated March 26, 2025, concluding that mutual agreement cannot be reached for purposes of AB 52, and that no substantial evidence exists to support a conclusion that this project may cause a significant impact on tribal cultural resources, therefore the City has no basis under CEQA to impose any related mitigation measures.

A Sacred Lands File Search ("SLF") was conducted through the Native American Heritage Commission ("NAHC") which confirmed negative results in correspondence dated March 6, 2025 (refer to **Appendix H**).

As mentioned in Section *V: Cultural Resources* of this ND, a California Historical Resources Information ("CHRIS") record search was conducted on August 15, 2023 to identify any known cultural resources in the immediate vicinity of the Project area. A records review was prepared by Meridian Consultants dated August 29, 2023. The search concluded no previously documented cultural resources have been previously documented within the Project area.

The Project site is not found to be a potential historic resource in HistoricPlaces LA, SurveyLA or other City parcel reports or references. As such, implementation of the Project would not alter any of the physical characteristics of the nearby historic resources, including through construction activities, vibration from off-road equipment, and operation of the proposed Project. Because the Project site has been subject to ground disturbance activities in the past and is not known to be associated with any cultural or sacred sites, the probability for the discovery of a known site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe is considered low. Thus, in the absence of any known cultural resources, adherence to the Regulatory Compliance Measures for archeological resources, paleontological resources, and human remains would ensure impacts associated with the accidental discovery of any archaeological resources or human remains, including Native American resources would be avoided or reduced to less-than-significant levels. The required compliance would ensure any found deposits are treated in accordance with federal, State, and local guidelines, including those set forth in to PRC Section 21083.2. Therefore, impacts would be less than significant, and no mitigation measures are required.

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant Impact. Approved by Governor Jerry Brown on September 25, 2014, AB 52 establishes a formal consultation process for California Native American Tribes to identify potential significant impacts to Tribal Cultural Resources, as defined in PRC Section 21074, as part of CEQA. Effective July 1, 2015, AB 52 applies to projects that file a Notice of Preparation or Notice of Negative Declaration/Mitigated Negative Declaration on or after July 1, 2015. As specified in AB 52, lead agencies must provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed Project if the tribe has submitted a written request to be notified. The tribe must respond to the lead agency within 30 days of receipt of the notification if it wishes to engage in consultation on the Project, and the lead agency must begin the consultation process within 30 days of receiving the request for consultation. In compliance with AB 52, the City will notify all applicable tribes and the Project will participate in any requested consultations. As discussed under Finding (a), no responses were received within the 30-day notification period.

As noted previously, the depth and extent of grading and excavation would be limited. As such, unearthing of subsurface cultural resources would be limited. In the event subsurface cultural resources are unearthed, the Project would comply with City regulations on how artifacts found during construction must be handled. As such the potential for the Project to significantly impact a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe would be less than significant and no mitigation measures are required.

Cumulative Impacts

The proposed Project's adherence to the regulatory compliance measures for archaeological, paleontological resources and human remains would ensure any found resources, deposits or remains are treated in accordance with federal, State, and local guidelines, including those set forth in to PRC Section 21083.2. Furthermore, impacts related to tribal cultural resources are site-specific and are assessed on a site by-site basis through the AB 52 Consultation process. The City requires applicants to assess, determine, and mitigate any potential impacts related to tribal cultural resources that could occur as a result of development, as necessary. Therefore, because Tribal Cultural impacts are site specific, cumulative impacts related to Tribal Cultural Resources would be less than significant.

XIX. UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the prcject:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant Impact. A significant impact would occur if the proposed Project would increase water consumption or wastewater generation to such a degree that the capacity of facilities currently serving the Project site would be exceeded. Water in the City is supplied by the LADWP. The LADWP ensures the reliability and quality of its water supply through an extensive distribution system that includes more than 7,100 miles of pipes, more than 100 storage tanks and reservoirs within the City, and eight storage reservoirs along the Los Angeles Aqueducts. Water entering the Los Angeles Aqueduct Filtration Plant (LAAFP) undergoes treatment and disinfection before being distributed throughout the LADWP's water service area. The LAAFP has

the capacity to treat approximately 600 million gallons per day (mgd). The average plant flow is approximately 240–260 mgd as of March 2018.[71] Therefore, the LAAFP has a remaining capacity of approximately 340-360 mgd, depending on the season.

The Los Angeles Bureau of Sanitation provides sewer service to the Project area. Sewage from the Project site is conveyed via sewer infrastructure to the Hyperion Treatment Plant (HTP). The HTP treats an average daily flow of 362 mgd and has the capacity to treat 450 mgd.[72] This equals a remaining capacity of 88 mgd of wastewater able to be treated at the HTP.

The Project site is in a developed, urbanized portion of the City that is served by existing water and sewer mains. As shown in **Table 4.19-1: Estimated Water Demand**, it is estimated that proposed Project would have a net increase in daily water demand of 1,679 gallons, or 1.9 acre-feet per year (afy). The proposed expansion would require less than 0.01 percent of the remaining capacity of the LAAFP (which currently operates at 60 percent capacity). Therefore, the proposed Project would not require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Furthermore, the Project applicant would be required to implement applicable California Green Building Code requirements that would further reduce water demand.

TABLE 4.19-1: ESTIMATED WATER DEMAND

Land Use	Quantity	Demand Factor (gpd/unit)a	Daily Demand (gpd)	Annual Demand (afy)
Proposed				
Proposed Expansion	281,899 square feet	36 gpd/1,000 Gr SF	7,831 gpd	8.8
Current				
Existing Warehouse	221,496 square feet	36 gpd/1,000 Gr SF	6,152 gpd	6.9
Net Increase	**—**	**—**	***1,679 gpd***	***1.9***

Note: afy = acre-feet per year; gpd = gallons per day; Gr SF = gross square feet.

a *120 percent sewage generation loading factor; City of Los Angeles, Bureau of Sanitation, Sewage Generation Factors, April 2012.*

As shown in **Table 4.19-2: Estimated Sewage Generation**, it is estimated that the proposed expansion would generate approximately 8,896 gpd (10.0 afy) of wastewater, resulting in a net increase of 2,014 gpd (2.2 afy) when compared to the existing warehouse. The proposed Project would require approximately less than 0.01 percent of the remaining capacity of the HTP, which currently operates with 88 mgd of remaining capacity.

71 LAAFP Control Room Operator. Phone Conservation with Jeff Shaffen. March 21, 2018.

72 City of Los Angeles Department of Public Works Bureau of Sanitation. Wastewater System Fact Sheet. 2014.

TABLE 4.19-2: ESTIMATED SEWAGE GENERATION

Land Use	Quantity	Demand Factor[a] (gpd/unit)	Daily Generation (gpd)	Annual Demand (afy)
Proposed				
Proposed Expansion	281,899 square feet	30 gpd/ 1,000 Gr SF	9,397 gpd	10.
Current				
Existing Warehouse	221,496 square feet	30 gpd/ 1,000 Gr SF	7,383 gpd	8.3
Net Increase			***2,014 gpd***	***2.2***

Note: afy = acre-feet per year; gpd = gallons per day.

[a] *City of Los Angeles, Bureau of Sanitation, Sewage Generation Factors, April 2012.*

The Project site is located in an urbanized location that is currently served by stormwater infrastructure. The Project site would continue to be predominantly impervious surface. In addition, the Project would be required to demonstrate compliance with the City's Low Impact Development (LID) Ordinance standards. The primary purpose of the LID ordinance is to ensure that development and redevelopment projects mitigate runoff in a manner that captures rainwater and removes pollutants while reducing the volume and intensity of stormwater flows. As such, the volume of stormwater runoff during peak events would not increase and the construction of new stormwater drainage facilities or expansion of existing facilities would not be required.

The Project site is located in a developed, urbanized setting that is served by existing electric power, natural gas and telecommunications services. In the context of the greater Los Angeles service area, the Project would not be a substantial source of new demand for electrical or telecommunications services. No new connections would be established for the Project. No substantial electrical, gas, or telecommunications infrastructure is present on or adjacent to the Project site that would need to be relocated to accommodate the Project. Impacts would be less than significant, and no mitigation measures are required.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact. A significant impact would occur if the proposed Project would increase water consumption or wastewater generation to such a degree that the capacity of facilities currently serving the Project site would be exceeded. The Los Angeles Department of Water and Power (LADWP) conducts water planning based on forecast population growth. The proposed Project would not directly require or result in the construction of potable water treatment facilities because it would connect into these existing water services.

The LADWP adopted a new Urban Water Management Plan (UWMP) in May 2020,[73] which serves as a master plan for water supply and resources management consistent with LADWP goals and policy objectives. The UWMP forecasts expected cumulative growth in water demand and identifies matching water supplies. According to the UWMP, the total demand for water was 487,591 afy for 2020. The total forecasted demand for water during a single dry season would be 674,700 afy for 2025, and the forecasted post-conservation demand for water during a single dry season would be 509,500 afy for 2025.[74] The UWMP projects adequate water supplies to meet cumulative forecasted demand through 2045, the planning horizon for the current UWMP. The Project demand of 8.3 afy would be less than 0.01 percent of the available capacity during a single dry year in 2025. The Project is considered to be within the growth projections used by the LADWP in forecasting cumulative future demand. As such, it is expected that LADWP has sufficient water supplies available to serve the proposed Project.[75] The Project applicant would be required to adhere to current standards, including the California Green Building Code, that would reduce demand on local water supplies. Thus, LADWP has sufficient water supplies available to serve the proposed Project from existing entitlements and resources, and no new or expanded entitlements are needed. As such, impacts would be less than significant, and no mitigation measures are required.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. Wastewater flows from the Project site would be conveyed to the HTP through existing sewer lines. The HTP is managed by the City of Los Angeles. The City has adopted an Integrated Resources Plan (IRP) that includes a Wastewater Facilities Plan addressing forecasted cumulative system demand and identifying sufficient capacity to meet that demand.[76] Operation of the proposed Project would result in an increase in the amount of wastewater generated on the Project site compared to existing conditions. As stated previously, the HTP has capacity to serve the Project's projected wastewater demand, in addition to the provider's existing commitments. Furthermore, the Project is considered to be within the growth projections used in forecasting cumulative future demand. As such, impacts would be less than significant and no mitigation measures are required.

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73 City of Los Angeles Department of Water and Power. City of Los Angeles Urban Water Management Plan 2020. Accessed September 2024. https://www.ladwp.com.

74 City of Los Angeles Department of Water and Power. City of Los Angeles Urban Water Management Plan 2020. Accessed September 2024. https://www.ladwp.com.

75 City of Los Angeles Department of Water and Power. City of Los Angeles Urban Water Management Plan 2020. Accessed September 2024. https://www.ladwp.com.

76 City of Los Angeles Department of Public Works Bureau of Sanitation. City of Los Angeles Integrated Resources Plan Executive Summary. December 2006.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact. Solid waste generated within the City is disposed of at landfill facilities throughout Los Angeles County. The solid waste is collected and taken to Athens's recycling facility, the City of Industry Materials Recovery Facility. Food waste is processed and transported to Athens's compost facility in Victorville, American Organics. Remaining waste that cannot be recycled is disposed on a regular basis to one of four facilities within Los Angeles County.

The County Department of Public Works prepares an annual report on solid waste management within the County to help meet long-term needs and maintain adequate capacity. As described in the County's most recent report, landfills within Los Angeles County have a remaining capacity of more than 103 million tons and no shortfall in permitted solid waste disposal capacity is anticipated within the County under forecasted growth and ongoing municipal efforts at waste reduction and diversion.[77] As shown in **Table 4.19-3: Expected Operational Solid Waste Generation**, the proposed expansion would generate 180 pounds of solid waste per day, resulting in a net increase of 30 pounds of solid waste per day. This estimate is conservative because it does not factor in any recycling or waste diversion programs. The amount of solid waste generated by the proposed Project would be within the available capacities at area landfills.

TABLE 4.19-3: ESTIMATED OPERATIONAL SOLID WASTE GENERATION

Type of Use	Size	Waste Generation Rate[a] (lb./unit/day)	Total Solid Waste Generated (lb./day)
Proposed			
Proposed Expansion	180 Employees	1 lb./employee/day	180 lb./day
Current			
Existing Warehouse	150 Employees	1 lb./employee/day	150 lb./day
Net Increase			***30 lb./day***

Notes: lb. = pounds; sf =square feet.

[a] *City of Los Angeles, Bureau of Sanitation, Solid Waste Generation (1981). Waste generation includes all materials discarded, whether they are later recycled or disposed of in a landfill.*

In addition, the County addresses forecasted cumulative landfill demand and capacity through the preparation of annual County of Los Angeles Integrated Waste Management Plan (CoIWMP) reports. The current ColWMP has identified sufficient capacity to meet the cumulative forecasted landfill needs within the County. The Project is considered to be within the growth projections

[77] Los Angeles County Department of Public Works. "2020 Annual Report." Los Angeles Countywide Integrated Waste Management Plan. October 2021.

used in forecasting cumulative demand. The preparation of each annual CoIWMP report provides sufficient lead time (15 years) to address potential future shortfalls in landfill capacity. As such, construction and operation of the proposed Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impact the attainment of solid waste reduction goals. Impacts would be less than significant, and no mitigation measures are required.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. As under current conditions, solid waste generated on site would be disposed of in accordance with all applicable federal, State, and local regulations related to solid waste. In addition, the Project would be required to comply with the California Integrated Waste Management Act of 1989 (AB 939) which was enacted to reduce, recycle, and reuse solid waste generated in the State to the maximum amount feasible. Specifically, the Act requires city and county jurisdictions to identify an implementation schedule to divert 50 percent of the total waste stream from landfill disposal by the year 2000 and 70 percent by the year 2020. As such, compliance with local regulations, impacts would be less than significant, and no mitigation measures are required.

Cumulative Impacts

The proposed Project would not result in significant impacts to utilities and service systems. Future related projects' evaluation of infrastructure plans would ensure that there is adequate public utility services and resources available to serve both individual development projects and cumulative growth in the region. Each individual development project would be subject to review for utility capacity to avoid unanticipated interruptions in service or inadequate supplies. Coordination with the utility providers would allow for the provision of utility services to development projects without interrupting or degrading services to existing customers. Further, development projects would be subject to connection and service fees to offset increased demand and assist in facility expansion and service improvements (at the time of need). Because the comprehensive utility and service planning and coordination activities described in the previous discussion would ensure that new development projects do not disrupt or degrade the provision of utility services, cumulatively considerable impacts to utilities and service systems would not occur.

XX. WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones would the prcject:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. Wildland fire protection in California is the responsibility of either the local government, State, or the federal government. State Responsibility Areas (SRA) are the areas in the State where the State of California has the primary financial responsibility for the prevention and suppression of wildland fires. The SRA forms one large area over 31 million acres to which the California Department of Forestry and Fire Protection (CAL FIRE) provides a basic level of wildland fire prevention and protection services.

Local responsibility areas (LRA) include incorporated cities, cultivated agriculture lands, and portions of the desert. LRA fire protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government (CAL FIRE 2019a). LAFD provides fire protection and emergency medical services to the County. CAL FIRE uses an extension of the SRA Fire Hazard Severity Zone model as the basis for evaluating fire hazard in LRAs. The local responsibility area hazard rating reflects flame and ember intrusion from adjacent wildlands and from flammable vegetation in the urban area. Fire Hazard Severity

Zones (FHSZ) are identified by Moderate, High and Very High in an SRA, and Very High in an LRA.

The Project site is not in or near an SRA or LRA or lands classified as FHSZ.[78] The Project site is not in or near an SRA or LRA or lands classified as high fire hazard severity zones. The nearest primary emergency route is Pacific Coast Highway, approximately 0.25 miles south of the Project site. Alameda Street is adjacent to the Project site on the east and serves as a secondary emergency route. The proposed Project would be subject to the site plan review requirements of the LAFD to ensure that all access roads, driveways, and parking areas would remain accessible to emergency service vehicles. Thus, the proposed Project would not substantially impair an adopted emergency response or evacuation plan. No impact would occur and no mitigation measures are required.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. As demonstrated previously, the Project site is not in or near an SRA or LRA or lands classified as high fire hazard severity zones. The Project is located on relatively flat land and would not change or exacerbate current risks of wildfire or pollutant concentrations from a wildfire to protect occupants. Therefore, no impact would occur no mitigation measures are required.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. As demonstrated previously, the Project site is not in or near an SRA or LRA or lands classified as high fire hazard severity zones. The Project would not require the installation or maintenance of any infrastructure or utility improvements or additions. As such, impacts related to infrastructure modifications increasing fire risk would not result in any impacts and no mitigation measures are required.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. As demonstrated previously, the Project site is not in or near an SRA or LRA or lands classified as high fire hazard severity zones. Development of the Project site would not exacerbate wildfire hazards on site. The Project is not located near a potential flooding, landslide area, or would result in potential drainage changes. No impacts would occur and not mitigation measures are required.

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78 CalFire. Fire Hazard Severity Zones. Accessed September 2024. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones#:~:text=Local%20Responsibility%20Areas%20(LRA)%20are,by%20CAL%20FIRE%20under%20contract.

Cumulative Impacts

Both the proposed Project and any future related projects would be located within a developed, urban setting and would not be located within a Fire Hazard Severity Zone or a Very High Fire Hazard Severity Zone. Thus, no cumulative impacts would occur.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact. A significant impact could occur only if the Project would have an identified potentially significant impact for any of the environmental topics addressed in this Initial Study . However, as described previously, the Project would not result in any significant impacts. The Project is located in a densely populated urban area and would have no significant impacts with respect to biological and cultural resources. The proposed Project does not have the potential to significantly degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, or threaten to eliminate a plant animal community. The Project is located in a developed, urbanized area and will not disrupt or hinder any known habitats. Impacts would be less than significant and no mitigation measures are required.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant Impact. A significant impact may occur if the proposed Project, in conjunction with the related projects, would result in impacts that are less than significant when viewed separately but significant when viewed together. There are no related projects within a half mile (1/2) radius of the Project site.

As such, the cumulative impacts to which the proposed Project would contribute would be less than significant.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. A significant impact may occur if the proposed Project has the potential to result in significant impacts, as discussed in the preceding sections. Based on the preceding environmental analysis, the Project would not have significant environmental effects on human beings, either directly or indirectly. Upon implementation of the Regulatory Compliance Measures applicable and compliance with existing regulations, any potentially significant impacts would be reduced to less than significant levels.

5 REFERENCES

CalFire. Fire Hazard Severity Zones. Accessed September 2024. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones#:~:text=Local%20Responsibility%20Areas%20(LRA)%20are,by%20CAL%20FIRE%20under%20contract.

California Department of Conservation. "Aggregate Sustainability in California." *California Geologic Survey. 2018.*

California Department of Conservation. *DOC Maps.* Accessed September 2024. https://maps.conservation.ca.gov/.

California Department of Conservation. *Earthquake Zones of Required Investigation.* Accessed September 2024. https://maps.conservation.ca.gov/cgs/EQZApp/app/.

California Department of Conservation. "Los Angeles County Important Farmland." *Farmland Mapping and Monitoring Program.* Accessed September 2024. https://www.conservation.ca.gov/dlrp/fmmp/Pages/LosAngeles.aspx

California Department of Conservation. "Williamson Act Contract Land." *Division of Land Resource Protection.* Accessed September 2024. https://www.conservation.ca.gov/dlrp/wa/Pages/stats_reports.aspx

California Department of Fish and Wildlife. *Biographic Information and Observation System (BIOS)*. Accessed September 2024. www.wildlife.ca.gov/Data/BIOS.

California Department of Fish and Wildlife. "California Natural Diversity Database." *Special Animals List*. Accessed September 2024.

California Department of Fish and Wildlife. *California Regional Conservation Plans*. October 2017.

California Department of Fish and Wildlife. *CDFW Lands*. Accessed September 2024. https://www.wildlife.ca.gov/Lands.

California Department of Fish and Wildlife. *National Wetlands Inventory*. Accessed September 2024. https://www.fws.gov/program/national-wetlands-inventory.

Caltrans. "California State Scenic Highway." Accessed September 2024. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways.

California Air Resources Board (CARB). "Assembly Bill 32 Overview" (last reviewed August 4, 2014). Accessed September 2024. http://www.arb.ca.gov/cc/ab32/ab32.htm.

California Water Boards. Underground Storage of Hazardous Substances. Accessed September 2024. https://www.waterboards.ca.gov/ust/regulatory/docs/hs_chp7_w_additions.pdf.

CARB. *California's 2017 Climate Change Scoping Plan*. 2017. Accessed September 2024. ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf.

City of Los Angeles. *2018 Local Hazard Mitigation Plan*. Flood, Figure 10-11, p. 10-33.

City of Los Angeles. "Tsunami." *2018 Local Hazard Mitigation Plan*. Flood, Figure 12-1, p. 12-4.

City of Los Angeles Department of City Planning. "Exhibit A." *Conservation Element of the Los Angeles City General Plan*. January 2001.

City of Los Angeles Department of City Planning. "General Disaster Prevention, Response and Recovery." General Plan Safety Element. November 2021. Accessed September 2024. https://planning.lacity.org/plans-policies/general-plan-overview.

City of Los Angeles Department of City Planning. "General Plan Land Use in Very High Fire Hazard Severity Zones." General Plan Safety Element. November 2021. Accessed September 2024. https://planning.lacity.org/plans-policies/general-plan-overview.

City of Los Angeles Department of City Planning. "Chapter 9 Infrastructure and Public Services." General Plan Framework.

City of Los Angeles Department of City Planning. "Figure GS-1 Los Angeles Citywide General Plan Framework." Draft Environmental Impact Report. January 19, 1995.

City of Los Angeles Department of City Planning. "Los Angeles Citywide General Plan Framework." Draft Environmental Impact Report. January 19, 1995. P. 2-18-4.

City of Los Angeles Department of City Planning. "Parcel Profile Report." ZIMAS. Accessed September 2024. http://zimas.lacity.org/.

City of Los Angeles Department of Public Works Bureau of Sanitation. *City of Los Angeles Integrated Resources Plan Executive Summary*. December 2006.

City of Los Angeles Department of Public Works Bureau of Sanitation. *Wastewater System Fact Sheet*. 2014.

City of Los Angeles Department of Water and Power. *City of Los Angeles Urban Water Management Plan 2020.* Accessed September 2024. https://www.ladwp.com.

City of Los Angeles Department of Water and Power. *2018 Retail Electric Sales and Demand Forecast*. November 2018. Accessed September 2024. https://rates.ladwp.com/Admin/Uploads/Load%20Forecast/2019/04/2018%20Load%20Forecast_Final.pdf.

City of Los Angeles. *Methane and Methane Buffer Zones*. Accessed September 2024. https://www.geoforward.com/los-angeles-methane-zones/.

City of Los Angeles Office of Historic Resources (OHR). "HistoricPlacesLA." Los Angeles Historic Resources Inventory Map. Accessed September 2024. http://www.historicplacesla.org/map.

City of Los Angeles SurveyLA Results: Wilmington – Harbor City. Accessed September 2024. https://planning.lacity.gov/preservation-design/survey-la-results-wilmington-harbor-city.

Federal Emergency Management Agency (FEMA). Flood Insurance Rate Map, Panel Number 06037C 1595F. Effective September 26, 2008.

International Energy Agency (IEA). Energy Efficiency Requirements in Building Codes. Energy Efficiency Policies for New Buildings, IEA Information Paper. 2008.

LAAFP Control Room Operator. *Phone Conservation with Jeff Shaffen*. March 21, 2018.

LADBS. Methane Mitigation Standards. Accessed September 2024. https://www.ladbs.org/services/core-services/plan-check-permit/methane-mitigation-standards.

LAFD. *UST Tank Abandonment Guidelines*. Accessed March 2020. https://www.lafd.org/fire-prevention/cupa/ust-tank-abandonment-guidelines.

Los Angeles County Airport Land Use Commission. *Airports-Los Angeles County*. Accessed September 2024. https://planning.lacounty.gov/airport-land-use-planning/.

Los Angeles County Department of Public Works. "2020 Annual Report." *Los Angeles Countywide Integrated Waste Management Plan*. October 2021.

Los Angeles County Department of Public Works. "Disaster Route Maps." City of Los Angeles Central Area. May 2014. Accessed September 2024. https://planning.lacounty.gov/generalplan/figures2015.

Los Angeles County. "Figure 9.3 Significant Ecological Areas and Coastal Resource Areas Policy Map." Los Angeles County General Plan. October 6, 2015. Updated September 2021. Accessed September 2024. https://planning.lacounty.gov/long-range-planning/general-plan/.

Los Angeles Department of Transportation (LADOT). *Transportation Assessment Guidelines*. July 2019.

State of California Department of Toxic Substances Control. "Hazardous Waste and Substances Site List." *EnviroStor.* Accessed September 2024. https://www.envirostor.dtsc.ca.gov/public/.

South Coast Air Quality Management District (SCAQMD). "Architectural Coatings Rule 1113." Accessed September 2024. http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf.

SCAQMD. *Final Localized Significance Threshold Methodology. (2008)*. p. 3-3. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2.

SCAQMD. *Fugitive Dust Rule 403*. Accessed September 2024.

http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.

SCAQMD. "White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions." Board Meeting. Agenda No. 29 (September 5, 2003). Appendix D, p. D-3.

U.S. Department of Housing and Urban Development. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. Accessed September 2024. https://www.hud.gov/program_offices/healthy_homes/lbp/hudguidelines.

US Energy Information Administration. "Annual Energy Outlook 2020: Table 11." *Petroleum and Other Liquids Supply and Disposition.* Accessed September 2024. *https://www.eia.gov/outlooks/aeo/data/browser/#/?id=11-AEO2020&cases=ref2020&sourcekey=0.*

US Environmental Protection Agency. *NEPAssist*. Accessed September 2024. www.epa.gov/nepa/nepassist.

US Fish and Wildlife Service. "Listed species believed to or known to occur in California." *ECOS Environmental Conservation Online System*. Accessed September 2024. https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=CA&stateName=California&statusCategory=Listed.

US Forest Service. "Map of the Angeles National Forest." *Angeles National Forest*. Accessed September 2024. https://www.fs.usda.gov/detailfull/angeles/maps-pubs/?cid=FSEPRD535505.

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OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

Air Toxics Hot Spots Program

Risk Assessment Guidelines

Guidance Manual for Preparation of Health Risk Assessments

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Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

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February 2015

Air Toxics Hot Spots Program
Risk Assessment Guidelines

The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments

Office of Environmental Health Hazard Assessment
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Table of Contents

Preface 1

1 - Introduction 1-1

1.1 Development of Guidelines 1-1
1.2 Use of the Guidance Manual 1-2
1.3 Who is Required to Conduct a Risk Assessment 1-3
1.4 The Hot Spots Analysis and Reporting Program (HARP) Software 1-4
1.5 Risk Assessment Review Process 1-4
1.6 Uncertainty in Risk Assessment 1-5
1.7 Tiered Approach to Risk Assessment 1-7
1.8 References 1-7

2 - Overview of Health Risk Assessment 2-1

2.1 The Model for Risk Assessment 2-1
2.2 Hazard Identification 2-1
2.3 Exposure Assessment 2-1
2.4 Dose-Response Assessment 2-2
2.5 Risk Characterization 2-3
2.5.1 Point Estimate Approach 2-4
2.5.2 Stochastic Exposure Assessment 2-5
2.5.3 Tiered Approach to Risk Assessment 2-6
2.6 References 2-6

3 - Hazard Identification - Air Toxics Hot Spots Emissions 3-1

3.1 The Air Toxics Hot Spots List of Substances and Emissions Inventory 3-1
3.2 References 3-2

4 - Air Dispersion Modeling 4-1

4.1 Air Dispersion Modeling in Exposure Assessment: Overview 4-1
4.2 Emission Inventories 4-5
4.2.1 Air Toxics Hot Spots Emissions 4-5
4.2.2 Landfill Emissions 4-9
4.3 Source Characterization 4-9
4.3.1 Source Type 4-9
4.3.2 Quantity of Sources 4-11
4.4 Terrain Type 4-11
4.4.1 Terrain Type – Land Use 4-12
4.4.2 Terrain Type - Topography 4-14
4.5 Level of Detail: Screening vs. Refined Analysis 4-14
4.6 Population Exposure 4-15
4.6.1 Zone(s) of Impact 4-15

4.6.2 Screening Population Estimates for Risk Assessments 4-17
4.6.3 Refined Population Estimates for Risk Assessments 4-18
4.6.4 Sensitive Receptor Locations 4-20
4.7 Receptor Siting 4-20
4.7.1 Receptor Points 4-20
4.7.2 Centroid Locations 4-22
4.7.3 Spatial Averaging 4-22
4.8 Meteorological Data 4-27
4.8.1 Meteorological Data Formats 4-29
4.8.2 Treatment of Calms 4-29
4.8.3 Treatment of Missing Data 4-30
4.8.4 Representativeness of Meteorological Data 4-31
4.8.5 Alternative Meteorological Data Sources 4-33
4.8.6 Quality Assurance and Control 4-33
4.9 Model Selection 4-34
4.9.1 Recommended Models 4-34
4.9.2 Alternative Models 4-35
4.10 Screening Air Dispersion Models 4-35
4.10.1 AERSCREEN 4-36
4.10.2 Valley Screening 4-37
4.10.3 CTSCREEN 4-37
4.11 Refined Air Dispersion Models 4-39
4.11.1 AERMOD 4-39
4.11.2 CTDMPLUS 4-42
4.12 Modeling to Obtain Concentrations used for Various Health Impacts 4-43
4.12.1 Emission Rates for Cancer, Chronic, and Acute Health Impacts 4-43
4.12.2 Modeling and Adjustments for Inhalation Cancer Risk at a Worksite 4-43
4.12.3 Modeling and Adjustments for Noncancer 8-Hour RELs 4-45
4.12.4 Modeling and Adjustment Factors for Noncancer Chronic RELs 4-48
4.12.5 Modeling and Adjustments for Oral Cancer Potencies and Oral RELs . 4-48
4.12.6 Modeling One-Hour Concentrations using Simple and Refined Acute Calculations 4-49
4.13 Modeling Special Cases; Specialized Models 4-50
4.13.1 Building Downwash 4-50
4.13.2 Deposition 4-51
4.13.3 Short Duration Emissions 4-51
4.13.4 Fumigation 4-52
4.13.5 Raincap on Stack 4-52
4.13.6 Landfill Sites 4-53
4.14 Specialized Models 4-54
4.14.1 Buoyant Line and Point Source Dispersion Model (BLP) 4-54
4.14.2 Offshore and Coastal Dispersion Model (OCD) 4-54
4.14.3 Shoreline Dispersion Model (SDM) 4-55
4.15 Interaction with the District 4-55
4.15.1 Submittal of Modeling Protocol 4-55

4.16 Health Risk Assessment Report 4-58
4.16.1 Information on the Facility and its Surroundings 4-58
4.16.2 Source and Emission Inventory Information 4-59
4.16.3 Exposed Population and Receptor Location 4-60
4.16.4 Meteorological Data 4-62
4.16.5 Model Selection and Modeling Rationale 4-62
4.16.6 Air Dispersion Modeling Results 4-62
4.17 References 4-64

5 - Exposure Assessment Estimation of Concentration and Dose 5-1

5.1 Introduction 5-1
5.2 Criteria for Exposure Pathway Evaluation 5-3
5.3 Estimation of Concentrations in Air, Soil, and Water 5-5
5.3.1 Air 5-6
5.3.2 Soil 5-6
5.3.3 Water 5-8
5.3.4 Estimation of Concentrations in Vegetation, Animal Products, and Mother's Milk 5-9
5.4 Estimation of Dose 5-23
5.4.1 Estimation of Exposure through Inhalation 5-23
5.4.2 Estimation of Exposure through Dermal Absorption 5-35
5.4.3 Estimation of Exposure through Ingestion 5-42
5.5 References 5-60

6 - Dose-Response Assessment for Noncarcinogenic Endpoints 6-1

6.1 Derivation of Toxicity Criteria for Noncancer Health Effects 6-1
6.2 Acute Reference Exposure Levels 6-3
6.3 8-hour Reference Exposure Levels 6-5
6.4 Chronic Reference Exposure Levels 6-6
6.5 Chronic Oral (Noninhalation) Reference Exposure Levels 6-11
6.6 References 6-13

7 - Dose-Response Assessment for Carcinogens 7-1

7.1 Introduction 7-1
7.2 Carcinogenic Potency 7-1
7.2.1 Inhalation Cancer Potency Factors 7-2
7.2.2 Oral Cancer Potency Factors 7-2
7.3 References 7-8

8 - Risk Characterization for Carcinogens and Noncarcinogens and the Requirements for Hot Spots Risk Assessments 8-1

8.1 Introduction 8-1
8.1.1 Tiered Approach to Risk Assessment 8-2

8.2 Risk Characterization for Carcinogens 8-4
8.2.1 Adjustment for Early Life Stage Exposures to Carcinogens 8-4
8.2.2 Fraction of Time Spent at Home for Cancer Risk Assessment 8-5
8.2.3 Exposure Duration for Estimating Cancer Risk to Residents and Off-Site Workers 8-6
8.2.4 Calculating Residential and Offsite Worker Inhalation Cancer Risk 8-7
8.2.5 Calculation of Noninhalation Cancer Risk 8-9
8.2.6 Multipathway Cancer Risk Methodology 8-12
8.2.7 Multipathway Cancer Risk for Infant Exposure to Mother's Milk 8-13
8.2.8 Cancer Risk Characterization for Stochastic Risk Assessment 8-14
8.2.9 Use of Individual Cancer Risk and Population-wide Cancer Risk 8-15
8.2.10 Cancer Risk Evaluation of Short Term Projects 8-17
8.3 Noncancer Acute, 8-Hour, and Chronic Inhalation Health Impacts – the Hazard Index Approach 8-19
8.3.1 Calculation of Noncancer Inhalation Hazard Quotient and Hazard Index 8-20
8.3.2 Calculating Noninhalation (oral) Noncancer Hazard Quotient and Hazard Index 8-21
8.3.3 Multipathway Noncancer Risk Methodology 8-22
8.3.4 Summary - Acute, 8-Hour and Chronic Hazard Index Calculation at the MEIR and MEIW 8-24
8.3.5 Evaluation of Background Criteria Pollutants 8-24
8.4 Uses of Exposure Duration Adjustments for Onsite Receptors 8-25
8.5 References 8-26

9 - Summary of the Requirements for a Modeling Protocol and a Health Risk Assessment Report 9-1
9.1 Submittal of a Modeling Protocol 9-1
9.1.1 Outline for a Modeling Protocol 9-2
9.2 Health Risk Assessment Report 9-5
9.2.1 Outline for the Health Risk Assessment Report 9-5

List of Abbreviations Abbreviations-1

Index of Selected Terms and Acronyms Index-1

Table of Tables

Table 4.1 Identification and classification of land use types (Auer, 1978) 4-13

Table 4.2 Recommended Factors to Convert Maximum 1-hour Avg. Concentrations to Other Averaging Periods (U.S. EPA, 2011, 1995a; ARB, 1994)..... 4-36

Table 4.3 Time-scaling factors internally coded in CTSCREEN 4-38

Table 4.4 Input Parameters Required to Run CTSCREEN 4-38

Table 5.1 Specific Pathways to be Analyzed for Each Multipathway Substance..... 5-5

Table 5.2a Substance-Specific Default Values for Organic Multipathway Substances..... 5-18

Table 5.2b Substance-Specific Default Values for Inorganic Multipathway Substances..... 5-19

Table 5.3a Animal Transfer Coefficients for Persistent Organic Chemicals 5-20

Table 5.3b Animal Transfer Coefficients for Inorganic Chemicals 5-21

Table 5.4 Point Estimates for Animal Pathway..... 5-21

Table 5.5 Mother's Milk Transfer Coefficients (Tco_m) 5-22

Table 5.6 Point Estimates of Residential Daily Breathing Rates for 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years (L/kg BW-day)..... 5-25

Table 5.7 Daily Breathing Rate Distributions by Age Group for Residential Stochastic Analysis (L/kg BW-day)..... 5-25

Table 5.8 Eight-Hour Breathing Rate (L/kg per 8 Hrs) Point Estimates for Males and Females Combined 5-30

Table 5.9 METS Distributions for Workplace and Home Activities 5-31

Table 5.10 Example Worker Adjustment Factors (WAF) to Convert a Long-Term Daily Average Emission Concentration to an Off-Site Worker Receptor Exposure 5-32

Table 5.11 Recommended Annual Dermal Load Point Estimates (in mg/kg-yr) for Dermal Exposure..... 5-37

Tables 5.12a - d Annual Dermal Load Distributions by Age Group and Climate for Stochastic Analysis 5-38

Table 5.13 Dermal Absorption Fraction Factors (ABS) as Percent from Soil for Semi-Volatile and Solid Chemicals under the OEHHA "Hot Spots" Program.... 5-40

Table 5.14 Recommended Soil Ingestion Rate (SIR) Estimates for Adults and Children (mg/kg-day)*.... 5-44

Table 5.15 Recommended Average and High End Point Estimate Values for Home Produced Food Consumption (g/kg-day) 5-49

Table 5.16a - e Parametric Models of Per Capita Food Consumption by Age Group for Stochastic Analysis 5-50

Table 5.17 Default Values for L in EQs 5.4.3.2.1., 5.4.3.2.2 and 5.4.3.2.3: Fraction of Food Intake that is Home-Produced 5-52

Table 5.18 Recommended Point Estimate Tap Water Intake Rates (ml/kg-day)..... 5-55

Table 5.19 Recommended Distributions of Tap Water Intake Rates (ml/kg-day) for Stochastic Risk Assessment 5-55

Table 5.20 Point Estimate Values for Angler-Caught Fish Consumption (g/kg-day) by Age Group 5-58

Table 5.21 Empirical Distribution for Angler-Caught Fish Consumption (g/kg-day)... 5-58

Table 5.22 Default Point Estimates for Breast Milk Intake (BMI_{bw}) for Breastfed Infants 5-60

Table 5.23 Recommended Distribution of Breast Milk Intake Rates Among Breastfed Infants for Stochastic Assessment (Averaged Over an Individual's First Year of Life).... 5-60

Table 6.1 Acute Inhalation Reference Exposure Levels (RELs) and Acute Hazard Index Target Organ System(s) 6-4

Table 6.2 Eight-Hour Inhalation Reference Exposure Levels (RELs) and 8-Hour Hazard Index Target Organ System(s).... 6-6

Table 6.3 Chronic Inhalation Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s).... 6-7

Table 6.4 Chronic Noninhalation 'Oral' Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s).... 6-12

Table 7.1 Inhalation and Oral Cancer Potency Factors.... 7-4

Table 8.1 The Tiered Approach to Risk Assessment 8-2

Table 8.2 Tiers for Residential and Offsite Worker Cancer and Noncancer Hot Spots Risk Assessments 8-3

Table 8.3 Age Sensitivity Factors by Age Group for Cancer Risk Assessment 8-5

Table 8.4 Recommendations for Fraction of Time at Home (FAH) for Evaluating Residential Cancer Risk 8-5

Table 8.5 Summary of Recommendations for Exposure Duration for Individual Cancer Risk at the MEIR and MEIW 8-6

Table 8.6 Mandatory and Site/Route Dependent Exposure Pathways 8-10

Table 8.7 Multipathway Assessment of a Hypothetical Facility 30-Year Cancer Risk 8-13

Table 8.8 Individual Hazard Quotients and Total Hazard Index for Acute Inhalation Exposure 8-21

Table 8.9 Substance-Specific Chronic Inhalation and Noninhalation Hazard Quotients and the Hazard Index by Target Organ System 8-23

Table of Figures

Figure 1 Overview of the Air Dispersion Modeling Process. 4-4

Figure 2 Acute Scenarios 4-50

Preface

The draft of the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (Guidance Manual) is a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987(Health and Safety Code Section 44300 et seq., see Appendix B). The Children's Environmental Health Protection Act of 1999 (Health and Safety Code Section 39606, also contained in Appendix B), which requires explicit consideration of infants and children in assessing risks from air toxics, necessitated revisions of the methods for both noncancer and cancer risk assessment, and of the exposure variates. This draft version of the Guidance Manual updates the previous version (OEHHA, 2003), and reflects advances in the field of risk assessment along with explicit consideration of infants and children.

The information presented in the draft manual is compiled from three technical support documents (TSDs) released by the Office of Environmental Health Hazard Assessment (OEHHA) for the Hot Spots Program. The three TSDs (which are also revised versions, replacing the original four Hot Spots TSDs adopted between 1999 and 2003) underwent public comment and peer review and were adopted for use in the Air Toxics Hot Spots program by the Director of OEHHA. The Technical Support Document for the Derivation of Noncancer Reference Exposure Levels (June, 2008) addressed the methodology for deriving acute, chronic and eight hour Reference Exposure Levels. The Technical Support Document for Cancer Potency Factors (May 2009) addresses the methodology for deriving cancer potency factors and adjusting cancer potency to account for the increased sensitivity of early-in-life exposure to carcinogens. The Technical Support Document for Exposure Assessment and Stochastic Analysis (June 2012) presents the exposure model for the Hot Spots program and reviews the available literature on exposure and relevant fate and transport variates. All three TSDs are available on OEHHA's web site at: http://www.oehha.ca.gov/air/hot_spots/index.html. Excerpts of these three TSDs are presented in this document. There is relatively little new information in the Guidance Manual since the adoption of the TSDs.

The draft Guidance Manual was released for public review. Public comments were received and changes were made in response to some comments. Responses were developed to all public comments. Both the Guidance Manual and OEHHA's response to comments were then reviewed by the State's Scientific Review Panel on Toxic Air Contaminants (SRP), who previously reviewed the three TSDs upon which this guidance is based. Following review by the SRP, OEHHA finalized this Guidance Manual. This Guidance Manual supersedes the risk assessment methods presented in the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2003), which in turn replaced earlier guidance provided by the California Air Pollution Control Officer's Association (CAPCOA, 1993). This manual updates health effects values, exposure pathway variates (e.g., breathing rates), and

continues to use a tiered approach for performing HRAs based on current science and policy assessment. The Technical Support Document for Cancer Potency Factors (OEHHA, 2009) recommends a tenfold early-in-life potency factor adjustment for the third trimester and ages zero to less than two, and a threefold adjustment factor for ages two to less than sixteen. In addition, we recommend evaluating residency periods of nine, thirty and seventy years. This means that exposure variates are needed for the third trimester, ages zero to less than two, ages two to less than nine, ages two to less than 16, ages 16 to less than 30, and ages 16 to 70.

The tiered approach presented in this draft manual provides a risk assessor with flexibility and allows consideration of site-specific differences. Furthermore, risk assessors can tailor the level of effort and refinement of an HRA by using the point-estimate exposure variates or the stochastic treatment of distributions of exposure variates. The four-tiered approach to risk assessment primarily applies to residential cancer risk assessment. Compared to the OEHHA 2003 document, the exposure pathways in the Guidance Manual remain the same. The exposure and risk algorithms are similar, but they have been revised to accept new data or variables that are used in the tiered risk assessment approach.

The draft manual also contains example calculations and an outline for a modeling protocol and an HRA report. A software program, the Hot Spots Analysis and Reporting Program (HARP), has been developed by the Air Resources Board in consultation with OEHHA and Air Pollution Control/Air Quality Management District representatives. The HARP software, which is being updated with the new exposure variates and health values, is the recommended model for calculating and presenting HRA results for the Hot Spots Program. Information on obtaining the HARP software can be found on the ARB's web site at *www.arb.ca.gov* under the Hot Spots Program.

The intent of the Guidance Manual and the HARP software is to incorporate children's health concerns, update risk assessment practices, and to provide consistent risk assessment procedures. The use of consistent risk assessment methods and report presentation has many benefits, such as expediting the preparation and review of HRAs, minimizing revision and resubmission of HRAs, allowing a format for facility comparisons, and cost-effective implementation of HRAs and the Hot Spots Program. Risk assessments prepared with this Guidance Manual may be used for permitting new or modified stationary sources, or public notification, and risk reduction requirements of the Hot Spots Program. The use of uniform procedures allows comparison of risks from different facilities and enables identification of facilities that are problematic from a public health perspective. OEHHA reviews the HRAs to insure they are adequate for decision making, but does not play a role in permitting decisions that may result from the HRAs. OEHHA will provide advice to the Districts when requested on any of the risk assessment methods or health values they have used.

References

CAPCOA, 1993. CAPCOA Air Toxics Hot Spots Program Revised 1992 Risk Assessment Guidelines. California Air Pollution Control Officers Association, October 1993.

OEHHA, 2003. Air Toxics Hot Spots Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

OEHHA, 2008. Air Toxics Hot Spots Risk Assessment Guidelines Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Available online at: http://www.oehha.ca.gov

OEHHA, 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. May 2009. Available online at: http://www.oehha.ca.gov

OEHHA, 2012. Air Toxics Hot Spots Program Risk Assessment Guidelines; Technical Support Document for Exposure Assessment and Stochastic Analysis. Available online at http://www.oehha.ca.gov

1 - Introduction

1.1 Development of Guidelines

The Air Toxics Hot Spots Information and Assessment Act is designed to provide information to state and local agencies and to the general public on the extent of airborne emissions from stationary sources and the potential public health impacts of those emissions. The Hot Spots Act requires that the Office of Environmental Health Hazard Assessment (OEHHA) develop risk assessment guidelines for the Hot Spots program (Health and Safety Code (HSC) Section 44360(b)(2)) (see Appendix B for the text of the HSC). In addition, the Hot Spots Act specifically requires OEHHA to develop a "likelihood of risks" approach to health risk assessment. In response, OEHHA developed a tiered approach to risk assessment where a point estimate approach is first employed. If a more detailed analysis is needed, OEHHA has developed a stochastic, or probabilistic, approach using exposure factor distributions that can be applied in a stochastic estimate of the exposure. A detailed presentation of the tiered approach, risk assessment algorithms, selected exposure variates (e.g., breathing rate), and distributions with a literature review is presented in the *Air Toxics Hot Spots Program Risk Assessment Guidelines*; *Technical Support Document for Exposure Assessment and Stochastic Analysis* (OEHHA, 2012). A summary of this information can be found in Chapter 5 of this document.

The Technical Support Document for the Derivation of Noncancer Reference Exposure Levels (OEHHA, 2008) addresses dose response relationships for noncancer health effects and the methodology for deriving acute, chronic and 8-hour Reference Exposure Levels (RELs). Currently there are 53 acute RELs, 82 chronic RELs, and 10 eight-hour RELs. Review and revision of RELs to take into account new information and sensitive subpopulations including infants and children is an ongoing process. All draft RELs for individual chemicals revised under the current noncancer methodology will undergo public comment and peer review, as mandated by the Hot Spots Act. The Technical Support Document for Cancer Potency Factors (OEHHA, 2009) addresses the methodology for deriving cancer potency factors and adjusting cancer potency to account for the increased sensitivity to early-in-life exposure to carcinogens. This document contains inhalation cancer potency factors and oral cancer potency factors for 142 toxicants and toxicant compound classes developed by OEHHA or developed by other authoritative bodies and endorsed by OEHHA. The OEHHA website (*www.oehha.ca.gov*) should be consulted for the most current adopted chronic, acute and 8-hour RELs and cancer potency factors. In addition, for a small subset of these substances that are subject to airborne deposition and hence human oral and dermal exposure, oral chronic RELs and oral cancer potency factors have been developed by OEHHA. A summary of cancer and noncancer health effects values can be found in Appendix L and Chapters 6 and 7 of the Guidance Manual. All three Technical Support Documents have undergone public and peer review and have been approved by the state's Scientific Review Panel on Toxic Air Contaminants and adopted by OEHHA. The Guidance Manual is undergoing the same public and peer review process.

The Guidance Manual contains a description of the algorithms, recommended exposure variates, and cancer and noncancer health values, and modeling protocols needed to perform a Hot Spots risk assessment under the Hot Spots Act (see Appendix B). The information for the Guidance Manual is taken from the three TSDs. The Guidance Manual supersedes the risk assessment methods presented in the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2003).

The Guidance Manual is intended to address health risks from airborne contaminants released by stationary sources. Some of the methodology used is common to other regulatory risk assessment applications, particularly for California programs. However, if the reader needs to prepare a Health Risk Assessment (HRA) under another program, the HRA may need additional analyses. Therefore, appropriate California and federal agencies should be contacted. For example, if a facility must comply with HRA requirements under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the California Department of Toxic Substances Control (DTSC) must be contacted to determine if an HRA written to comply with AB 2588 will also satisfy RCRA/CERCLA requirements.

1.2 Use of the Guidance Manual

The intent in developing this Guidance Manual is to provide HRA procedures for use in the Air Toxics Hot Spots Program or for the permitting of existing, new, or modified stationary sources. The Air Resources Board (ARB) website (*www.arb.ca.gov*) provides more information on the Hot Spots Program and risk management guidelines, including recommendations for permitting existing, new, or modified stationary sources. The use of consistent risk assessment procedures and report presentation allows comparison of one facility to another, expedites the review of HRAs by reviewing agencies, and minimizes revision and resubmission of HRAs.

OEHHA recognizes that no one risk assessment procedure or set of exposure variates could perfectly address the many types of stationary facilities in diverse locations in California. Therefore a tiered risk assessment approach was developed to provide flexibility and allow consideration of site-specific differences. The tiered approach to risk assessment is discussed in detail in Chapter 8 of this Guidance.

These guidelines should be used in conjunction with the emission data collected and reported pursuant to requirements of the ARB's *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5*), and the *Emission Inventory Criteria and Guidelines Report for the Air Toxics "Hot Spots" Program* (EICG Report), which is incorporated by reference therein (see ARB's web site: http://www.arb.ca.gov/ab2588/2588guid.htm for the most current version, which was approved on August 27, 2007). This regulation outlines requirements for the collection of emission data, based on an inventory plan, which must be approved by the Air Pollution Control or Air Quality Management District (District). The emissions reported under this program are routine or predictable and include continuous

and intermittent releases and predictable process upsets or leaks. Emissions for unpredictable releases (e.g., accidental catastrophic releases) are not reported under this program.

For landfill sites, these guidelines should be applied to the results of the landfill testing required under Health and Safety Code Section 41805.5 as well as to any emissions reported under the emission inventory requirements of the Air Toxics Hot Spots Act (e.g., from flares or other on-site equipment). Districts should be consulted to determine the specific landfill testing data to be used.

1.3 Who is Required to Conduct a Risk Assessment

The Hot Spots Act requires that each local Air Pollution Control District or Air Quality Management District (hereinafter referred to as District) determine which facilities will prepare an HRA. As defined under the Hot Spots Act, an HRA includes a comprehensive analysis of the dispersion of hazardous substances in the environment, their potential for human exposure, and a quantitative assessment of both individual and population-wide health risks associated with those levels of exposure.

Districts are to determine which facilities will prepare an HRA based on a prioritization process outlined in the law. The process by which Districts identify priority facilities for risk assessment involves consideration of potency, toxicity, quantity of emissions, and proximity to sensitive receptors such as hospitals, daycare centers, schools, work-sites, and residences. The District may also consider other factors that may contribute to an increased potential for significant risk to human receptors. As part of this process Districts categorize facilities as high, intermediate, or low priority. The District prioritization process is described in the *CAPCOA Air Toxics Hot Spots Program Facility Prioritization Guidelines, July 1990* (CAPCOA, 1990), although some Districts may have adopted their own method for prioritizing facilities for the purposes of AB2588, permitting, etc. Consult the District for updates to the Prioritization Guidelines. See the Hot Spots Program on ARB's web site at *www.arb.ca.gov* for more information on facility prioritization procedures.

Facilities designated by a District as "high priority" are required to submit an HRA to the District within 150 days of designation. Districts may grant a 30-day extension. However, a District may require any facility to prepare and submit an HRA according to the District priorities established for purposes of the Hot Spots Act.

1.4 The Hot Spots Analysis and Reporting Program (HARP) Software

The ARB and the Districts have identified a critical need for software to assist with the programmatic aspects of the Hot Spots Program. HARP is computer software used by the ARB, OEHHA, Districts, and facility operators to promote statewide consistency, efficiency, and cost-effective implementation of HRAs and the Hot Spots Program. The HARP software package includes: 1) an Emissions Inventory Database Module, 2) an Air Dispersion Modeling Module, and 3) a Risk Analysis Module. The user-friendly Windows-based package provides for:

1. Electronic implementation of the risk assessment methods presented in the OEHHA guidelines (Guidance Manual);
2. Electronic data transfer from facilities and Districts;
3. The production of reports;
4. Facility prioritization;
5. Air dispersion modeling (AERMOD) of multiple emission releases or facilities for cumulative impact evaluations;
6. A summary report of acute, 8-hour, and chronic health hazard quotients or indices, and cancer risk at the point of maximum impact (PMI), maximally exposed individual resident (MEIR), maximally exposed individual worker (MEIW) and other receptors to be evaluated as needed;
7. Mapping displays of facility property boundaries, risk isopleths, and elevation contours;
8. The ability to display combined risk contours from multiple emission sources;
9. Output of data for use in other "off-the-shelf" Geographic Information Systems (GIS) programs for additional types of analysis; and
10. Census data for determining population-related health impacts showing the number of people exposed at various cancer risk levels and cancer burden.

1.5 Risk Assessment Review Process

The Hot Spots Act risk assessments are reviewed by the local District and by OEHHA. The Districts focus their review on the emissions data and the air dispersion modeling. OEHHA provides comments on the HRA's general concordance with the Guidelines Manual and the completeness of the reported health risks. The District, taking into account the comments of OEHHA, approves the HRA or returns it to the facility for revision and resubmission. If the HRA is not revised and resubmitted by the facility within 60 days, the District may modify the HRA and approve it as modified. Based on the approved HRA, the District determines if there is a significant health risk associated with emissions from the facility. If the District determines that facility emissions pose a significant health risk, the facility operator provides notice to all exposed individuals regarding the results of the HRA and may be required to take steps to reduce emissions by implementing a risk reduction audit and plan. Notification is to be made according to

procedures specified by the District. Each District determines its own levels of significance for cancer and noncancer health effects for notification and risk reduction. See the Hot Spots Program on ARB's web site at www.arb.ca.gov for more information on significance levels selected by each District.

1.6 Uncertainty in Risk Assessment

OEHHA has striven to use the best science available in developing these risk assessment guidelines. However, there is a great deal of uncertainty associated with the process of risk assessment. The uncertainty arises from lack of data in many areas necessitating the use of assumptions. The assumptions used in these guidelines are designed to err on the side of health protection in order to avoid underestimation of risk to the public. Sources of uncertainty, which may overestimate or underestimate risk, include: 1) extrapolation of toxicity data in animals to humans, 2) uncertainty in the estimation of emissions, 3) uncertainty in the air dispersion models, and 4) uncertainty in the exposure estimates. In addition to uncertainty, there is a natural range or variability in measured parameters defining the exposure scenario. Scientific studies with representative sampling and large enough sample sizes can characterize this variability. In the specific context of a Hot Spots risk assessment, the source of variability with the greatest quantitative impact is variation among the human population in such properties as height, weight, food consumption, breathing rates, and susceptibility to chemical toxicants. OEHHA captures at least some of the variability in exposure by developing data driven distributions of intake rates, where feasible, in the TSD for Exposure Assessment (OEHHA, 2012).

Interactive effects of exposure to more than one carcinogen or toxicant are addressed in the risk assessment with default assumptions of additivity. Cancer risks from all carcinogens addressed in the HRA are added. Similarly, non-cancer hazard quotients for substances impacting the same target organ/system are added to determine the hazard index (HI). Although such effects of multiple chemicals are assumed to be additive by default, several examples of synergism (interactive effects greater than additive) are known. For substances that act synergistically, the HRA could underestimate the risks. Some substances may have antagonistic effects (lessen the toxic effects produced by another substance). For substances that act antagonistically, the HRA could overestimate the risks.

Other sources of uncertainty, which may underestimate or overestimate risk, can be found in exposure estimates where little or no data are available (e.g., soil half-life and dermal penetration of some substances from a soil matrix).

The differences among species and within human populations usually cannot be easily quantified and incorporated into risk assessments. Factors including metabolism, target site sensitivity, diet, immunological responses, and genetics may influence the response to toxicants. The human population is much more diverse both genetically and culturally (e.g., lifestyle, diet) than inbred experimental animals. The intraspecies variability among humans is expected to be much greater than in laboratory animals.

In most cases, cancer potency values have been estimated only for the single most affected tumor site. This represents a source of uncertainty in the cancer risk assessment. Adjustment for tumors at multiple sites induced by some carcinogens may result in a higher potency. Some recent assessments of carcinogens include such adjustments. Other uncertainties arise 1) in the assumptions underlying the dose-response model used, and 2) in extrapolating from large experimental doses, where other toxic effects may compromise the assessment of carcinogenic potential, to usually much smaller environmental doses.

When occupational epidemiological data are used to generate a carcinogenic potency or a health protective level for a non-carcinogen, less uncertainty is involved in the extrapolation from workplace exposures to environmental exposures. When using human data, no interspecies extrapolation is necessary eliminating a significant source of uncertainty. However, children are a subpopulation with hematological, nervous, endocrine, and immune systems that are still developing and may be more sensitive to the effects of toxicants. The worker population and risk estimates based on occupational epidemiological data are more uncertain for children than adults. Current risk assessment guidelines include procedures designed to address the possibly greater sensitivity of infants and children, but there are only a few compounds for which these effects have actually been measured experimentally. In most cases, the adjustment relies on default assumptions which may either underestimate or overestimate the true risks faced by infants and children exposed to toxic substances or carcinogens.

Risk estimates generated by an HRA should not be interpreted as the expected rates of disease in the exposed population but rather as estimates of potential for disease, based on current knowledge and a number of assumptions.

In the Hot Spots program, cancer risk is often expressed as the maximum number of new cases of cancer projected to occur in a population of one million people due to exposure to the cancer-causing substance over a 30-year residential period. However, there is uncertainty associated with the cancer risk estimate. An individual's risk of contracting cancer from exposure to facility emissions may be less or more than the risk calculated in the risk assessment. An individual's risk not only depends on the individual's exposure to a specific chemical but also on his or her genetic background, health, diet, lifestyle choices and other environmental and workplace exposures. OEHHA uses health-protective exposure assumptions to avoid underestimating risk. For example, the risk estimate for airborne exposure to chemical emissions uses the health-protective assumption that the individual has a high breathing rate and exposure began early in life when cancer risk is highest.

A Reference Exposure Level (REL) is the concentration level at or below which no adverse non-cancer health effects are anticipated for the specified exposure duration. RELs are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. RELs are designed to protect the most sensitive individuals in the population by the inclusion of factors that account for uncertainties as well as individual differences in human susceptibility to chemical exposures. The factors used in the calculation of RELs are meant to err on the side of public health

protection in order to avoid underestimation of non-cancer hazards. Exceeding the REL does not automatically indicate an adverse health impact. However, increasing concentrations above the REL value increases the likelihood that the health effect will occur.

Risk assessments under the Hot Spots program are often used to compare one source with another and to prioritize concerns. Consistent approaches to risk assessment are necessary to fulfill this function.

1.7 Tiered Approach to Risk Assessment

OEHHA developed a tiered approach to accommodate consideration of site-specific data that may be more appropriate for a given facility than the default variate. The first tier is the simplest point estimate approach to estimating exposure to facility emissions. Tier 1 is the first step in conducting a comprehensive risk assessment using algorithms and point estimates of input values described in the *Technical Support Document for Exposure Assessment and Stochastic Analysis*. (OEHHA, 2012) Each facility conducts a Tier 1 risk assessment to promote consistency across the state in facility risk assessments and facilitate comparisons across facilities. To be health-protective, high-end estimates for the key intake exposure variates are used for the dominant exposure pathways.

Tier 2 allows use of site-specific point estimates of exposure variates as long as these estimates can be justified. For example, if there are data indicating that consumption of fish from an impacted body of water is lower than the OEHHA-recommended fish consumption rate, then the facility can use that data to generate a point estimate for sport-fish consumption from that body of water. The risk assessor must supply the data and methods used for the site-specific estimates, and the site-specific estimates must be reproducible and approved by both the District and OEHHA.

Tier 3 risk assessment involves stochastic analysis of exposure using data-based distributions for the key exposure variates compiled in the OEHHA (2012) *Technical Support Document*. Since a stochastic approach to risk assessment provides more information about the range of risk estimates based on the range of exposures, Tier 3 can serve as a useful supplement to the Tier 1 and 2 approaches. Variance propagation methods (e.g., Monte Carlo analysis) are used to derive a range of cancer risk estimates reflecting the known variability in the inputs. Finally, a Tier 4 approach would use distributions of exposure variates that may be more appropriate for a site, such as the distribution of fish consumption rates for a specific body of water impacted by a facility. As in a Tier 2 approach, the risk assessment must supply the data and methods used for the site-specific distributions for exposure variates, and the site-specific estimates must be justified to and reproducible by the Districts and OEHHA.

1.8 References

CAPCOA, 1990. *CAPCOA Air Toxics Hot Spots Program Facility Prioritization Guidelines.* California Air Pollution Control Officers Association, July 1990.

OEHHA, 2003. Air Toxics Hot Spots Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

OEHHA, 2008. Air Toxics Hot Spots Risk Assessment Guidelines Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Available online at: http://www.oehha.ca.gov

OEHHA, 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. May 2009. Available online at: http://www.oehha.ca.gov

OEHHA, 2012. Air Toxics Hot Spots Program Risk Assessment Guidelines; Technical Support Document for Exposure Assessment and Stochastic Analysis. Available online at http://www.oehha.ca.gov

2 - Overview of Health Risk Assessment

2.1 The Model for Risk Assessment

The standard approach currently used for health risk assessment (HRA) was originally proposed by the National Academy of Sciences in the 1983 book: *Risk Assessment in the Federal Government: Managing the Process* (NAS, 1983) and was updated in the Academy's 1994 book: *Science and Judgment in Risk Assessment* (NAS, 1994). In 2009 the National Academy published *Science and Decisions: Advancing Risk Assessment* (NAS, 2009), in which a number of recommendations are made on improving the risk assessment process and expanding it to include community concerns and cumulative risks. The four steps involved in the risk assessment process are 1) hazard identification, 2) exposure assessment, 3) dose-response assessment, and 4) risk characterization. These four steps are briefly discussed below.

2.2 Hazard Identification

For air toxics sources, hazard identification involves the pollutant(s) of concern emitted by a facility, and the types of adverse health effects associated with exposure to the chemical(s), including whether a pollutant is a potential human carcinogen or is associated with other types of adverse health effects. For the Air Toxics Hot Spots Program (Hot Spots), the emitted substances that are addressed in a risk assessment are found in the list of substances designated in the ARB's *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5), and the Emission Inventory Criteria and Guidelines Report* (EICG Report), which is incorporated by reference therein (ARB, 2007). This list of substances is contained in Appendix A of this document and the EICG Report. The list of substances also identifies those substances that are considered human carcinogens or potential human carcinogens.

2.3 Exposure Assessment

The purpose of the exposure assessment is to estimate the extent of public exposure to emitted substances. For the Hot spots program, in practice this means estimating exposures for those emitted substances for which potential cancer risk or noncancer health hazards for acute, repeated 8-hour, and chronic exposures will be evaluated. This involves emission quantification, modeling of environmental transport, evaluation of environmental fate, identification of exposure routes, identification of exposed populations, and estimation of short-term (e.g., 1-hour maximum), 8-hour average, and long-term (annual) exposure levels. These activities are described in Chapters 4 and 5. Chapter 5 also discusses the tiered approach to risk assessment.

The ARB's Emission Inventory Criteria and Guidelines (EICG) Report provides assistance in determining those substances that must be evaluated in an HRA and the reporting requirements of facilities, while the Hot Spots Analysis and Reporting Program (HARP) software can be used to model ground level concentrations at specific off-site

locations resulting from facility emissions. The United States Environmental Protection Agency (U.S. EPA) has adopted the AERMOD air dispersion model into its list of regulatory approved models, in place of the previously used ISCST3 model. AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain (U.S. EPA, 2009). The Air Resources Board recommends AERMOD for Hot Spots risk assessments. The AERMOD air modeling software will be incorporated into the HARP software, which allows the user to input all dispersion parameters directly into the program to generate air dispersion data. Alternatively, the air dispersion data may be generated separately from HARP using other air dispersion models, and then imported into HARP to generate risk estimates. Data imported into HARP must already be in the format required by HARP. HARP has the flexibility to generate a summary of the risk data necessary for an HRA by either of the above approaches.

Most of the toxicants assessed under the Hot Spots program are volatile organic compounds that remain as gases when emitted into the air. These chemicals are not subject to appreciable deposition to soil, surface waters, or plants. Therefore, human exposure via ingestion or dermal exposure, at least at concentrations typically encountered in the ambient air, is not considered for volatile organic compounds in the Hot Spots risk assessments. While some models indicate potential for dermal exposure to certain volatile organic compounds, at this time, the Hot spots program does not consider this pathway. Significant exposure to volatile organic toxicants emitted into the air occurs through the inhalation pathway, and this pathway is the primary consideration in the Hot Spots risk assessments. A small subset of Hot Spots substances consists of semi-volatile organic and metal toxicants emitted partially or totally as particles subject to deposition. Ingestion and dermal pathways as well as the inhalation pathway must be evaluated for these chemicals. A few of these semi-volatile organic and metal toxicants must also include the breast milk ingestion pathway. Additional ingestion pathways may also need to be evaluated depending on the pathways of exposure for the specific receptor of interest. Table 5.1 in Chapter 5, Table 6.4 in Chapter 6, and Table 7.1 in Chapter 7 list the substances that must be evaluated for multipathway impacts. HARP is designed to assess potential health impacts posed by substances that must be analyzed by a multipathway approach.

2.4 Dose-Response Assessment

Dose-response assessment is the process of characterizing the relationship between exposure to an agent and incidence of an adverse health effect in exposed populations. In quantitative carcinogenic risk assessment, the dose-response relationship is expressed in terms of a potency slope that is used to calculate the probability or risk of cancer associated with an estimated exposure. Cancer potency factors are expressed as the 95th percent upper confidence limit of the slope of the dose response curve estimated assuming continuous lifetime exposure to a substance. Typically, potency factors are expressed as units of inverse dose (e.g., $(mg/kg\ BW/day)^{-1}$) or inverse concentration (e.g., $(\mu g/m^3)^{-1}$). It is assumed in cancer risk assessments that risk is directly proportional to dose and that there is no threshold for carcinogenesis.

The Office of Environmental Health Hazard Assessment (OEHHA) has compiled cancer potency factors, which should be used in risk assessments for the Hot Spots program, in Table 7.1. Cancer potency factors listed in Table 7.1 were derived either by the U.S. EPA or by OEHHA, underwent public and peer-review, and were adopted for use in the program. Chapter 8 describes procedures for use of potency values in estimating excess cancer risk. For a detailed description of cancer potency factors, refer to the *Technical Support Document for Cancer Potency Factors* (OEHHA, 2009).

For noncarcinogenic effects, dose-response data developed from animal or human studies are used to develop acute, 8-hour, and chronic noncancer Reference Exposure Levels (RELs). The acute, 8-hour and chronic RELs are defined as the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population, with infrequent one hour exposures, repeated 8-hour exposures over a significant fraction of a lifetime, or continuous exposure over a significant fraction of a lifetime, respectively. The most sensitive health effect is chosen to develop the REL if the chemical affects multiple organ systems. Unlike cancer health effects, noncancer health effects are generally assumed to have thresholds for adverse effects. In other words, injury from a pollutant will not occur until exposure to that pollutant has reached or exceeded a certain concentration (i.e., threshold) and/or dose. The acute, 8-hour, and chronic RELs are air concentrations intended to be below the threshold for health effects for the general population.

The actual threshold for health effects in the general population is generally not known with any precision. Uncertainty factors are applied to the Lowest Observed Adverse Effects Level (LOAEL) or No Observed Adverse Effects Level (NOAEL) or Benchmark Concentration values from animal or human studies to help ensure that the chronic, 8-hour and acute REL values are below the threshold for human health for nearly all individuals. This guidance manual provides the acute, 8-hour, and chronic Reference Exposure Levels in Tables 6.1 through 6.3. Some substances that pose a chronic or repeated 8-hour inhalation hazard may also present a chronic hazard via non-inhalation routes of exposure (e.g., ingestion of contaminated water, foods, or soils, and dermal absorption). The oral RELs for these substances are presented in Table 6.4. The methodology and derivations for acute, 8-hour, and chronic, RELs are described in the *Technical Support Document for the Derivation of Noncancer Reference Exposure Levels* (OEHHA, 2008).

2.5 Risk Characterization

This is the final step of risk assessment. In this step, modeled concentrations and exposure information, which are determined through exposure assessment, are combined with potency factors and RELs that are developed through dose-response assessment. The use of cancer potency factors to assess total cancer risk and the use of the hazard index approach for evaluating the potential for noncarcinogenic health effects are described in Chapter 8. Example calculations for determining (inhalation) cancer risk and noncancer acute, 8-hour, and chronic hazard quotients and hazard indices are presented in Appendix I. Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

Under the Hot Spots Act, health risk assessments are to quantify both individual and population-wide health impacts (Health and Safety Code, Section 44306) (Appendix B). The health risk assessments are facility specific and the calculated risk should be combined for all pollutants emitted by a single facility. For example, cancer risk from multiple carcinogens is considered additive. For exposures to multiple non-carcinogen pollutants, a hazard index approach is applied for air contaminants affecting the same organ system. All substances emitted by the facility that are on the Hot Spots Act list of substances must be identified in the HRA, including those on the list that do not have a potency value or REL.

For assessing risk, OEHHA has developed two methods for determining dose via inhalation, dermal absorption, and ingestion pathways. These two methods, the point estimate approach and the stochastic exposure assessment approach, are described below and in Chapters 5 and 8. Detailed presentations of these methods can be found in*: Technical Support Document for Exposure Assessment and Stochastic Analysis* (OEHHA, 2012*)*.

2.5.1 *Point Estimate Approach*

OEHHA provides information in this document on average and high-end values for key exposure pathways (e.g., breathing rate for the inhalation exposure pathway). The average and high-end of point estimates in this document are defined in terms of the probability distribution of values for that variate. The mean represents the average values for point estimates and the 95th percentiles represent the high-end point estimates from the distributions identified in OEHHA (2012). Thus, within the limitations of the data, average and high-end point estimates are supported by the distribution.

Tier 1 of the tiered approach to risk assessment, which is briefly discussed in Section 2.5.3 and presented in more detail in Chapter 8, utilizes a combination of the average and high-end point estimates to more realistically estimate exposure in multipathway risk assessments. This method uses high-end exposure estimates for the pathways that are the main drivers of exposure and the average point estimate for the other non-driving exposure pathways. This approach will lessen the issue of compounding high-end exposure estimates, while retaining a health-protective approach for the more important exposure pathways. It is unlikely that an individual receptor would be on the high-end of exposure for all exposure pathways. See Chapter 8 for detailed discussions of how this multipathway methodology is applied to cancer and noncancer calculations. The HARP software can perform this analysis (referred to as the derived approach in the HARP software).

In addition to using an estimate of average and high-end consumption rates, cancer risk evaluations at individual receptors are presented for 9, 30, and 70-year exposure durations. The 9 and 30-year durations correspond to the average and high-end of residency time recommended by U.S. EPA (1997). The California data presented in Appendix L of the Exposure TSD (OEHHA, 2012) are generally supportive of the nationwide data. The 9 and 70-year exposure durations present potential impacts over the range of residency periods, while the 30-year exposure duration is recommended

for use as the basis for estimating cancer risk at the MEIR in all HRAs. Population-wide impacts should use the 70-year exposure duration.

The parameters used for all exposure durations assume exposure begins in the last trimester of pregnancy and progresses through the exposure duration of interest (e.g., 9, 30, or 70 years). These assumptions are thus protective of children. Children have higher intake rates on a per kilogram body weight basis (e.g., they breathe, drink and eat more per kg body weight than adults) and thus receive a higher dose from contaminated media. See Chapter 5 for the point estimates that can be used to estimate impacts for children. Chapters 5 and 8 discuss how to calculate cancer risk based on various exposure durations and point estimates. Appendix I contains an example calculation and Chapter 9 clarifies how to present the findings in an HRA.

2.5.2 *Stochastic Exposure Assessment*

OEHHA was directed under the Air Toxics "Hot Spots" program (SB 1731, Calderon, stat. 1992; Health and Safety Code Section 44360(b)(2)) to develop a "likelihood of risk" approach to risk assessment. To satisfy this requirement, OEHHA developed a stochastic approach to risk assessment that utilizes distributions for exposure variates such as breathing rate and water consumption rate rather than a single point estimate. The variability in exposure can be propagated through the risk assessment model using the distributions as input and a Monte Carlo or similar method. The result of such an analysis is a range of risks that at least partially characterizes variability in exposure.

Distributions of key exposure variates that are presented in the *Technical Support Document for Exposure Assessment and Stochastic Analysis* (OEHHA, 2012) were taken from the literature, if adequate, or developed from raw data of original studies. Intake variates such as vegetable consumption are relatively data rich; for these variates reasonable probability distributions can be constructed. However, the data necessary to characterize the variability in risk assessment variates are not always available. For example, for the fate and transport variates (e.g., fish bioaccumulation factors), there are only a few measurements for a given chemical available which precludes the adequate characterization of a probability distribution. We only developed distributions for those key exposure variates that were adequately characterized by data. Development of distributions is described in detail in the *Technical Support Document for Exposure Assessment and Stochastic Analysis* (OEHHA, 2012).

2.5.3 *Tiered Approach to Risk Assessment*

OEHHA recommends using a tiered approach to risk assessment. Tier 1 is a standard point estimate approach using the recommended point estimates presented in this document. If site-specific information is available to modify some point estimates developed in the *Technical Support Document for Exposure Assessment and Stochastic Analysis* (OEHHA, 2012) and is more appropriate to use than the recommended point estimates in this document, then Tier 2 allows use of that site-specific information. Site-specific information should be presented to the District before being used. The District may contact OEHHA for additional advice. Note that all non-default variates need to be adequately justified to OEHHA and the Districts to be used. In Tier 3, a stochastic approach to exposure assessment is used with the data distributions developed in the TSD (OEHHA, 2012) and presented in this document. Tier 4 is also a stochastic approach but allows for utilization of site-specific distributions, if they are justifiable (to OEHHA and the Districts) and more appropriate for the site under evaluation than those recommended in this document. Persons preparing an HRA that has a Tier 2 through Tier 4 evaluation must also include the results of a Tier 1 evaluation. Tier 1 evaluations are required for all HRAs prepared for the Hot Spots Program to promote consistency across the state for all facility risk assessments and allow comparisons across facilities. Chapter 8 provides a summary of the tiered approach and the TSD (OEHHA, 2012) discusses it in detail. Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

2.6 References

ARB, 2007. *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5), and the Emission Inventory Criteria and Guidelines Report* (EICG Report).

NAS, 1983. National Academy of Sciences. *Risk Assessment in the Federal Government: Managing the Process*. National Research Council. National Academy Press, Washington D.C.

NAS, 1994. National Academy of Sciences. *Science and Judgment in Risk Assessment.* National Research Council. National Academy Press, Washington D.C.

NAS, 2009. National Academy of Sciences. *Science and Decisions: Advancing Risk Assessment*. National Academy Press, Washington DC.

OEHHA, 2008. Air Toxics Hot Spots Risk Assessment Guidelines Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Available online at: http://www.oehha.ca.gov

OEHHA, 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. May 2009. Available online at: http://www.oehha.ca.gov

OEHHA, 2012. *Air Toxics Hot Spots Program Risk Assessment Guidelines; Technical Support Document for Exposure Assessment and Stochastic Analysis*. Available online at http://www.oehha.ca.gov

U.S. EPA (2009). AERMOD Implementation Guide. Last Revised: March 19, 2009.

U.S. EPA, 1997. *Exposure Factors Handbook, Volume I, General Factors*. EPA/600/P-95/002Fa.

AERMOD Implementation Workgroup, U. S. Environmental Protection Agency. Online at: http://www.epa.gov/ttn/scram/7thconf/aermod/aermod_implmtn_guide_19March2009.pdf

3 - Hazard Identification - Air Toxics Hot Spots Emissions

3.1 The Air Toxics Hot Spots List of Substances and Emissions Inventory

For air toxics sources, hazard identification involves identifying pollutants of concern and whether these pollutants are potential human carcinogens or associated with other types of adverse health effects. For the Air Toxics Hot Spots (Hot Spots) Program, the emitted substances that are addressed in a health risk assessment (HRA) are found in the list of hazardous substances designated in the Air Resources Board's (ARB's) *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5), and the Emission Inventory Criteria and Guidelines Report* (EICG Report), which is incorporated by reference therein (ARB, 2007). This list of substances is contained in both Appendix A of this document and the EICG Report. The list of substances also identifies those substances that are considered human carcinogens or potential human carcinogens.

The substances included on the Hot Spots Program list of substances are defined in the statute as those substances found on lists developed by the following sources:

- International Agency for Research on Cancer (IARC);
- U.S. Environmental Protection Agency (U.S. EPA);
- U.S. National Toxicology Program (NTP);
- ARB Toxic Air Contaminant Identification Program List;
- Hazard Evaluation System and Information Service (HESIS) (State of California);
- Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) list of carcinogens and reproductive toxicants (State of California);
- Any additional substance recognized by the State Board as presenting a chronic or acute threat to public health when present in the ambient air.

All substances emitted by the facility that are on the Hot Spots Act list of substances must be identified in the HRA.

The ARB EICG Report (ARB, 2007) specifies that each facility subject to the Hot Spots Act must submit an Emission Inventory Report to the local air pollution control or air quality management district. This Emission Inventory Report must identify and account for all listed substances used, manufactured, formulated, or released by the facility. All routine, predictable releases must be reported. These inventory reports include the emission data necessary to estimate off-site levels of facility-released Hot Spots substances. These inventory reports will be discussed in further detail in Chapter 4. See Chapter 9 for an outline that specifies the content and recommended format for presenting the air dispersion modeling and HRA results. As presented in Appendix A, the EICG Report divides the list into three groups for reporting purposes. Potency or severity of toxic effects and potential for facility emission were considered in placing compounds into the three groups.

For the first group (listed in these guidelines in Appendix A-I), all emissions of these substances must be quantified in the HRA. For substances in the second group (listed in these guidelines in Appendix A-II), emissions are not quantified; however, facilities must report whether the substance is used, produced, or otherwise present on-site (i.e., these substances are simply listed in a table in the HRA). Lastly, substances in the third group (Appendix A-III) also only need to be reported in a table in the HRA if they are manufactured by the reporting facility.

Facilities that must comply with the Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation and Liability Act (RCRA/CERCLA) requirements for risk assessment need to consult the California Department of Toxic Substances Control (DTSC) Remedial Project Manager to determine which substances must be evaluated in their risk assessment. Some RCRA/CERCLA facilities may emit substances which are not currently listed under the Hot Spots Program but which may require evaluation in a RCRA/CERCLA risk assessment.

3.2 References

ARB, 2007. *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5), and the Emission Inventory Criteria and Guidelines Report* (EICG Report).

4 - Air Dispersion Modeling

The information contained in this section is primarily an abbreviated version of the material found in Chapter 2 of the Air Toxics Hot Spots Risk Assessment Guidelines; Exposure Assessment and Stochastic Analysis Technical Support Document (OEHHA, 2012). Several references have been included in this section to indicate those areas that are covered in more detail in Chapter 2 of the Technical Support Document. However, some air dispersion concepts and procedures have been added to assist the reader in the health risk assessment (HRA) process. In particular, a brief summary of the Hot Spots Analysis and Reporting Program (HARP) software applicability to air dispersion analysis has been included. The HARP software has been developed by the Air Resources Board (ARB), in consultation with OEHHA and Air Pollution Control or Air Quality Management District (District) representatives. The HARP software is the recommended model for calculating and presenting HRA results for the Air Toxics Hot Spots Program (Hot Spots). Information on obtaining the HARP software can be found under the Hot Spots Program on the ARB's web site at *www.arb.ca.gov*. See Chapter 9 for an outline that specifies the content and recommended format for presenting the air dispersion modeling and HRA results.

The U.S. EPA has adopted the AERMOD air dispersion model into their list of regulatory approved models, in place of the previously used ISCST3 model. AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain (U.S. EPA, 2009). The Air Resources Board recommends AERMOD for Hot Spots risk assessments.

4.1 Air Dispersion Modeling in Exposure Assessment: Overview

Estimates of air concentrations of emitted toxicants in the surrounding community from a facility's air emissions are needed in order to determine cancer and noncancer risks. One approach to determining the concentration of air pollutants emitted from the facility is to do air monitoring in the surrounding community. However, there are a number of disadvantages to this approach. Ambient air monitoring is costly because good estimates of an annual average concentration typically require monitoring at least one day in six over a year. Because it is costly, monitoring is usually limited to a select number of pollutants, and a limited number of sites. There can be significant risks from some chemicals at or even below the monitoring detection limit, which can add considerable uncertainty to risk estimates if many of the measurements are below or near the detection limit. Monitoring measures not only facility emissions but also general ambient background as well. It can be difficult and expensive to distinguish between the two using monitoring, particularly if general ambient background levels are high relative to the contribution of facility emissions. These limitations often make it impractical to use monitoring in a program such as the Air Toxics Hot Spots program with hundreds of facilities.

Air dispersion models have several advantages over monitoring. Modeling can provide greater spatial detail and the costs are relatively cheap by comparison. For example, dispersion models can estimate the pollutant concentration in air at many receptor locations (hundreds to thousands) and for a multitude of averaging periods. Air dispersion models have been validated using air monitoring.

There are, however, uncertainties associated with the typical usage of air dispersion modeling. The use of meteorological data from the nearest airport may not ideally be the best representation of localized conditions. Gaussian plume air dispersion models ignore calm hours. This can bias model predictions towards underestimation. Some dispersion models offer limited chemical reactions within the algorithms; however, we generally assume the pollutant is inert for the near-field atmospheric travel time. This may bias estimated concentrations towards over-prediction for those pollutants that are highly reactive in the atmosphere. Air dispersion model results are only as good as the emissions estimates and emissions estimates can be uncertain. However, on the whole, the advantages of air dispersion modeling for a program like the Air Toxics Hot Spots far outweigh the disadvantages.

Professional judgment is required throughout the dispersion modeling process. The local air quality district has final authority on modeling protocols. The following guidance is intended to assist in the understanding of dispersion modeling for risk assessments.

Air dispersion modeling includes the following steps (see Figure 1):

1. Create an emission inventory of the toxic releases (Section 4.2)
2. Identify the source types (Section 4.3)
3. Identify the terrain type and land use (Section 4.4)
4. Determine the detail needed for the analysis: screening or refined (Section 4.5)
5. Identify the population exposure (Section 4.6)
6. Identify the receptor network (Section 4.7)
7. Obtain meteorological data (for refined air dispersion modeling only) (Section 4.8)
8. Select an air dispersion model (Section 4.9)
9. Prepare a modeling protocol and submit to the local Air District (hereafter referred to as “the District”) (Section 4.14)
10. Complete the air dispersion analysis
11. If necessary, redefine the receptor network and return to Step 10

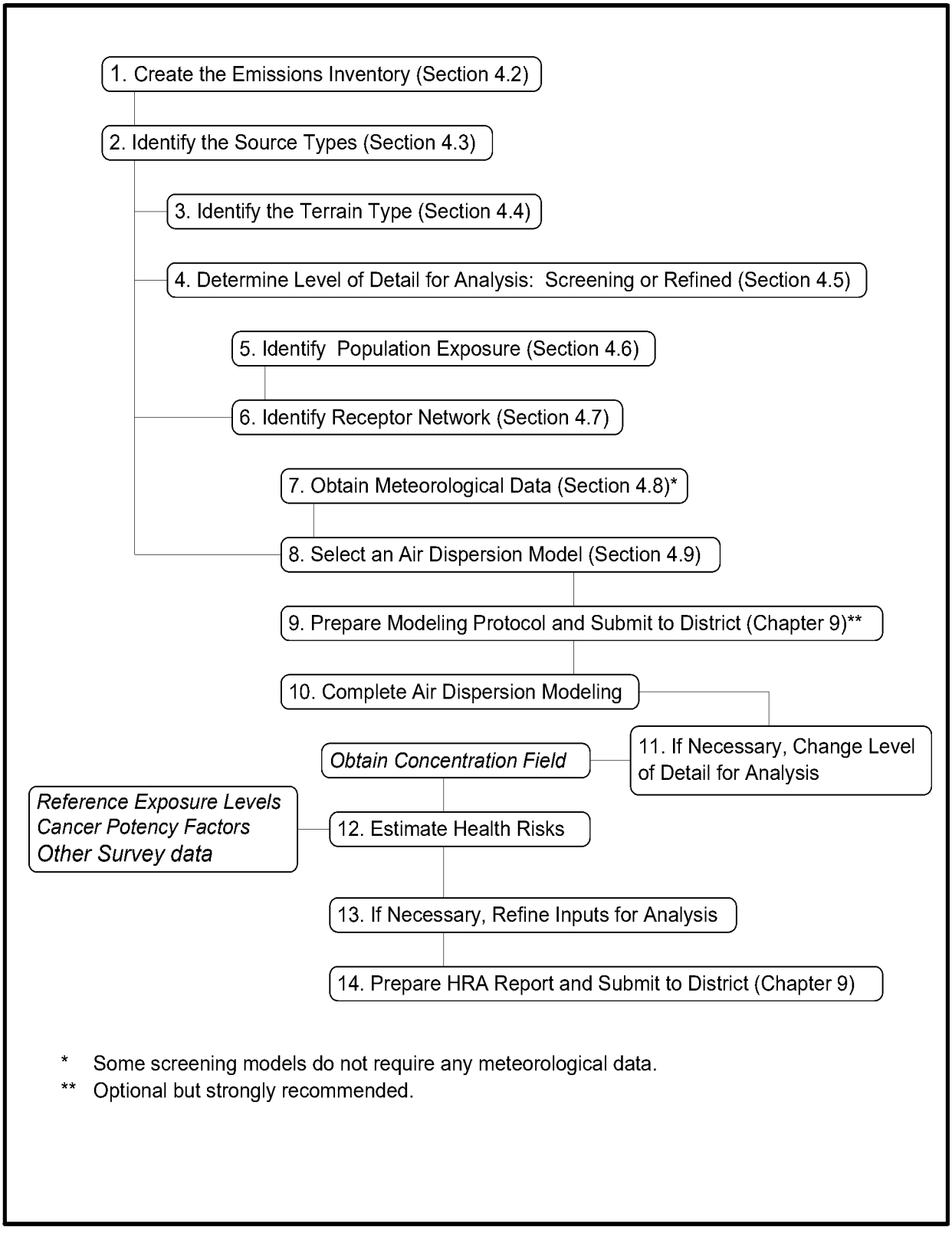
12. Complete the risk assessment

13. If necessary, refine the inputs and/or the model selection and return to Step 8

14. Present the HRA results (Chapter 9 provides an outline that specifies the content and recommended format of HRA results).

The output of the air dispersion modeling analysis includes a receptor field of ground level concentrations of the pollutant in ambient air. These concentrations can be used to estimate an inhaled or ingested dose for the estimation of multipathway cancer risk, or used to determine a hazard index for acute (inhalation), and chronic noncancer multipathway risks. It should be noted that in the Air Toxics "Hot Spots" program, facilities simulate the dispersion of the chemical emitted as an inert compound, and do not model any atmospheric transformations or dispersion of products from such reactions. The U.S. EPA Guideline on Air Quality Models (U.S. EPA, 2005) should be consulted when evaluating reactive pollutants for other regulatory purposes.

Figure 1 Overview of the Air Dispersion Modeling Process.



* Some screening models do not require any meteorological data.
** Optional but strongly recommended.

4.2 Emission Inventories

The Emission Inventory Reports (Inventory Reports) developed under the Hot Spots Program provide data to be used in the HRA and in the air dispersion modeling process. The Inventory Reports contain information regarding emission sources, emitted substances, emission rates, emission factors, process rates, and release parameters (area and volume sources may require additional release data beyond that generally available in Emissions Inventory reports). This information is developed according to the ARB's *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5)*, and the *Emission Inventory Criteria and Guidelines Report* (EICG Report), which is incorporated by reference therein (ARB, 2007*)*.

Updated emission data for process changes, emission factor changes, material/fuel changes, or shutdown must be approved by the District prior to the submittal of the health risk assessment (HRA). Ideally, the District review of updated emissions could be completed within the modeling protocol. In addition, it must be stated clearly in the risk assessment if the emission estimates are based on updated or revised emissions (e.g., emission reductions). This section summarizes the requirements that apply to the emission data which are used for Air Toxics "Hot Spots" Act risk assessments.

4.2.1 *Air Toxics Hot Spots Emissions*

As noted in Chapter 3, Hazard Identification, the HRA should identify all substances emitted by the facility, which are on the Hot Spots Act list of substances (see Appendix A of the Guidance Manual or the EICG Report). The EICG Report specifies that Inventory Reports must identify and account for all listed substances used, manufactured, formulated, or released by the facility. All routine, predictable releases must be reported. Under the regulations, the list is divided into three groups for reporting purposes. The first group (listed in Appendix A-I of the Inventory Guidelines Report) has all pollutants whose emissions must be quantified. The second group (listed in Appendix A-II of the Inventory Guidelines Report) includes substances where emissions do not need to be quantified; however, facilities must report whether the substance is used, produced, or otherwise present on-site. The third group (listed in Appendix A-III of the Emissions Inventory Guidelines Report) includes substances whose emissions need not be reported unless the substance is manufactured by the facility. Chemicals or substances in the second and third groups should be listed in a table in the risk assessment.

Facilities that must comply with the Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation and Liability Act (RCRA/CERCLA) requirements for risk assessment need to consult the Department of Toxic Substances Control (DTSC) Remedial Project Manager to determine which substances must be evaluated in their risk assessment in addition to the list of "Hot Spots" chemicals. Some RCRA/CERCLA facilities may emit chemicals that are not currently listed under the "Hot Spots" Program. Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

4.2.1.1 Emission Estimates Used in the Risk Assessment

The HRA must include emission estimates for all substances that are required to be quantified in the facility's emission inventory report. Specifically, HRAs should include both annual average emissions and maximum 1-hour emissions for each pollutant. Maximum 1-hour emissions are used for acute noncancer health impacts while annual emissions are used for chronic exposures (i.e., chronic and 8-hour noncancer health impacts or cancer risk assessment).

Emissions for each substance must be reported for individual emitting processes associated with unique devices within a facility. Total facility emissions for an individual air contaminant will be the sum of emissions, reported by process, for that facility. Information on daily and annual hours of operation, and relative monthly activity, must be reported for each emitting process. Devices and emitting processes must be clearly identified and described and must be consistent with those reported in the emissions inventory report.

The HRA should include tables that present the emission information (i.e., emission rates for each substance released from each process) in a clear and concise manner. The District may allow the facility operator to base the HRA on more current emission estimates than those presented in the previously submitted emission inventory report (i.e., actual enforceable emission reductions realized by the time the HRA is submitted to the District). If the District allows the use of more current emission estimates, the District must review and approve the new emissions estimates prior to use in the HRA. The HRA report must clearly state what emissions are being used and when any reductions became effective. Specifically, a table presenting emission estimates included in the previously submitted emission inventory report as well as those used for the HRA should be presented. The District should be consulted concerning the specific format for presenting the emission information. Chapter 9 provides an outline that specifies the content and recommended format of HRA results. A revised emission inventory report must be submitted to the District prior to submitting the HRA and forwarded by the District to the ARB, if revised emission data are used.

4.2.1.1.1 Molecular Weight Adjustments for the Emissions of Metal Compounds

For most of the Hot Spots toxic metals, the OEHHA cancer potency factors, acute and chronic RELs apply to the weight of the toxic metal atom contained in the overall compound. Some of the Hot Spots compounds contain various elements along with the toxic metal atom (e.g., "Nickel hydroxide", CAS number 12054-48-7, has a formula of H_2NiO_2). Therefore, an adjustment to the reported pounds of the overall compound is needed before applying the OEHHA cancer potency factor for "Nickel and compounds" to such a compound. This ensures that the cancer potency factor, acute or chronic REL is applied only to the fraction of the overall weight of the emissions that are associated with health effects of the metal. In other cases, the Hot Spots metals are already reported as the metal atom equivalent (e.g., CAS 7440-02-0, "Nickel"), and these cases do not use any further molecular weight adjustment. (Refer to Note [7] in Appendix A,

List of Substances in the EICG Report for further information on how the emissions of various Hot Spots metal compounds are reported.)

The appropriate molecular weight adjustment factors (MWAF) to be used along with the OEHHA cancer potency factors, acute and chronic RELs for Hot Spots metals can be found in the MWAF column[1] of the table containing OEHHA/ARB Approved Health Values for use in Hot Spots Facility Risk Assessments that is in Appendix L of this document.

As an example, the compound "Nickel hydroxide" has a molecular formula of H_2NiO_2. The atomic weight of each of the elements in this compound, and the fraction they represent of the total weight, are therefore as follows:

Element	Number of atoms	Atomic Weight	Fraction of Total Weight = MWAF
1 x Nickel (Ni)	1 x	58.70	58.70 / 92.714 = **0.6332** (MWAF for Nickel)
2 x Oxygen (O)	2 x	15.999	
2 x Hydrogen (H)	2 x	1.008	
Total Molecular Weight of H_2NiO_2:		92.714	

So, for example, assume that 100 pounds of "Nickel hydroxide" emissions are reported under CAS number 12054-48-7. To get the Nickel atom equivalent of these emissions, multiply by the listed MWAF (0.6332) for Nickel hydroxide:

- 100 pounds x 0.6332 = 63.32 pounds of Nickel atom equivalent.

This step should be completed prior to applying the OEHHA cancer potency factor for "Nickel and compounds" in a calculation for a prioritization score or risk assessment calculation. (Note - The HARP software automatically applies the appropriate MWAF for each Hot Spots chemical (by CAS number), so the emissions should not be manually adjusted when using HARP. Therefore, if using HARP, you would use 100 pounds for Nickel hydroxide and HARP will make the MWAF adjustment for you. If not using HARP, you would use 63.32 pounds.)

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[1] The value listed in the MWAF column for Asbestos is not a molecular weight adjustment. This is a conversion factor for adjusting mass and fibers or structures. See Appendix C for more information on Asbestos reporting and risk assessment information or see the EICG report for reporting guidance.

4.2.1.2 Release Parameters

Emission release parameters (e.g., stack height and inside diameter, stack gas exit velocity, release temperature and emission source location in UTM coordinates) are needed as inputs to the air dispersion model. The Inventory Guidelines specify the release parameters that must be reported for each stack, vent, ducted building, exhaust site, or other site of exhaust release. Additional information may be required to characterize releases from non-stack (volume and area) sources; see U.S. EPA dispersion modeling guidelines or specific user's manuals. This information should also be included in the air dispersion section of the risk assessment. This information must be presented in tables included in the risk assessment. Note that some dimensional units needed for the dispersion model may require conversion from the units reported in the Inventory Report (e.g., Kelvin (K) vs. degrees Fahrenheit (°F)). Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

4.2.1.3 Operation Schedule

The HRA should include a discussion of the facility operation schedule and daily emission patterns. For AB2588 purposes, emissions should be reported based on routine and predictable operations. Weekly or seasonal emission patterns may vary and should be discussed. This is especially important in a refined HRA. Diurnal emission patterns should be simulated in the air dispersion model because of diurnal nature of meteorological observations. Diurnal evaluations are important to include since diurnal weather patterns and emission releases may cause significant differences in the concentration at a receptor of interest.

A table should be included listing the emission schedule on an hourly and yearly basis. In addition, the emission schedule and exposure schedule should corroborate any exposure adjustment factors used for approximating an inhaled dose. For more information about exposure adjustment factors, see Section 4.8.1. Alternatively, exposure adjustments can be made through refining the air dispersion analysis. See Section 4.11.1.2(h) for special case modeling or Appendix M. An alternative to including modeling that addresses diurnal influences would be to include a sensitivity study showing, and/or text explaining, the reason(s) why there are no significant differences due to diurnal influences on the emissions from the facility or at the receptor(s) of interest. For more guidance, you can contact the district or reviewing authority. Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

4.2.1.4 Emission Controls

The HRA should include a description of control equipment, the emitting processes it serves, and its efficiency in reducing emissions of substances on the Air Toxics “Hot Spots” list. The EICG Report requires that this information be included in the Inventory Reports, along with the emission data for each emitting process. If the control equipment did not operate full-time throughout the year, then the reported overall control efficiency must be adjusted to account for any predictable downtime of the

control equipment. Any entrainment of toxic substances to the atmosphere from control equipment should be accounted for; this includes fugitive releases during maintenance and cleaning of control devices (e.g., baghouses and cyclones). Contact the District for guidance with control equipment adjustments. Recommended default deposition rates that are used when calculating potential noninhalation health impacts are listed in Section 5.3.2. Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

4.2.2 *Landfill Emissions*

Emission estimates for landfill sites should be based on testing required under Health and Safety Code, Section (HSC) 41805.5 (AB 3374, Calderon) and any supplemental AB 2588 source tests or emission estimates used to characterize air toxics emissions from landfill surfaces or through off-site migration. The District should be consulted to determine the specific Calderon data to be used in the HRA. The "Hot Spots" Program HRA for landfills should also include emissions of listed substances for all applicable power generation and maintenance equipment at the landfill site. Processes that need to be addressed include stationary internal combustion engines, flares, evaporation ponds, composting operations, boilers, and gasoline dispensing systems.

4.3 Source Characterization

Pollutants are released into the atmosphere in many different ways. The release conditions need to be properly identified and characterized to appropriately use the air dispersion models.

4.3.1 *Source Type*

Source types can be identified as point, line, area, or volume sources for input to the air dispersion model. Several air dispersion models have the capability to simulate more than one source type.

4.3.1.1 Point Sources

Point sources are probably the most common type of source and most air dispersion models have the capability to simulate them. Typical examples of point sources include exhaust stacks. Isolated vents from buildings are special examples of point sources.

4.3.1.2 Line Sources

The version 12345 or newer of the AERMOD can accommodate line sources. Line sources can be also treated as a special case of either an area or a volume source. Examples of line sources include: conveyor belts and rail lines, freeways, and busy roadways. Not all mobile sources may be subject to the Hot Spots program; however, non-motor vehicles that operate within a facility (e.g., ships, trains, and cranes, etc.) are subject to the Hot Spots program. For more information, see the ARB's Emission Inventory and Criteria Guidelines document or ARB's interpretation and guidance

memorandum to CAPCOA regarding mobile sources which are subject to the "Hot Spots" program. This memo can be found at http://www.arb.ca.gov/ab2588/motorv.pdf.

Mobile sources and rail lines are required to be evaluated under SB 352. SB 352 requires a risk assessment performed under the Hot Spots risk assessment guidance for proposed school sites within 500 feet of a busy roadway. Dedicated air dispersion models are available for motor vehicle emissions from roadways which are a special type of line source. These models (i.e., CALINE3, CAL3QHCR, and CALINE4) are designed to simulate the mechanical turbulence and thermal plume rise due to the motor vehicle activity on the roadway. However, these dedicated models use the Pasquill-Gifford dispersion stability classes for dispersion; the AERMOD dispersion model uses a more advanced continuous stability estimation method based on observations. The limitation with AERMOD is that the user needs to estimate initial mixing (Szo and Syo) for mechanical turbulence and thermal plume rise. Consult with the District prior to conducting roadway modeling to determine model use.

For practical information on how to simulate roadway emission dispersion using these models, see the California Air Pollution Control Officer's Association (CAPCOA) website at http://www.capcoa.org or the Sacramento Metropolitan AQMD (SMAQMD) website at http://www.airquality.org/ceqa/RoadwayProtocol.shtml. The SMAQMD has a document titled, "Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways"(January, 2010). The ARB recommends this document for SB-352 risk assessments.

4.3.1.3 Area Sources

Emissions that are to be modeled as area sources are typical of fugitive sources characterized by non-buoyant emissions containing negligible vertical extent (e.g., no plume rise or emissions distributed over a large horizontal area).

Fugitive particulate (PM2.5, PM10, TSP) emission sources include areas of disturbed ground (e.g., open pits, parking lots) which may be present during operational phases of a facility's life. Also included are areas of exposed material (e.g., storage piles and slag dumps) and segments of material transport where potential fugitive emissions may occur (uncovered haul trucks or rail cars, emissions from unpaved roads). Fugitive emissions may also occur during stages of material handling where particulate material is exposed to the atmosphere (uncovered conveyors, hoppers, and crushers).

Other fugitive emissions emanating from many points of release may be modeled as area sources. Examples include fugitive emissions from valves, flanges, venting, and other connections that occur at ground level or at an elevated level or deck if on a building or structure. Modern dispersion models include an option for an initial vertical extent (Szo) where needed.

Modeling portable equipment as an area source is a case-by-case situation that should be discussed with the District or reviewing authority. Situations may exist where this type of operation is best represented as another type of release.

4.3.1.4 Volume Sources

Non-point sources with emissions containing an initial vertical extent should be modeled as volume sources. The initial vertical extent may be due to plume rise or a vertical distribution of numerous smaller sources over a given area. Examples of volume sources include buildings with natural fugitive or passive ventilation, and line sources such as conveyor belts and rail lines.

4.3.2 *Quantity of Sources*

The number of sources at a facility may influence the selection of the air dispersion model. Some dispersion models are capable of simulating only one source at a time, and are therefore referred to as single-source models (e.g., AERSCREEN).

In some cases, for screening purposes, single-source models may be used in situations involving more than one source using one of the following approaches:

- Combining all sources into one single "representative" source

In order to be able to combine all sources into one single source, the individual sources must have similar release parameters. For example, when modeling more than one stack as a single "representative" stack, the stack gas exit velocities and temperatures must be similar. In order to obtain a conservative estimate, the values leading to the higher concentration estimates should typically be used (e.g., the lowest stack gas exit velocity and temperature, the height of the shortest stack, and a receptor distance and spacing that will provide maximum concentrations, etc.).

- Running the model for each individual source and superimposing results

Superimposition of results of single sources of emissions is the actual approach followed by all the Gaussian models capable of simulating more than one source. Simulating sources in this manner may lead to conservative estimates if worst-case meteorological data are used or if the approach is used with a model that automatically selects worst-case meteorological conditions, especially wind direction. The approach will typically be more conservative the farther apart the sources are because each run would use a different worst-case wind direction.

Additional guidance regarding source merging is provided by the U.S. EPA (1995a). It should be noted that depending upon the population distribution, the total burden can actually increase when pollutants are more widely dispersed. If the total burden from the facility or zone of impact (see Section 4.6.1) could increase for the simplifying modeling assumptions described above, the District should be consulted.

4.4 Terrain Type

Two types of terrain characterizations are required to select the appropriate model. One classification is made according to land type and another one according to terrain topography.

4.4.1 *Terrain Type – Land Use*

Some air dispersion models (e.g., CALINE) use different dispersion coefficients (sigmas) depending on the land use over which the pollutants are being transported. The land use type is also used by some models to select appropriate wind profile exponents. Traditionally, the land type has been categorized into two broad divisions for the purposes of dispersion modeling: urban and rural. Accepted procedures for determining the appropriate category are those suggested by Irwin (1978): one based on land use classification and the other based on population.

The land use procedure is generally considered more definitive. Population density should be used with caution and should not be applied to highly industrialized areas where the population density may be low. For example, in low population density areas a rural classification would be indicated, but if the area is sufficiently industrialized the classification should already be "urban" and urban dispersion parameters should be used.

If the facility is located in an area where land use or terrain changes abruptly, for example, on the coast, the District should be consulted concerning the classification. If need be, the model should be run in both urban and rural modes and the District may require a classification that biases estimated concentrations towards over prediction. As an alternative, the District may require that receptors be grouped according to the terrain between source and receptor.

AERMOD is the U.S. EPA's preferred dispersion model for a wide range of applications in rural or urban conditions. The users should refer to section 5.0 of the AERMOD Implementation Guide to determine urban or rural conditions.

The Land Use and the Population Density Procedures discussed above are described as follows.

4.4.1.1 Land Use Procedure

(1) Classify the land use within the total area A, circumscribed by a 3 km radius circle centered at the source using the meteorological land use typing scheme proposed by Auer (1978) and shown in Table 4.1.

(2) If land use types I1, I2, C1, R2 and R3 account for 50 percent or more of the total area *A* described in (1), use urban dispersion coefficients. Otherwise, use appropriate rural dispersion coefficients.

4.4.1.2 Population Density Procedure

(1) Compute the average population density (p) per square kilometer with A as defined in the Land Use procedure described above. (Population estimates are also required to determine the exposed population; for more information see Section 4.6.3.)

(2) If *p* is greater than 750 people/km^2 use urban dispersion coefficients, otherwise, use appropriate rural dispersion coefficients.

Table 4.1 Identification and classification of land use types (Auer, 1978)

Used to define rural and urban dispersion coefficients in certain models.

Type	Use and Structures	Vegetation
I1	*Heavy Industrial* Major chemical, steel and fabrication industries; generally 3-5 story buildings, flat roofs	Grass and tree growth extremely rare; <5% vegetation
I2	*Light-moderate industrial* Rail yards, truck depots, warehouses, industrial parks, minor fabrications; generally 1-3 story buildings, flat roofs	Very limited grass, trees almost totally absent; <5% vegetation
C1	*Commercial* Office and apartment buildings, hotels; >10 story heights, flat roofs	Limited grass and trees; <15% vegetation
R1	*Common residential* Single family dwelling with normal easements; generally one story, pitched roof structures; frequent driveways	Abundant grass lawns and light-moderately wooded; >70% vegetation
R2	*Compact residential* Single, some multiple, family dwelling with close spacing; generally <2 story, pitched roof structures; garages (via alley), no driveways	Limited lawn sizes and shade trees; <30% vegetation
R3	*Compact residential* Old multi-family dwellings with close (<2 m) lateral separation; generally 2 story, flat roof structures; garages (via alley) and ashpits, no driveways	Limited lawn sizes, old established shade trees; <35% vegetation
R4	*Estate residential* Expansive family dwelling on multi-acre tracts	Abundant grass lawns and lightly wooded; >80% vegetation
A1	*Metropolitan natural* Major municipal, state, or federal parks, golf courses, cemeteries, campuses; occasional single story structures	Nearly total grass and lightly wooded; >95% vegetation
A2	Agricultural rural	Local crops (e.g., corn, soybean); >95% vegetation
A3	*Undeveloped* Uncultivated; wasteland	Mostly wild grasses and weeds, lightly wooded; >90% vegetation
A4	Undeveloped rural	Heavily wooded; >95% vegetation
A5	*Water surfaces* Rivers, lakes	

4.4.2 *Terrain Type - Topography*

Surface conditions and topographic features generate turbulence, modify vertical and horizontal winds, and change the temperature and humidity distributions in the boundary layer of the atmosphere. These in turn affect pollutant dispersion and models differ in their need to take these factors into account.

The classification according to terrain topography should ultimately be based on the topography at the receptor location with careful consideration of the topographical features between the receptor and the source. Differentiation of simple versus complex terrain is unnecessary with AERMOD. In complex terrain, AERMOD employs the well-known dividing-streamline concept in a simplified simulation of the effects of plume-terrain interactions. For other plume models, topography can be classified as follows:

4.4.2.1 Simple Terrain (also referred to as "Rolling Terrain")

Simple terrain is all terrain located below stack height including gradually rising terrain (i.e., rolling terrain). Note that *Flat Terrain* also falls in the category of simple terrain.

4.4.2.2 Intermediate Terrain

Intermediate terrain is terrain located above stack height and below plume height. The recommended procedure to estimate concentrations for receptors in intermediate terrain is to perform an hour-by-hour comparison of concentrations predicted by simple and complex terrain models. The higher of the two concentrations should be reported and used in the risk assessment.

4.4.2.3 Complex Terrain

Complex terrain is terrain located above plume height. Complex terrain models are necessarily more complicated than simple terrain models. There may be situations in which a facility is "overall" located in complex terrain but in which the nearby surroundings of the facility can be considered simple terrain. In such cases, receptors close to the facility in this area of simple terrain will "dominate" the risk analysis and there may be no need to use a complex terrain model. It is unnecessary to determine which terrain dominates the risk analysis for users of AERMOD.

4.5 Level of Detail: Screening vs. Refined Analysis

Air dispersion models can be classified according to the level of detail which is used in the assessment of the concentration estimates as "screening" or "refined". Refined air dispersion models use more robust algorithms capable of using representative meteorological data to predict more representative and usually less conservative estimates. Refined air dispersion models are, however, more resource intensive than their screening counterparts. It is advisable to first use a screening model to obtain conservative concentration estimates and calculate health risks. If the health risks are estimated to be above the threshold of concern, then use of a refined model to calculate

more representative concentration and health risk estimates would be warranted. There are situations when screening models represent the only viable alternative (e.g., when representative meteorological data are not available). The district or reviewing authority should be consulted to determine the appropriate method for determining the level of detail in the modeling analysis. The HARP software will incorporate the capability of using either representative meteorological data from AERMOD or the default meteorological conditions from the AERSCREEN model.

It is acceptable to use a refined air dispersion model in a "screening" mode for this program's health risk assessments. In this case, a refined air dispersion model is used:

- with worst-case meteorology instead of representative meteorology;

- with a conservative averaging period conversion factor to calculate longer term concentration estimates (see Section 4.10 for more discussion on screening air dispersion models and adjustments factors).

Note that use of worst case meteorology in a refined model is not the normal practice in New Source Review or Ambient Air Quality Standard evaluation modeling.

4.6 Population Exposure

The level of detail required for the analysis (e.g., screening or refined), and the procedures to be used in determining geographic resolution and exposed population require case-by-case analysis and professional judgment. The District should be consulted before beginning the population exposure estimates, and as results are generated, further consultation may be necessary. Some suggested approaches and methods for handling the breakdown of population and performance of a screening or detailed risk analysis are provided in this section.

In addition to estimating individual cancer risk at specific points such as the MEI (maximally exposed individual), OEHHA recommends determining the number of people who reside within the 1 x 10^{-6}, 1 x 10^{-5}, 1x 10^{-4}, and higher cancer risk isopleths. For noncancer population evaluations, the number of people who reside within the 0.5, one, five, or higher hazard index isopleths should be reported. The HARP software can provide population exposure estimates as cancer burden or as the number of persons exposed to a selected (user identified) health risk/impact level. Information on obtaining the HARP software can be found under the Hot Spots Program on the ARB's web site at www.arb.ca.gov. Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

4.6.1 *Zone(s) of Impact*

As part of the estimation of the population exposure for the cancer risk analysis, it is necessary to determine the geographic area affected by the facility's emissions. An initial approach to define a "zone of impact" surrounding the source is to generate an isopleth where the total excess lifetime cancer risk from inhalation exposure to all emitted carcinogens is greater than 10^{-6} (one in 1,000,000).

For noncarcinogens, a second, third, and fourth isopleth (to represent the chronic, 8-hour, and acute impacts) should be created to define the zone of impact for the hazard index from both inhalation and noninhalation pathways greater than or equal to 1.0. For clarity these isopleths may need to be presented on separate maps in the HRA.

Contact the District or reviewing authority to discuss inclusion of isopleth maps if all potential health risks fall within the facility boundary and no receptors have, or will ever, be present within the boundary (also see Section 4.7.1 for a discussion of on-site receptors).

The initial "zone of impact" can be determined as follows:

- Use a screening dispersion model (e.g., AERSCREEN) to obtain concentration estimates for each emitted pollutant at varying receptor distances from the source. Several screening models feature the generation of an automatic array of receptors which is particularly useful for determining the zone of impact. In order for the model to generate the array of receptors the user needs to provide some information normally consisting of starting distance, increment and number of intervals.

- Calculate total cancer risk and hazard index (HI) for each receptor location by using the methods provided in the risk characterization sections in Chapter 8 of the Air Toxics Hot Spots Risk Assessment Guidance Manual.

- Find the distance where the total inhalation cancer risk is equal to 10^{-6}; this may require redefining the receptor array in order to have two receptor locations that bound a total cancer risk of 10^{-6}. Next, find the distance where the chronic, 8-hour, and acute health hazard indices are declared significant by the District (e.g., acute, 8-hour, or chronic HI = 1.0).

Some Districts may prefer to use a cancer risk of 10^{-7} or an HI of 0.5 as the zone of impact. Therefore, the District should be consulted before modeling efforts are initiated. If the zone of impact is greater than 25 km from the facility at any point, then the District should be consulted. The District may specify limits on the area of the zone of impact. Ideally, these preferences would be presented in the modeling protocol (see Section 4.14).

Note that when depicting the risk assessment results, risk isopleths must present the total cancer and noncancer risk from both inhalation and noninhalation pathways. The zone of impact should be clearly shown on a map with geographic markers of adequate resolution (see Section 4.6.3.1). The text below discusses methodology for defining the zone of impact and has format recommendations. Chapter 9 provides an outline that specifies the content and recommended format of all HRA results.

The zone of impact can be defined once the exposure assessment (air dispersion modeling) process has determined the pollutant concentrations at each designated off-site receptor and a risk analysis (see Chapter 8) has been performed. For clarity, the cancer and noncancer zone(s) of impact should be presented on separate maps. A

map illustrating the carcinogenic zone of impact is required. The District may at its discretion ask for the map illustrating the potential carcinogenic zone of impact to identify the zone of impact for the minimum exposure pathways (inhalation, soil, dermal, and mother's milk) and the zone of impact for all applicable pathways of exposure (minimum pathways plus site/route dependent pathways). Two maps may be needed to accomplish this. The legend of these maps should state the level(s) used for the zone of impact and identify the exposure pathways that were included in the assessment.

The noncancer maps should also clearly identify the noncancer zones of impact. These include the acute (inhalation) zone of impact, 8-hour (inhalation) zone of impact and the chronic (including both inhalation, multipathway) zone of impact. The District may at its discretion require separate chronic inhalation and chronic multipathway zones of impact maps. For clarity, presentation of the two chronic zones of impact may also require two or more maps. The legend of these maps should state the level(s) used for the zone of impact and identify the exposure pathways (and target organs) that were included in the assessment. Further information regarding the methods for determination of hazard indices and cancer risk are discussed in Chapter 8 and Appendix I.

4.6.2 *Screening Population Estimates for Risk Assessments*

A screening risk assessment should include an estimate of the maximum exposed population. For screening risk assessments, a detailed description of the exposed population is not required. The impact area to be considered should be selected to be health protective (i.e., will not underestimate the number of exposed individuals). A health-protective assumption is to assume that all individuals within a large radius of the facility are exposed to the maximum concentration. If a facility must also comply with the RCRA/CERCLA risk assessment requirements, health effects to on-site workers may also need to be addressed. The DTSC's Remedial Project Manager should be consulted on this issue. The District should be consulted to determine the population estimate that should be used for screening purposes. Guidance for one screening method is presented here.

1. Use a screening dispersion model (e.g., AERSCREEN) to obtain concentration estimates for each emitted pollutant at varying receptor distances from the source. Several screening models feature the generation of an automatic array of receptors that is particularly useful for determining the zone of impact. In order for the model to generate the array of receptors, the user needs to provide some information normally consisting of starting distance, increment, and number of intervals.

2. Calculate the potential cancer risk and hazard index for each receptor location by using the methods provided in the risk characterization sections of this document (Chapter 8).

3. Find the distance where the potential cancer risk is equal to District specified levels (e.g., 10^{-6}); this may require redefining the receptor array in order to have

two receptor locations that bound a total cancer risk of 10^{-6}. This exercise should be repeated for the noncancer health impacts.

4. Calculate cancer burden by estimating the number of people in the grid and stipulate that all are exposed at the highest level.

4.6.3 *Refined Population Estimates for Risk Assessments*

The refined HRA requires a detailed analysis of the population exposed to emissions from the facility. Where possible, a detailed population exposure analysis provides estimates of the number of individuals in residences and offsite workplaces, as well as at sensitive receptor sites such as schools, daycare centers and hospitals. The District may require that locations with high densities of sensitive individuals be identified (e.g., schools, daycare centers, hospitals). These population analyses can include exposure estimates for workers and residents through the use of land use maps or other tools. The overall exposed residential and worker populations should be apportioned into smaller geographic subareas. The information needed for each subarea is:

1. The number of exposed persons, and
2. The receptor location at which the calculated ambient air concentration is assumed to be representative of the exposure to the entire population in the subarea.

A multi-tiered approach is suggested for the population analysis. Census tracts, which the facility could significantly impact, should be identified (see Section 4.6.3.1). A census tract should be divided into smaller subareas if it is close to the facility where ambient concentrations vary widely. The District may determine that census tracts provide sufficient resolution near the facility to adequately characterize population exposure or they may prefer the census information to be evaluated using smaller blocks. Further downwind where ambient concentrations are less variable, the census tract level may be acceptable to the District. The District may determine that the aggregation of census tracts (e.g., when the census tracts making up a city are combined) is appropriate for receptors that are considerable distances from the facility.

If a facility must also comply with the RCRA/CERCLA HRA requirements, health effects to on-site workers may also need to be addressed. The DTSC's Remedial Project Manager should be consulted on this issue. In some cases it may be appropriate to evaluate risks to on-site receptors. The district should be consulted about special cases for which evaluation of on-site receptors is appropriate, such as facilities frequented by the public or where people may reside (e.g., military facilities).

4.6.3.1 Census Tracts

For a refined risk assessment, the boundaries of census tracts can be used to define the geographic area to be included in the population exposure analysis. Digital maps showing the census tract boundaries in California can be obtained from "The Thomas

Guide"® on the World Wide Web. Statistics for each census tract can be obtained from the U.S. Census Bureau. The website address for the U.S. Census Bureau is http://www.census.gov. Numerous additional publicly accessible or commercially available sources of census data can be found on the World Wide Web. A specific example of a census tract is given in Appendix K. The HARP software includes U.S. census data and is a recommended tool for performing population exposure estimates.

The two basic steps in defining the area under analysis are:

(1) Identify the "zone of impact" (as defined previously in Section 4.6.1) on a map detailed enough to provide for resolution of the population to the subcensus tract level. (The U.S. Geological Survey (USGS) 7.5-minute series maps and the maps within the HARP software provide sufficient detail.) This is necessary to clearly identify the zone of impact, location of the facility, and sensitive receptors within the zone of impact. If significant development has occurred since the USGS survey, this should be indicated. A specific example of a 7.5-minute series map is given in Appendix K.

(2) Identify all census tracts within the zone of impact using a U.S. Bureau of Census or equivalent map (e.g., Thomas Brothers, HARP Software). If only a portion of the census tract lies within the zone of impact, then only the population that falls within the isopleth should be used in the population estimate or burden calculation. To determine this level of detail, local planning and zoning information may need to be collected. When this more detailed information is not available, then a less refined approach is to include the census data if the centroid of the census block falls within the isopleths of interest. The census tract boundaries should be transferred to a map, such as a USGS map (referred to hereafter as the "base map".)

An alternative approach for estimating population exposure in heavily populated urban areas is to apportion census tracts to a Cartesian grid cell coordinate system. This method allows a Cartesian coordinate receptor concentration field to be merged with the population grid cells. This process can be computerized and minimizes manual mapping of centroids and census tracts. The HARP software includes this function and will provide population estimates that are consistent with the methodology discussed here.

The District may determine that aggregation of census tracts (e.g., which census tracts making up a city can be combined) is appropriate for receptors that are located at considerable distances from the facility. If the District permits such an approach, it is suggested that the census tract used to represent the aggregate be selected in a manner to ensure that the approach is health protective. For example, the census tract included in the aggregate that is nearest (downwind) to the facility should be used to represent the aggregate.

4.6.3.1.1 Subcensus Tract

Within each census tract are smaller population units. These units [urban block groups (BG) and rural enumeration districts (ED)] contain about 1,100 persons. BGs are

further broken down into statistical units called blocks. Blocks are generally bounded by four streets and contain an average of 70 to 100 persons. However, this range in population is an average and population units may vary significantly. In some cases, the EDs are very large and identical to a census tract.

The area requiring detailed (subcensus tract) resolution of the exposed residential and worker population will need to be determined on a case-by-case basis through consultation with the District. The District may determine that census tracts provide sufficient resolution near the facility to adequately characterize population exposure.

Employment population data can be obtained at the census tract level from the U.S. Census Bureau or from local planning agencies. This degree of resolution will generally not be sufficient for most risk assessments. For the area requiring detailed analysis, zoning maps, general plans, and other planning documents should be consulted to identify subareas with worker populations.

The boundaries of each residential and employment population area should be transferred to the base map.

4.6.4 *Sensitive Receptor Locations*

Individuals who may be more sensitive to toxic exposures than the general population are distributed throughout the total population. Sensitive populations may include young children and chronically ill individuals. The District may require that locations with high densities of sensitive individuals be identified (e.g., schools, nursing homes, residential care facilities, daycare centers, and hospitals). The HRA should state what the District requirements are regarding identification of sensitive receptor locations.

Although protection of sensitive individuals is incorporated into OEHHA's risk assessment methodology in both cancer risk and noncancer risk assessment, the assessment of risk at the specific location of such sensitive individuals (e.g., schools, hospitals, or nursing homes) may be useful to assure the public that such individuals are being considered in the analysis. For some chemicals (e.g., mercury and manganese) children have been specifically identified as the sensitive subpopulation for noncancer health impacts, so it can be particularly appropriate to assess school sites.

4.7 Receptor Siting

4.7.1 *Receptor Points*

The modeling analysis should contain a network of receptor points with sufficient detail (in number and density) to permit the estimation of the maximum concentrations. Locations that must be identified include:

- The maximum estimated off-site impact or point of maximum impact (PMI),
- The maximum exposed individual at an existing residential receptor (MEIR),
- The maximum exposed individual at an existing occupational worker receptor (MEIW).

Note that some situations may also require that on-site receptor (worker or residential) locations be evaluated. The risk assessor can contact the District or reviewing authority for guidance if on-site exposure situations are present at the emitting facility. However, these on-site locations should be included in the HRA. Some examples where the health impacts of on-site receptors may be appropriate could be military base housing, prisons, universities, day care facilities, or locations where the public may have regular access for the appropriate exposure period (e.g., a lunch time café or museum for acute exposures). When a receptor lives and works on the facility, site, or property, then these receptors should be evaluated and reported under both residential and worker scenarios and the one that is most health protective should be used for risk management decisions. The cancer risk estimates for the onsite residents may use a 30-year exposure duration while the 25-year exposure duration is used for a worker. Under a Tier 2 analysis, alternate exposure durations may be evaluated and presented with all assumptions supported.

All of these locations (i.e., PMI, MEIR, and MEIW) must be identified for potential multipathway carcinogenic and noncarcinogenic effects. It is possible that the estimated PMI, MEIR, and MEIW risk for cancer, chronic noncancer, 8-hour, and acute noncarcinogenic risks occur at different locations or that some of these evaluations may not be necessary (e.g., the receptor does not exist). For example, some facilities will not have off-site workers in the vicinity of the facility and will not need to evaluate worker exposure, or the exposure situation may only require the evaluation of short-term carcinogenic or acute noncancer impacts (see Section 8.2.10 for a discussion of short-term projects). The approval to revise the exposure assessment for a receptor, or to omit the MEIW receptor, should be verified in writing with the District or reviewing authority and included in the HRA.

Other sensitive receptor locations may also be of interest and required to be included in the HRA. The District or reviewing authority should be consulted to determine which sensitive receptor locations must be included.

The results from a screening model (if available) can be used to identify the area(s) where the maximum concentrations are likely to occur. Receptor points should also be located at the population centroids (see Section 4.7.2) and sensitive receptor locations (see Section 4.6.4). The exact configuration of the receptor array used in an analysis will depend on the topography, population distribution patterns, and other site-specific factors. All receptor locations should be identified in the HRA using UTM (Universal Transverse Mercator) coordinates and receptor number. The receptor numbers in the summary tables should match receptor numbers in the computer output (e.g., HARP output files). In addition to actual UTM coordinates, the block/street locations (i.e., north side of 3,000 block of Smith Street) should be provided in the HRA for the PMI, MEIR, and MEIW for carcinogenic and noncarcinogenic health effects. Chapter 9 provides an outline that specifies the content and recommended format of HRA results.

4.7.1.1 Receptor Height

To evaluate localized impacts, receptor height should be taken into account at the point of maximum impact on a case-by-case basis. For example, receptor heights may have to be included to account for receptors significantly above ground level. Flagpole receptors at the height of the breathing zone of a person may need to be considered when the source receptor distance is less than a few hundred meters. Consideration must also be given to the noninhalation pathway analysis which requires modeling of chemical deposition onto soil or water at ground level. For the inhalation pathway, a health protective approach is to select a receptor height from 0 meters to 1.8 meters that will result in the highest predicted downwind concentration. Final approval of this part of the modeling protocol should be with the District or reviewing authority.

4.7.2 *Centroid Locations*

For each subarea analyzed, a centroid location (the location at which a calculated ambient concentration is assumed to represent the entire subarea) should be determined. When population is uniformly distributed within a population unit, a geographic centroid based on the shape of the population unit can be used. If only a portion of the census tract lies within the isopleth or area of interest, then only the population that falls within the isopleth should be used in the calculation for population exposure. To determine this level of detail, local planning and zoning information may need to be collected. Where populations are not uniformly distributed, a population-weighted centroid may be used. Another alternative uses the concentration at the point of maximum impact within that census tract as the concentration to which the entire population of that census tract is exposed. While this less refined approach is commonly accepted, Districts should be contacted to approve this method prior to its use in a risk assessment.

The centroids represent locations that should be included as receptor points in the dispersion modeling analysis. Annual average concentrations should be calculated at each centroid using the modeling procedures presented in this chapter.

For census tracts and BG/EDs, judgments can be made using census tracts maps and street maps to determine the centroid location. At the block level, a geographic centroid is sufficient.

4.7.3 *Spatial Averaging*

Since the inception of the "Hot Spots" and California's Air Toxics Programs, HRA results for an individual receptor have typically been based on air dispersion modeling results at a single point or location. With a few exceptions, this method has been traditionally used for all types of receptors (e.g., PMI, MEIR, MEIW, pathway receptors, etc.). The assumptions used in risk assessment are designed to prevent underestimation of health impacts to the public resulting in a health protective approach. However, basing risk estimates on a single highest point (PMI, MEIR, or MEIW) does not take into account that a person does not remain at one location on their property, or in one location at the

workplace over an extended period of time. Therefore, the average air concentration over a small area is likely to be more representative than using the air concentration at a single point, particularly in those situations where concentrations fall off rapidly around that single point. The concept of averaging air concentrations over a small area is known as spatial averaging.

In order to understand how spatial averaging can impact air dispersion modeling results with various types of facilities, the ARB, in conjunction with the OEHHA, performed sensitivity analyses to evaluate the impacts of spatially averaging air dispersion modeling results (see Appendix C of the Air Toxics Hot Spots Program Risk Assessment Guidelines: Technical Support Document for Exposure Assessment and Stochastic Analysis (EASA)). Based on these sensitivity analyses, it is reasonable and appropriate to include spatial averaging techniques in air toxic risk assessments as supplemental information to Tier 1 information (i.e., modeling results that are based on the air concentration from a single point or location). While all risk assessments must include results based on Tier 1 methodology, the spatially averaged concentrations around the point of interest (e.g., PMI, MEIR, MEIW, multipathway exposure evaluations, etc.) could also be included as an option in risk assessments and acceptable for risk management decisions subject to approval by the District or reviewing agency. Spatial averaging is an option for the purpose of additional refinement to the risk assessment.

A few reasons that support the inclusion of spatially averaged modeled concentrations in risk assessment include the following:

- Averaging results over a small domain will give a more representative picture of individual exposure and risk than an estimate based on one single location within their property.
- Spatial averaging will allow air dispersion modeling and risk assessment results to be characterized as the estimated concentration and risk in a discrete area of interest, rather than an exact value for a single location.
- From a risk communication standpoint, the ARB and OEHHA feel it is more appropriate to present the modeling output and the calculated health impacts as the potential impacts within a small or discrete area, rather than an exact value at a specific point on a grid or map.
- Spatial averaging is the recommended procedure in ARB's Lead Risk Management Guidelines (2001) and has been used in several complex source HRAs [e.g., Roseville Railyard (2004), Ports of LA/LB (2006), Port of Oakland (2008)].
- Spatially averaging the deposition concentrations over pasture land, a garden, or a water body for multipathway exposure scenarios is a planned upgrade for the HARP Software. This will provide an option that will refine multipathway exposure assessments. Average deposition on these types of areas (e.g., a water body) is not necessarily well represented by the single highest point of deposition, or deposition at the geographic center of the water body. Likewise, since produce is grown over the entire surface of the garden and cows graze the

entire pasture, deposition is better estimated by evaluating the entire area rather than using a single point.

4.7.3.1 Spatial Averaging Methodology

The spatial averaging sensitivity study in Appendix C of the EASA is based on simulating emissions from point, volume, area, and line sources. Most source types (e.g., point) are simulated as a small, medium or large source. Line sources are only simulated as small and large. In addition, meteorological data collected at five different locations in California were used. Nested spatial average grids of various domains were used to study the differences on the spatial average concentration. In the case of the 20 meter by 20 meter spatial average nested grid, the spatial average concentration showed little change over the PMI for medium and large sources. In the case for small sources, the spatial average concentration is approximately 45% to 80% of the PMI concentration. Individual source type and meteorological conditions will cause variations in these results.

The results of the spatial averaging sensitivity study in Appendix C of the EASA shows that sources with low plume rise that result in a PMI, MEIW, or MEIR located at or near the property fence line are most sensitive to spatial averaging. Source types with high plume rise (e.g., tall stacks) show a PMI far downwind where the concentration gradient is more gradual and therefore spatial averaging has a lesser effect. While spatial averaging can be used regardless of source size or the location of the PMI, the following conditions generally apply when a source is a good candidate for spatial averaging:

- The MEIR, MEIW, or PMI is located at the fence line or close to the emission source.
- The concentration gradient is high near the PMI. This is more associated with low level plumes such as fugitive, volume, area, or short stacks.
- A long term average is being calculated to represent a multi-year risk analysis based on one to five years of meteorological data. Note that spatial averaging should **not** be used for short term (acute) calculations.

In general, the method for calculating the spatial average in air toxic risk assessments includes the following steps:

1. Locate the point(s) of interest and receptor(s) (i.e., PMI, MEIW, MEIR, and any additional receptor locations of interest or concern) with a grid resolution spacing of no greater than five meters. To achieve this, two or more modeling runs with successively finer nested grid resolutions may be needed to find the final location where the nested grid that will be used for spatial averaging will be placed.

2. Center the spatial average nested grid on the each receptor's location of interest determined in step 1. Limit the nested grid to no larger than 20 meters by 20 meters or 400 square meters. Note that if a portion of the centered and nested grid falls within the facility boundary and the receptor location of interest is outside of the boundary, then adjustments to the nested grid to obtain the spatially-averaged concentration for the offsite receptor are reasonable. This may be done by either repositioning the nested grid to cover 400 square meters of off-boundary area surrounding the receptor or center the nested grid and delete any on-site grid points so that only the offsite grid points surrounding the receptor are used in the spatially averaged concentration. The grid resolution spacing should be no greater than five meters. With a five meter grid resolution, the 20 meter by 20 meter domain will result in 25 receptors. The size, shape, and placement of the domain and the resolution of points are subject to approval by the District, ARB, or other reviewing authority. See the Sections 4.7.3.1.2 and 4.7.3.1.3 below for additional discussion on domain sizing and grid spacing at worksites, pastures, gardens, and water bodies.

3. Some configurations of source activity and meteorological conditions result in a predominant downwind plume center line that is significantly askew from one of the four ordinate directions. In this case, a tilted nested grid is necessary to coincide with the dominant plume centerline. Polar receptors are easier to implement than a tilted rectangular grid. The domain of the polar receptor field should be limited to a 15 meter radius. See Appendix C of the EASA for detailed instructions on tilted polar receptors.

4. Calculate the arithmetic mean of the long term period average concentration (e.g., annual average) of the nested grid of receptors to represent the spatial average. This average is used in the risk calculations.

5. Document and include all methods, assumptions, data, maps, and files used in the spatial averaging analysis and clearly present this information in the risk assessment following the requirements of the District or reviewing authority. Note that in the update to the HARP software, functionality will be included that will assist with spatial averaging and the methodology discussed.

The following sections discuss the use of spatial averaging for various receptor types and exposure pathways.

4.7.3.1.1 Residential Receptors

Follow the steps in Section 4.7.3 outlining the spatial averaging methodology. To remain health protective when evaluating a residential receptor, spatial averaging should not take place using large nested domains. The domain used for spatial averaging should be no larger than 20 meters by 20 meters with a maximum grid spacing resolution of equal to or less than five meters. This domain represents an area

that is approximately the size of a small urban lot. The size of the domain and resolution of points shall be subject to approval by the District, ARB, or other reviewing authority.

4.7.3.1.2 Worker Receptors

Offsite worker locations (e.g. MEIW) may also be a candidate for spatial averaging. However, workers can be at the same location during almost their entire daily work shift (e.g., desk/office workers). When this is the situation, then the traditional method of using a single location and corresponding modeled concentration is appropriate. If spatial averaging is used, care should be taken to determine the proper domain size and grid resolution. Follow the steps in Section 4.7.3 outlining the spatial averaging methodology. To be consistent with the residential receptor assumptions and remain health protective, a modeling domain size no larger than 20 meters by 20 meters is recommended with a grid spacing resolution of equal to or less than five meters. However, if workers routinely and continuously move throughout the worksite over a space greater than 20 meters by 20 meters, then a larger domain may be considered.

The HRA or modeling protocol shall support all assumptions used, including, but not limited to, documentation for all workers showing the area where each worker routinely performs their duties and the percentage of time spent in those areas. The final domain size should not be greater than the smallest area of worker movement. Other considerations for determining domain size and grid spacing resolution may include an evaluation of the concentration gradients across the worker area. The grid spacing used within the domain to find the concentration that will be used to calculate health impacts should be sufficient in number and detail to obtain a representative concentration across the area of interest. The size of the domain and resolution of points shall be subject to approval by the District, ARB, or other reviewing authority.

4.7.3.1.3 Pastures, Gardens, or Water Bodies

The simplified approach of using the concentration (deposition rate) at the centroid, a specific point of interest, or the PMI location for an area being evaluated for noninhalation exposures (e.g., a body of water used for fishing, a pasture used for grazing, area of a garden, etc.) is acceptable for use in HRA. However, evaluating deposition concentrations over pasture land, a garden, or a water body for multipathway exposure scenarios using spatial averaging could give more representative estimates of the overall deposition rate. Use of spatial averaging in this application is subject to approval by the District, ARB, or other reviewing authority.

If spatial averaging will be done, follow the steps in Section 4.7.3.1 outlining the spatial averaging methodology. When using spatial averaging over the deposition area, care should be taken to determine the proper domain size to make sure it includes all reasonable areas of potential deposition. The size and shape of the area of interest (e.g., pasture or water body) should be identified and used for the modeling domain. The grid spacing or resolution used within the domain should be sufficient in detail to obtain a representative deposition concentration across the area of interest. One way

to determine the grid resolution is to include an evaluation of the concentration gradients across the deposition area. The HRA or modeling protocol shall support all assumptions used, including, but not limited to, documentation of the deposition area (e.g., size and shape of the pasture, garden, or water body, maps, representative coordinates, grid resolution, concentration gradients, etc.). The size of the domain and grid resolution is subject to approval by the reviewing authority.

In lieu of following the details in the paragraph above, the approach used for the other receptors (e.g., MEIR, MEIW) that uses a domain size not greater than 20 meters by 20 meters, located on the PMI within the area of interest, with a maximum grid spacing resolution of five meters, can be used. This default refined approach would apply to deposition areas greater than 20 meters by 20 meters. For smaller deposition areas, the simplified approach of using the PMI for the area, the concentration at the centroid or a specific point of interest, or averaging over the actual smaller domain can be used. This again is subject to approval by the reviewing authority.

The HRA or modeling protocol shall support all assumptions used, including, but not limited to, documentation of the deposition area (e.g., size and shape of the water body, pasture, or garden; all data; maps; representative coordinates, and etc.), and the details clarifying how and where the averaging was done (e.g., location and magnitude of concentration gradients, the grid spacing used).

4.8 Meteorological Data

Refined air dispersion models require hourly meteorological data. The first step in obtaining meteorological data should be to check with the District and the ARB for data availability. Other sources of data include the National Weather Service (NWS), National Climatic Data Center (NCDC), Asheville, North Carolina, ARB meteorological database (METDB), military stations and private networks. Meteorological data for a subset of NWS stations are available from the U.S. EPA Support Center for Regulatory Air Models (SCRAM). The SCRAM can be accessed at www.epa.gov/scram001/main.htm. All meteorological data sources should be approved by the District. Data not obtained directly from the District or the ARB should be checked for quality, representativeness, and completeness. It should be approved by the District before use. U.S. EPA provides guidance (U.S. EPA, 1995e) for these data. Meteorological data may need further processing. Data users can consult with the District or the ARB on how to process the raw meteorological data. The risk assessment should indicate if the District required the use of a specified meteorological data set. All memos indicating District approval of meteorological data should be attached in an appendix. If no representative meteorological data are available, screening procedures should be used as indicated in Section 4.10.

The analyst should acquire enough meteorological data to ensure that the worst-case meteorological conditions are represented in the model results. The US-EPA Guideline on Air Quality Models (U.S. EPA 2005) prefers that the latest five years of consecutive meteorological data be used to represent long term averages (i.e., cancer and chronic impacts). Previous OEHHA guidance allowed the use of the worst-case year to save

computer time. The processing speed of modern computers has increased to the point where processing five years of data over one year is no longer burdensome. However, the District may determine that one year of representative meteorological data is sufficient to adequately characterize the facility's impact. This may especially be the case when five years of quality consecutive data are not available.

To determine long term average concentrations the data can be averaged. For calculation of the one-hour maximum concentrations needed to evaluate acute effects, the worst-case year should be used in conjunction with the maximum hourly emission rate. For example, the long term average concentration and one-hour maximum concentration at a single receptor for five years of meteorological data are calculated below:

Year	Annual Average ($\mu g/m^3$)	Maximum One-Hour ($\mu g/m^3$)
1	7	100
2	5	80
3	9	90
4	8	110
5	6	90
5-year average	7	

In the above example, the long-term average concentration over five years is 7 $\mu g/m^3$. Therefore, 7 $\mu g/m^3$ should be used to evaluate carcinogenic and chronic effects (i.e., annual average concentration). The one-hour maximum concentration is the highest one-hour concentration in the five-year period. Therefore, 110 $\mu g/m^3$ is the peak one-hour concentration that should be used to evaluate acute effects.

The higher hourly concentration usually occurs when meteorological dispersion conditions become worse, such as, calm or light wind, inversion, etc. Inversion usually happens in late afternoon through early morning. As the sun goes down, the atmospheric temperature near surface starts to fall, usually faster than the temperature in the upper atmosphere causing a temperature inversion layer to form and extend downward. This inversion layer usually sustains throughout the night, and remains until early morning. Because of the inversion (cold air sitting on warm air at the top of the inversion layer), pollutant vertical mixing is very low in the morning.

When predicted concentrations are high and the mixing height is very low for the corresponding averaging period, the modeling results deserve additional consideration. For receptors in the near field, it is within the model formulation to accept a very low mixing height for short durations. However, it would be unlikely that the very low mixing height would persist long enough for the pollutants to travel into the far field. In the

event that the analyst identifies any of these time periods, they should be discussed with the District on a case-by-case basis.

4.8.1 *Meteorological Data Formats*

Most short-term dispersion models require input of hourly meteorological data in a format which depends on the model. U.S. EPA provides software for processing meteorological data for use in U.S. EPA recommended dispersion models. U.S. EPA recommended meteorological processors include the Meteorological Processor for Regulatory Models (MPRM), PCRAMMET, and AERMET. Use of these processors will ensure that the meteorological data used in an U.S. EPA recommended dispersion model will be processed in a manner consistent with the requirements of the model.

Meteorological data for a subset of NWS stations are available on the World Wide Web at the U.S. EPA SCRAM address, http://www.epa.gov/scram001.

4.8.2 *Treatment of Calms*

Calms are hours when the wind speed is below the starting threshold of the anemometer. Gaussian plume models require a wind speed and direction to estimate plume dispersion in the downwind direction.

U.S. EPA's policy is to disregard calms until such time as an appropriate analytical approach is available. The recommended U.S. EPA models contain a routine that eliminates the effect of the calms by nullifying concentrations during calm hours and recalculating short-term and annual average concentrations. Certain models lacking this built-in feature can have their output processed by U.S. EPA's CALMPRO program (U.S. EPA, 1984a) to achieve the same effect. Because the adjustments to the concentrations for calms are made by either the models or the postprocessor, actual measured on-site wind speeds should always be input to the preprocessor. These actual wind speeds should then be adjusted as appropriate under the current U.S. EPA guidance by the preprocessor.

Following the U.S. EPA methodology, measured on-site wind speeds of less than 1.0 m/s, but above the instrument threshold, should be set equal to 1.0 m/s by the preprocessor when used as input to Gaussian models. Calms are identified in the preprocessed data file by a wind speed of 1.0 m/s and a wind direction equal to the previous hour. For input to AERMOD, no adjustment should be made to the site specific wind data. AERMOD can produce model estimates for conditions when the wind speed may be less than 1 m/s but still greater than the instrument threshold. Some air districts provide pre-processed meteorological data for use in their district that treats calms differently. Local air districts should be consulted for available meteorological data. In addition, to reduce the number of calms and missing winds in the surface data, EPA has developed a pre-processor – AERMINUTE – to process 1-minute ASOS wind data for generating hourly average wind speed and directions for input to AERMET in Stage 2. The details can be found in the EPA's AERMINUTE User's Instructions at:

http://www.epa.gov/ttn/scram/models/aermod/aerminute_userguide_v11059_draft.pdf

If the fraction of calm hours is excessive, then an alternative approach may need to be considered to characterize dispersion. The Calpuff model modeling system can simulate calm winds as well as complex wind flow and therefore is a viable alternative. The local air district should be consulted for alternative approaches.

4.8.3 *Treatment of Missing Data*

Missing data refer to those hours for which no meteorological data are available from the primary on-site source for the variable in question. When missing values arise, they should be handled in one of the following ways listed below, in the following order of preference:

(1) If there are other on-site data, such as measurements at another height, they may be used when the primary data are missing. If the height differences are significant, corrections based on established vertical profiles should be made. Site-specific vertical profiles based on historical on-site data may also be appropriate to use if their determination is approved by the reviewing authority. If there is question as to the representativeness of the other on-site data, they should not be used.

(2) If there are only one or two missing hours, then linear interpolation of missing data may be acceptable, however, caution should be used when the missing hour(s) occur(s) during day/night transition periods.

(3) If representative off-site data exist, they may be used. In many cases this approach may be acceptable for cloud cover, ceiling height, mixing height, and temperature. This approach will rarely be acceptable for wind speed and direction. The representativeness of off-site data should be discussed and agreed upon in advance with the reviewing authority.

(4) An imputation methodology may be acceptable, provided it is well-documented, sufficiently justified, and properly applied.

(5) Failing any of the above, the data field should be coded as missing using missing data codes appropriate to the applicable meteorological pre-processor.

Appropriate model options for treating missing data, if available in the model, should be employed. Substitutions for missing data should only be made in order to complete the data set for modeling applications, and should not be used to attain the “regulatory completeness” requirement of 90%. That is, the meteorological data base must be 90% complete on a monthly basis (before substitution) in order to be acceptable for use in air dispersion modeling. The use of any data substitution technique should be thoroughly documented to provide the District or reviewing authority with all the information necessary to determine its approvability.

If the recommended methods for addressing missing meteorological data cannot be achieved as described, then alternative approaches should be discussed and developed in conjunction with the District or reviewing authority.

4.8.4 *Representativeness of Meteorological Data*

The atmospheric dispersion characteristics at an emission source need to be evaluated to determine if the collected meteorological data can be used to adequately represent atmospheric dispersion for the project.

Such determinations are required when the available meteorological data are acquired at a location other than that of the proposed source. In some instances, even though meteorological data are acquired at the location of the pollutant source, they still may not correctly characterize the important atmospheric dispersion conditions.

Considerations of representativeness are always made in atmospheric dispersion modeling whether the data base is "on-site" or "off-site." These considerations call for the judgment of a meteorologist or an equivalent professional with expertise in atmospheric dispersion modeling. If in doubt, the District should be consulted.

4.8.4.1 Spatial Dependence

The location where the meteorological data are acquired should be compared to the source location for similarity of terrain features. For example, in complex terrain, the following considerations should be addressed in consultation with the District:

- Aspect ratio of terrain, i.e., ratio of:
    - Height of valley walls to width of valley;
    - Height of ridge to length of ridge; and
    - Height of isolated hill to width of hill at its base
- Slope of terrain
- Ratio of terrain height to stack/plume height
- Distance of source from terrain (i.e., how close to valley wall, ridge, isolated hill)
- Correlation of terrain feature to prevailing meteorological conditions

Likewise, if the source is located on a plateau or plain, the source of meteorological data used should be from a similar plateau or plain.

Judgments of representativeness should be made only when sites are climatologically similar. Sites in nearby, but different air sheds, often exhibit different weather patterns. For instance, meteorological data acquired along a shoreline are not normally representative of inland sites and vice versa.

Meteorological data collected need to be examined to determine if drainage, transition, and synoptic flow patterns are characteristics of the source, especially those critical to the regulatory application. Consideration of orientation, temperature, and ground cover should be included in the review.

An important aspect of space dependence is height above the ground. Where practical, meteorological data should be acquired at the release height, as well as above or below, depending on the buoyancy of the source's emissions. AERMOD at a minimum requires wind observations at a height above ground between seven times the local surface roughness height and 100 meters.

4.8.4.2 Temporal Dependence

To be representative, meteorological data must be of sufficient duration to define the range of sequential atmospheric conditions anticipated at a site. As a minimum, one full year of on-site meteorological data is necessary to prescribe this time series. Multiple years of data are used to describe variations in annual and short-term impacts. Consecutive years from the most recent, readily available 5-year period are preferred to represent these yearly variations.

4.8.4.3 Further Considerations

It may be necessary to recognize the non-homogeneity of meteorological variables in the air mass in which pollutants disperse. This non-homogeneity may be essential in correctly describing the dispersion phenomena. Therefore, measurements of meteorological variables at multiple locations and heights may be required to correctly represent these meteorological fields. Such measurements are generally required in complex terrain or near large land-water body interfaces.

It is important to recognize that, although certain meteorological variables may be considered unrepresentative of another site (for instance, wind direction or wind speed), other variables may be representative (such as temperature, dew point, cloud cover). Exclusion of one variable does not necessarily exclude all. For instance, one can argue that weather observations made at different locations are likely to be similar if the observers at each location are within sight of one another - a stronger argument can be made for some types of observations (e.g., cloud cover) than others. Although by no means a sufficient condition, the fact that two observers can “see” one another supports a conclusion that they would observe similar weather conditions.

Other factors affecting representativeness include change in surface roughness, topography and atmospheric stability. Currently there are no established analytical or statistical techniques to determine representativeness of meteorological data. The establishment and maintenance of an on-site data collection program generally fulfills the requirement for “representative” data. If in doubt, the District should be consulted.

4.8.5 *Alternative Meteorological Data Sources*

It is necessary, in the consideration of most air pollution problems, to obtain data on site-specific atmospheric dispersion. Frequently, an on-site measurement program must be initiated. As discussed in Section 4.8.3, representative off-site data may be used to substitute for missing periods of on-site data. There are also situations where current or past meteorological records from a National Weather Service station may suffice. These considerations call for the judgment of a meteorologist or an equivalent professional with expertise in atmospheric dispersion modeling. More information on Weather Stations including: National Weather Service (NWS), military observations, supplementary airways reporting stations, upper air and private networks, is provided in "On-Site Meteorological Program Guidance for Regulatory Modeling Applications" (U.S. EPA, 1995e).

4.8.5.1 Recommendations

On-site meteorological data should be processed to provide input data in a format consistent with the particular models being used. The input format for U.S. EPA short-term regulatory models is defined in U.S. EPA's MPRM. The input format for AERMOD is defined in the AERMET meteorological pre-processor. Processors are available on the SCRAM web site. The actual wind speeds should be coded on the original input data set. Wind speeds less than 1.0 m/s but above the instrument threshold should be set equal to 1.0 m/s by the preprocessor when used as input to Gaussian models. Wind speeds below the instrument threshold of the cup or vane, whichever is greater, should be considered calm, and are identified in the preprocessed data file by a wind speed of 1.0 m/s and a wind direction equal to the previous hour. For input to AERMOD, no adjustment should be made to the site specific wind data. AERMOD can produce model estimates for conditions when the wind speed may be less than 1 m/s but still greater than the instrument threshold.

If data are missing from the primary source, they should be handled as follows, in order of preference: (1) substitution of other representative on-site data; (2) linear interpolation of one or two missing hours; (3) substitution of representative off-site data; (4) use of a well-documented and justified imputation methodology; or (5) coding as a missing data field, according to the discussions in Section 4.8.3. The use of any data substitution technique should be thoroughly documented to provide the District or reviewing authority with all the information necessary to determine its approvability.

If the data processing recommendations in this section cannot be achieved, then alternative approaches should be discussed and developed in conjunction with the District or reviewing authority.

4.8.6 *Quality Assurance and Control*

The purpose of quality assurance and maintenance is the generation of a representative amount (90% of hourly values for a year on a monthly basis) of valid data. For more information on data validation consult reference U.S. EPA (1995e). Maintenance may

be considered the physical activity necessary to keep the measurement system operating as it should. Quality assurance is the management effort to achieve the goal of valid data through plans of action and documentation of compliance with the plans.

Quality assurance (QA) will be most effective when following a QA Plan which has been signed-off by appropriate project or organizational authority. The QA Plan should contain the following information (paraphrased and particularized to meteorology from Lockhart):

1. Project description - how meteorology data are to be used
2. Project organization - how data validity is supported
3. QA objective - how QA will document validity claims
4. Calibration method and frequency - for data
5. Data flow - from samples to archived valid values
6. Validation and reporting methods - for data
7. Audits - performance and system
8. Preventive maintenance
9. Procedures to implement QA objectives - details
10. Management support - corrective action and reports

It is important for the person providing the quality assurance (QA) function to be independent of the organization responsible for the collection of the data and the maintenance of the measurement systems. Ideally, the QA auditor works for a separate company.

4.9 Model Selection

There are several air dispersion models that can be used to estimate pollutant concentrations and new ones are likely to be developed. U.S. EPA added AERMOD, which incorporates the PRIME downwash algorithm, to the list of preferred models in 2005 as a replacement to ISCST3. CalPuff was added in 2003. The latest version of the U.S. EPA recommended models can be found at the SCRAM Bulletin board located at http://www.epa.gov/scram001. However, any model, whether a U.S. EPA guideline model or otherwise, must be approved for use by the local air district. Recommended models and guidelines for using alternative models are presented in this section. All air dispersion models used to estimate pollutant concentrations for risk assessment analyses must be in the public domain. Classification according to terrain, source type and level of analysis is necessary before selecting a model (see Section 4.4). The selection of averaging times in the modeling analysis is based on the health effects of concern. Annual average concentrations are required for an analysis of carcinogenic or other chronic effects. One-hour maximum concentrations are required for analysis of acute effects.

4.9.1 *Recommended Models*

Recommended air dispersion models to estimate concentrations for risk assessment analyses are generally referenced in US EPA's Guideline on Air Quality Models

available at http://www.epa.gov/scram001. Currently AERMOD is recommended for most refined risk assessments in flat or complex terrain and in rural or urban environments[1]. In addition, CalPuff is available where spatial wind fields are highly variable or transport distances are large (e.g., 50 km). AERSCREEN is a screening model based on AERMOD. AERSCREEN can be used when representative meteorological data are unavailable. CTSCREEN is available for screening risk assessments in complex terrain. The most current version of the models should be used for risk assessment analysis. Some facilities may also require models capable of special circumstances such as dispersion near coastal areas. For more information on modeling special cases see Sections 4.12 and 4.13.

Most air dispersion models contain provisions that allow the user to select among alternative algorithms to calculate pollutant concentrations. Only some of these algorithms are approved for regulatory application such as the preparation of health risk assessments. The sections in this guideline that provide a description of each recommended model contain information on the specific switches and/or algorithms that must be selected for regulatory application.

To further facilitate the model selection, the District should be consulted for additional recommendations on the appropriate model(s) or a protocol submitted for District review and approval (see Section 4.14.1).

4.9.2 *Alternative Models*

Alternative models are acceptable if applicability is demonstrated or if they produce results identical or superior to those obtained using one of the preferred models referenced in Section 4.9.1. For more information on the applicability of alternative models refer to the following documents:

- U.S. EPA (2005). "Guideline on Air Quality Models" Section 3.2.2
- U.S. EPA (1992). "Protocol for Determining the Best Performing Model"
- U.S. EPA (1985a). "Interim Procedures for Evaluating Air Quality Models – Experience with Implementation"
- U.S. EPA (1984b). "Interim Procedures for Evaluating Air Quality Models (Revised)"

4.10 Screening Air Dispersion Models

A screening model may be used to provide a maximum concentration that is biased toward overestimation of public exposure. Use of screening models in place of refined modeling procedures is optional unless the District specifically requires the use of a refined model. Screening models are normally used when no representative meteorological data are available and may be used as a preliminary estimate to determine if a more detailed assessment is warranted.

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[1] AERMOD was promulgated by U.S. EPA as a replacement to ISCST3 on November 9, 2006.

Some screening models provide only 1-hour average concentration estimates. Other averaging periods can be estimated based on the maximum 1-hour average concentration in consultation and approval of the responsible air district. Because of variations in local meteorology, the exact factor selected may vary from one district to another. Table 4.2 provides guidance on the range and typical values applied. The conversion factors are designed to bias predicted longer term averaging periods towards overestimation.

Table 4.2 Recommended Factors to Convert Maximum 1-hour Avg. Concentrations to Other Averaging Periods (U.S. EPA, 2011, 1995a; ARB, 1994).

Averaging Time	Range	Typical SCREEN3 Recommended	AERSCREEN Recommended
3 hours	0.8 - 1.0	0.9	1.0
8 hours	0.5 - 0.9	0.7	0.9
24 hours	0.2 - 0.6	0.4	0.6
30 days	0.2 - 0.3	0.3	
Annual	0.06 - 0.1	0.08	0.1

AERSCREEN automatically provides the converted concentration for longer than 1-hour averaging periods. For area sources, the AERSCREEN 3, 8, and 24-hour average concentration are equal to the 1-hour concentration. No annual average concentration is calculated. SCREEN3 values are shown for comparison purposes.

4.10.1 *AERSCREEN*

The AERSCREEN (U.S. EPA, 2011) model is now available and should be used in lieu of SCREEN3 with approval of the local District. AERSCREEN is a screening level air quality model based on AERMOD. AERSCREEN does not require the gathering of hourly meteorological data. Rather, AERSCREEN requires the use of the MAKEMET program which generates a site specific matrix of meteorological conditions for input to the AERMOD model. MAKEMET generates a matrix of meteorological conditions based on local surface characteristics, ambient temperatures, minimum wind speed, and anemometer height.

AERSCREEN is currently limited to modeling a single point, capped stack, horizontal stack, rectangular area, circular area, flare, or volume source. More than one source may be modeled by consolidating the emissions into one emission source.

4.10.2 *Valley Screening*

The Valley model is designed to simulate a specific worst-case condition in complex terrain, namely that of a plume impaction on terrain under stable atmospheric conditions. The algorithms of the VALLEY model are included in other models such as SCREEN3 and their use is recommended in place of the VALLEY model. The usefulness of the VALLEY model and its algorithms is limited to pollutants for which only long-term average concentrations are required. For more information on the Valley model consult the user's guide (Burt, 1977).

4.10.2.1 Regulatory Options

Regulatory application of the Valley model requires the setting of the following values during a model run:

- Class F Stability (rural) and Class E Stability (urban)
- Wind Speed = 2.5 m/s
- 6 hours of occurrence of a single wind direction (not exceeding a 22.5 deg sector)
- 2.6 stable plume rise factor

4.10.3 *CTSCREEN*

The CTSCREEN model (Perry et al., 1990) is the screening mode of the Complex Terrain Dispersion Model (CTDMPLUS). CTSCREEN can be used to model single point sources only. It may be used in a screening mode for multiple sources on a case by case basis in consultation with the District. CTSCREEN is designed to provide conservative, yet theoretically sounder, worst-case 1-hour concentration estimates for receptors located on terrain above stack height. Internally-coded time-scaling factors are applied to obtain other averages (see Table 4.3). These factors were developed by comparing the results of simulations between CTSCREEN and CTDMPLUS for a variety of scenarios and provide conservative estimates (Perry et al., 1990). CTSCREEN produces identical results as CTDMPLUS if the same meteorology is used in both models. CTSCREEN accounts for the three-dimensional nature of the plume and terrain interaction and requires detailed terrain data representative of the modeling domain. A summary of the input parameters required to run CTSCREEN is given in Table 4.4. The input parameters are provided in three separate text files. The terrain topography file (TERRAIN) and the receptor information file (RECEPTOR) may be generated with a preprocessor that is included in the CTSCREEN package. In order to generate the terrain topography file the analyst must have digitized contour information.

Table 4.3 Time-scaling factors internally coded in CTSCREEN

Averaging Period	Scaling Factor
3 hours	0.7
24 hour	0.15
Annual	0.03

Table 4.4 Input Parameters Required to Run CTSCREEN

Parameter	File
Miscellaneous program switches	CTDM.IN
Site Latitude and Longitude (degrees)	CTDM.IN
Site TIME ZONE	CTDM.IN
Meteorology Tower Coordinates (user units)	CTDM.IN
Source Coordinates: x and y (user units)	CTDM.IN
Source Base Elevation (user units)	CTDM.IN
Stack Height (m)	CTDM.IN
Stack Diameter (m)	CTDM.IN
Stack Gas Temperature (K)	CTDM.IN
Stack Gas Exit Velocity (m/s)	CTDM.IN
Emission Rate (g/s)	CTDM.IN
Surface Roughness for each Hill (m)	CTDM.IN
Meteorology: Wind Direction (optional)	CTDM.IN
Terrain Topography	TERRAIN
Receptor Information (coordinates and associated hill number)	RECEPTOR

4.11 Refined Air Dispersion Models

Refined air dispersion models are designed to provide more representative concentration estimates than screening models. In general, the algorithms of refined models are more robust and have the capability to account for site-specific meteorological conditions. For more information regarding general aspects of model selection see Section 4.9.

4.11.1 *AERMOD*

For a wide variety of applications in all types of terrain, the recommended model is AERMOD. AERMOD is a steady-state plume dispersion model for assessment of pollutant concentrations from a variety of sources. AERMOD simulates transport and dispersion from multiple point, area, or volume sources based on an up-to-date characterization of the atmospheric boundary layer. Sources may be located in rural or urban areas and receptors may be located in simple or complex terrain. AERMOD accounts for building wake effects (i.e., plume downwash) based on the PRIME building downwash algorithms. The model employs hourly sequential preprocessed meteorological data to estimate concentrations for averaging times from one hour to one year (also multiple years). AERMOD is designed to operate in concert with two pre-processor codes: AERMET processes meteorological data for input to AERMOD, and AERMAP processes terrain elevation data and generates receptor information for input to AERMOD. Guidance on input requirements may be found in the AERMOD Users Guide.

4.11.1.1 Regulatory Options

U.S. EPA regulatory application of AERMOD requires the selection of specific switches (i.e., algorithms) during a model run. All the regulatory options can be set by selecting the DFAULT keyword. The U.S. EPA regulatory options, automatically selected when the DFAULT keyword is used, are:

- Stack-tip downwash
- Incorporates the effects of elevated terrain
- Includes calms and missing data processing routines
- Does not allow for exponential decay for applications other than a 4-hour half life for SO_2

Additional information on these options is available in the AERMOD User's Guide.

4.11.1.2 Special Cases

a. Building Downwash:
AERMOD automatically determines if the plume is affected by the wake region of buildings when their dimensions are given. The specification of building dimensions does not necessarily mean that there will be downwash. See

Section 4.13.1 for guidance on how to determine when downwash is likely to occur.

b. Area Sources:
The area source algorithm in AERMOD estimates source emission strength by integrating an area upwind of the receptor location. Receptors may be placed within the area itself, downwind of the area or adjacent to the area. However, since the vertical distribution parameter (σ_z) goes to zero as the downwind distance goes to zero, the plume function solution is infinite for a downwind receptor distance of zero. In order to avoid such singularity in the plume function solution, the AERMOD model arbitrarily sets the plume function to zero when the receptor distance is less than one meter. As a result, the area source algorithm will not provide reliable solutions for receptors located within or adjacent to very small areas, with dimensions on the order of a few meters across. In these cases, the receptor should be placed at least one meter outside of the area.

c. Volume Sources:
The volume source algorithms in AERMOD require an estimate of the initial distribution of the emission source. The initial distribution of emissions for a volume source is in the horizontal and vertical directions. When modeling volume source emissions, one needs to provide initial horizontal (σ_{y0}) and vertical (σ_{z0}) dimensions as accurate as possible so that pollutant buoyancy and dispersion are also calculated accurately. US EPA's AERMOD User Guide provides suggested procedures to estimate these initial dimensions based on source type (Table 3-1) (U.S. EPA, 2004a).

d. Line Sources:
Examples of line sources include conveyor belts or roads. Depending on the source, these can be modeled three ways; as a line source, as a series of volume sources, or as an elongated area source. Where the emission source is neutrally buoyant, such as a conveyor belt, AERMOD can be used according to the user guide. In the event that the line source is a roadway, then additional considerations are required.

At the present time, CALINE (CALINE3, CAL3QHCR, and CALINE4) is the only model dedicated to modeling the enhanced mechanical and thermal turbulence created by motor vehicles traveling on a roadway. Of these, CAL3QHCR is the only model that accepts hourly meteorological data and can estimate annual average concentrations. However, CALINE uses the Pasquill-Gifford stability categories which are used in the ISCST model. AERMOD is now the preferred plume model over ISCST3 with continuous plume dispersion calculations based on observations but AERMOD does not include the enhanced roadway turbulence. Therefore, in the case where roadway emissions dominate the risk assessment, it may be most important to simulate the enhanced thermal and mechanical turbulence from motor vehicles with the CAL3QHCR model.

In the case where roadway emissions are a subset of all emissions for the risk assessment, including roadway emissions along with facility emissions, it may be best to use AERMOD for all emissions, roadway and facility, in order to maintain continuity with one dispersion model for the risk assessment. If AERMOD is used, it is important to consider that a major freeway may act similar to a large building which can cause some mixing and therefore initial vertical dispersion. This dispersion could be estimated with sensitivity studies based on wind speed, wind angle, roadway orientation, roadway width, and etc. This could be a complex estimation and needs very adept modeling skills. Roadway modeling should be evaluated on a case-by-case basis in consultation with the District or the reviewing authority.

Line sources inputs include a composite fleetwide emission factor, roadway geometry, hourly vehicle activity (i.e., diurnal vehicle per hour pattern), hourly meteorological data, and receptor placement. For practical information on how to simulate roadway emissions using these models, see CAPCOA's website at http://www.capcoa.org or the Sacramento Metropolitan AQMD (SMAQMD) website at http://www.airquality.org/ceqa/RoadwayProtocol.shtml. The SMAQMD has a document titled, "Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways"(January, 2010).

e. Complex Terrain:
AERMOD uses the Dividing Streamline (Hc) concept for complex terrain. Above Hc, the plume is assumed to be "terrain following" in the convective boundary layer. Below Hc, the plume is assumed to be "terrain impacting" in the stable boundary layer. AERMOD computes the concentration at any receptor as a weighted function between the two plume states (U.S. EPA, 2004b).

f. Deposition:
AERMOD contains algorithms to model settling and deposition and requires additional information to do so including particle size distribution. For more information consult the AERMOD User's Guide (U.S. EPA, 2004a).

g. Diurnal Considerations:
Systematic diurnal changes in atmospheric conditions are expected along the coast (or any large body of water) or in substantially hilly terrain. The wind speed and direction are highly dependent on time of day as the sun rises and begins to heat the Earth. The sun heats the surface of the land faster than the water surface. Therefore the air above the land warms up sooner than over water. This creates a buoyant effect of warm air rising over land and the cool air from over water moves in to fill the void. Near large bodies of water (e.g., the ocean) this is known as a sea breeze. In complex terrain this is known as upslope flow as the hot air follows the terrain upwards. When the sun sets and the surface of the land begins to cool, the air above also cools and creates a draining effect. Near the water this is the land breeze; in complex terrain this is known as downslope or drainage flow. In addition, for the sea breeze, the atmospheric

conditions change rapidly from neutral or stable conditions over water to unstable conditions over land.

Near the large bodies of water the sea breeze is typical in the afternoon and the land breeze is typical for the early morning before sunrise. In complex terrain upslope flow is typical in the afternoon, while drainage flow is typical at night. Diurnal profiles need to be evaluated in conjunction with the facility emissions since sources can have varied emission profiles (e.g., some sources are continuously emitting while others are intermittent). These intermittent emission profiles may be influenced by diurnal patterns; therefore, they need to be evaluated to properly estimate potential exposures. For these reasons, it is especially important to simulate facility emissions with a hourly diurnal pattern reflective of source activity so that the risk assessment is representative of daily conditions.

h. 8-hour Modeling for the Offsite Worker's Exposure and Residential Exposure: If the ground level air concentrations from a facility operating 5 days a week, 8 hours per day have been estimated by a 24 hour per day annual average, an adjustment factor can be applied to estimate the air concentration that an offsite worker with the same schedule would be exposed to. The 24-hour annual average concentration is multiplied times 4.2.

If the meteorology during the time that the facility is emitting is used, hourly model simulations need to be post-processed to cull out the data needed for the offsite worker exposure. See Appendix M for information on how to calculate the refined offsite worker concentrations using the hourly raw results from the AERMOD air dispersion model. For more discussion on worker exposure, see Section 4.8.1.

Eight-hour exposure modeling can be used to evaluate the potential for health impacts (including effects of repeated exposures) in children and teachers exposed during school hours. Although not required in the HRA, 8-hour exposure modeling could also be performed at the discretion of the District to a residential scenario (i.e., the MEIR) where a facility operates only a portion of the day and exposure to residences are not adequately reflected by averaging concentrations over a 24 hour day.

4.11.1.3 HARP Dispersion Analysis

It is highly recommended that air dispersion analysis be performed using the HARP software. HARP can perform refined dispersion analysis by utilizing the U.S. EPA standard program AERMOD. In the future, the updated version of HARP will link the AERMOD outputs with risk assessment modules.

4.11.2 *CTDMPLUS*

CTDMPLUS is a Gaussian air quality model for use in all stability conditions in complex terrain. In comparison with other models, CTDMPLUS requires considerably more

detailed meteorological data and terrain information that must be supplied using specifically designed preprocessors. CTDMPLUS was designed to handle up to 40 point sources.

4.12 Modeling to Obtain Concentrations used for Various Health Impacts

The following section outlines how emissions and air dispersion modeling results are used or adjusted for a receptor that is exposed to either a non-continuous or continuously emitting source.

4.12.1 *Emission Rates for Cancer, Chronic, and Acute Health Impacts*

As discussed in Section 4.2.1.1, the HRA should include both annual average emissions and maximum 1-hour emissions for each pollutant emitted by the facility. Maximum 1-hour emissions are used for acute noncancer health impacts while annual emissions are used for chronic exposures (i.e., chronic and 8-hour noncancer health impacts or cancer risk assessment). When applying the emission rates in the air dispersion analysis, it is important not to artificially inflate or deplete the reported emission inventory.

For annual average emissions, the emissions are spread evenly over the entire year for continuous emitting sources. However, for sources where the emission patterns vary (i.e., non-continuous emitting sources), the emission rate should also account for the facility's emission schedule. If appropriate, the variable emissions rate option (e.g., hour-of-day) should be used in the air dispersion analysis. For more information consult the AERMOD User's Guide (U.S. EPA, 2004a). Also, when calculating emission rates for acute health impacts, it is important the emission rates never exceed the reported maximum 1-hour emissions.

4.12.2 *Modeling and Adjustments for Inhalation Cancer Risk at a Worksite*

Modeled long-term averages are typically used for cancer risk assessments for residents and workers. In an inhalation cancer risk assessment for an offsite worker, the long-term average should represent what the worker breathes during their work shift. However, the long-term averages calculated from AERMOD typically represent exposures for receptors that were present 24 hours a day and seven days per week (i.e., the schedule of a residential receptor). To estimate the offsite worker's concentration, there are two approaches. The more refined, complex, and time consuming approach is to post-process the hourly raw dispersion model output and examine the hourly concentrations that fall within the offsite worker's shift. See Appendix M for information on how to simulate the long-term concentration for the offsite worker that can be used to estimate inhalation cancer risk.

In lieu of post-processing the hourly dispersion model output, the more typical approach is to obtain the long-term average concentration as you would for modeling a residential receptor and approximate the worker's inhalation exposure using an adjustment factor. The actual adjustment factor that is used to adjust the concentration may differ from the example below based on the specifics of the source and worker receptor

(e.g., work-shift overlap). Once the worker's inhalation concentration is determined, the inhalation dose is calculated using additional exposure frequency and duration adjustments. See Chapter 5 for more information on the inhalation dose equation.

4.12.2.1 Non-Continuous Sources

When modeling a non-continuously emitting source (e.g., operating for eight hours per day and five days per week), the modeled long-term average concentrations are based on 24 hours a day and seven days per week for the period of the meteorological data set. Even though the emitting source is modeled using a non-continuous emissions schedule, the long-term concentration is still based on 24 hours a day and seven days per week. Thus, this concentration includes the zero hours when the source was not operating. For the offsite worker inhalation risk, we want to determine the long-term concentration the worker is breathing during their work shift. Therefore, the long-term concentration needs to be adjusted so it is based only on the hours when the worker is present. For example, assuming the emitting source and worker's schedules are the same, the adjustment factor is 4.2 = (24 hours per day/8 hours per shift)x(7 days in a week/5 days in a work week). In this example, the long term residential exposure is adjusted upward to represent the exposure to a worker. Additional concentration adjustments may be appropriate depending on the work shift overlap. These adjustments are discussed below.

The calculation of the adjustment factor from a non-continuous emitting source is summarized in the following steps.

a. Obtain the long-term concentrations from air dispersion modeling as is typical for residential receptors (all hours of a year for the entire period of the meteorological data set).

b. Determine the coincident hours per day and days per week between the source's emission schedule and the offsite worker's schedule.

c. Calculate the worker adjustment factor (WAF) using Equation 4.1. When assessing inhalation cancer health impacts, a discount factor (*DF*) may also be applied if the offsite worker's schedule partially overlaps with the source's emission schedule. The discount factor is based on the number of coincident hours per day and days per week between the source's emission schedule and the offsite worker's schedule (see Equation 4.2). The DF is always less than or equal to one.

Please note that worker adjustment factor does not apply if the source's emission schedule and the offsite worker's schedule do not overlap. Since the worker is not present during the time that the source is emitting, the worker is not exposed to the source's emission (i.e., the DF in Equation 4.2 becomes 0).

$$WAF = \frac{H_{residentid}}{H_{source}} \times \frac{D_{residentid}}{D_{source}} \times DF \qquad \text{Eq. 4.1}$$

Where:
WAF = the worker adjustment factor
$H_{residential}$= the number of hours per day the long-term residential concentration is based on (always 24 hours)
H_{source} = the number of hours the source operates per day
$D_{residential}$ = the number of days per week the long-term residential concentration is based on (always 7 days)
D_{source}= the number of days the source operates per week
DF = a discount factor for when the offsite worker's schedule partially overlaps the source's emission schedule. Use 1 if the offsite worker's schedule occurs within the source's emission schedule. If the offsite worker's schedule partially overlaps with the source's emission schedule, then calculate the discount factor using Equation 4.2 below.

$$DF = \frac{H_{coincident}}{H_{worker}} \times \frac{D_{coincident}}{D_{worker}} \qquad \text{Eq. 4.2}$$

Where:
DF = the discount factor for assessing cancer impacts
$H_{coincident}$ = the number of hours per day the offsite worker's schedule and the source's emission schedule overlap
$D_{coincident}$= the number of days per week the offsite worker's schedule and the source's emission schedule overlap
H_{worker} = the number of hours the offsite worker works per day
D_{worker}= the number of days the offsite worker works per week

d. The final step is to estimate the offsite worker's inhalation concentration by multiplying the worker adjustment factor with the long-term residential concentration. The worker's concentration is then plugged into the dose equation and risk calculation.

The HARP software has the ability to calculate worker impacts using an approximation factor and, in the future, it will have the ability to post-process refined worker concentrations using the hourly raw results from an air dispersion analysis.

4.12.2.2 Continuous Sources

If the source is continuously emitting, then the worker is assumed to breathe the long-term annual average concentration during their work shift. Equation 4.1 becomes one and no concentration adjustments are necessary in this situation when estimating the inhalation cancer risk. Note however, if an assessor does not wish to apply the assumption the worker breathes the long-term annual average concentration during the work shift, then a refined concentration can be post-processed as described in Appendix M. All alternative assumptions should be approved by the reviewing authority and supported in the presentation of results.

4.12.3 *Modeling and Adjustments for Noncancer 8-Hour RELs*

For 8-hour noncancer health impacts, we evaluate if the receptor (e.g., worker or resident) is exposed to an 8 hour average concentration, occurring daily, that exceeds the 8-hour REL. The 8 hour RELs were derived primarily for the offsite worker scenario. Although not required in an HRA, residential receptors can be evaluated with an 8-hour

REL at the discretion of the District or Reviewing authority. For ease, we use a worker receptor in this discussion and in the discussion below for a non-continuously emitting source. The daily average concentration is intended to represent the long-term average concentration the worker is breathing during the work shift. In general, there are two approaches for estimating the concentration used for the 8-hour hazard index. The more refined, complex, and time consuming approach is to post-process the hourly dispersion model output and use only the hourly concentrations that are coincident with the offsite worker hours to obtain the long-term concentration. See Appendix M for information on how to simulate the daily average concentration through air dispersion modeling.

Before proceeding through a refined analysis described in Appendix M, the assessor may wish to approximate the long-term concentration, as described below, and calculate the 8-hour hazard index. In lieu of post-processing the hourly dispersion model output described in Appendix M, the more typical approach is to obtain the long-term average concentration as you would for modeling a residential receptor and approximate the worker's inhalation concentration using an adjustment factor. The method for applying the adjustment factor is described in the section below.

The results from the 8-hour hazard index calculations should not be combined with the chronic or acute hazard indices. Each of the potential noncancer health impacts should be reported independently. See Chapter 8 for more discussion on calculating health impacts.

4.12.3.1 Non-Continuous Sources

When modeling a non-continuously emitting source (e.g., operating for eight hours per day and five days per week), the modeled long-term average concentrations are based on 24 hours a day and seven days per week for the period of the meteorological data set. Even though the emitting source is modeled using a non-continuous emissions schedule, the long-term concentration is still based on 24 hours a day and seven days per week. Thus, this concentration includes the zero hours when the source was not operating. For the offsite worker 8-hour hazard index, we want to determine the long-term average daily concentration the worker may be breathing during their work shift. This is similar to the cancer approximation adjustment method with one difference; there is no adjustment for partial overlap between the worker's schedule and the source's emission schedule. The reason for this difference in methodology is because the 8-hour REL health factors are designed for repeated 8-hour exposures and cannot readily be adjusted to other durations of exposure. The 8-hour RELs should be used for typical daily work shifts of 8-9 hours. For further questions, assessors should contact OEHHA, the District, or reviewing authority to determine if the 8-hour RELs should be used in your HRA. Any discussions or directions to exclude the 8-hour REL evaluation should be documented in the HRA.

When calculating the long-term average daily concentration for the 8-hour REL comparison, the long-term residential concentration needs to be adjusted so it is based only on the operating hours of the emitting source with the assumption the offsite

worker's shift falls within the emitting source's schedule. For example, assuming the emitting source operates 8 hours per day, 5 days per week and the offsite worker's schedules falls anywhere within this period of emissions, then the adjustment factor is 4.2 = (24 hours per day/8 hours of emissions per day)x(7 days in a week/5 days of emissions per week). In this example, the long term residential exposure is adjusted upward to represent the 8-hour exposure to a worker. No adjustments are applied for partial work shift overlap with the emitting source. If the source emits at night, then see Appendix N for additional recommendations.

Using the approximation factor is a screening method. If the 8-hour hazard index is above a threshold of concern with this method, the district or assessor should contact OEHHA for further guidance regarding the substance of concern. If necessary, further evaluation can be performed using the refined daily average modeling methodology discussed in Appendix M.

The calculation of the adjustment factor from a non-continuous emitting source is summarized in the following steps.

b. Obtain the long-term concentrations from air dispersion modeling as is typical for residential receptors (all hours of a year for the entire period of the meteorological data set).

c. Calculate the worker adjustment factor (WAF) using Equation 4.3. The source's emission schedule is assumed to overlap offsite worker's schedule. Note that the worker adjustment factor and the 8-hour inhalation REL do not apply if the source's emission schedule and the offsite worker's schedule do not overlap at some point.

$$WAF = \frac{H_{residentid}}{H_{source}} \times \frac{D_{residentid}}{D_{source}} \qquad \text{Eq. 4.3}$$

Where:

WAF = the worker adjustment factor
$H_{residential}$= the number of hours per day the long-term residential concentration is based on (always 24 hours)
H_{source} = the number of hours the source operates per day
$D_{residential}$ = the number of days per week the long-term residential concentration is based on (always 7 days).
D_{source}= the number of days the source operates per week.

d. The final step is to estimate the offsite worker's daily average inhalation concentration by multiplying the WAF with the long-term residential concentration. The worker's concentration is then used to calculate the 8-hour hazard index. This method using the approximation factor is a screening method. If the 8-hour hazard index is above a threshold of concern, the district or assessor should contact OEHHA for further guidance regarding the substance of concern.

In the future, the HARP software will have the ability to use 8-hour RELs, calculate worker impacts using an approximation factor, and to post-process worker concentrations using the hourly raw results from an air dispersion analysis.

4.12.3.2 Continuous Sources

If the source is continuously emitting, then the worker is assumed to breathe the long-term annual average concentration during their work shift and no concentration adjustments are made when estimating 8-hour health impacts. Note however, if an assessor does not wish to assume the worker breathes the long-term annual average concentration during the work shift, then a refined concentration can be post-processed as described in Appendix M. All alternative assumptions should be approved by the reviewing authority and supported in the presentation of results.

Note that 8-hour RELs are not typically used for continuously emitting sources for residential receptors. In this situation it is only necessary to estimate a chronic Hazard Index using the annual average concentrations and chronic RELs. However, there may be situations where the District may wish to assess an 8-hour Hazard Index, for example, where there are significant differences in modeled concentration of emissions during the day due to diurnal wind patterns.

4.12.4 *Modeling and Adjustment Factors for Noncancer Chronic RELs*

Potential chronic noncancer health impacts use the long-term annual average concentration regardless of the emitting facility's schedule. No adjustment factors should be used to adjust this concentration. Chronic RELs are used to assess not only residential health impacts, but in many cases worker health impacts as well. There are currently only a limited number of substances with an 8-hour inhalation REL, and a facility may emit only, or mostly, substances that currently have just a chronic REL. Until there are 8-hour RELs for all the Hot Spots substances emitted from a specified facility, we recommend determining the chronic HI for the MEIW to adequately protect the offsite worker.

The results from the chronic hazard index calculations are not combined with the 8-hour or acute hazard indices. All potential noncancer results should be reported independently. See Chapter 8 for more discussion on calculating health impacts.

4.12.5 *Modeling and Adjustments for Oral Cancer Potencies and Oral RELs*

When estimating the cancer risk or noncancer health impacts from noninhalation pathways, no adjustment is made to the long-term annual average concentration regardless of the emitting facility's schedule. Since the media (e.g., soil) at the receptor location where deposition takes place for noninhalation pathways is continuously present, the concentrations used for all noninhalation pathways are not adjusted (up or down) by an adjustment factor. However, some adjustments are made to the concentration once the pollutants reach the media, for example, pollutants undergo decay in soils. In addition, when the dose for each pathway is calculated, exposure adjustments may also be made. See Chapter 5 of this document and the Technical

Support Document for Exposure Assessment and Stochastic Analysis (OEHHA, 2012) to get more information on these types of adjustments. Oral cancer potencies and oral RELs are used to assess both residential or worker health impacts.

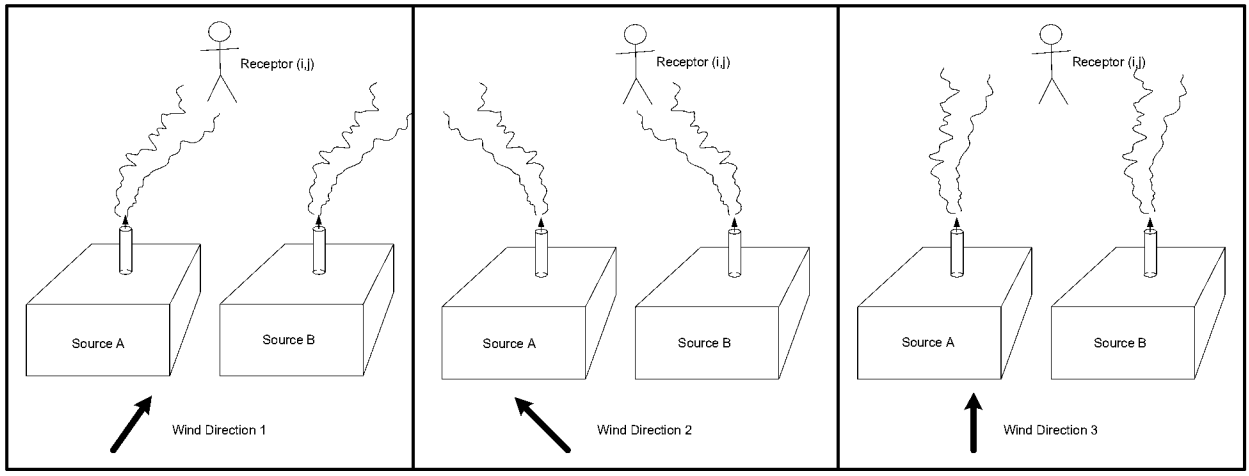
4.12.6 *Modeling One-Hour Concentrations using Simple and Refined Acute Calculations*

Modeled one-hour concentrations are needed for the acute health hazard index calculations. HARP has two methods to calculate this concentration: Simple and Refined. As an aid to understanding the differences between Simple and Refined, Figure 2 shows three possible conditions showing how wind direction may vary and impact a downwind receptor (i,j) differently from just two sources (A and B).

For the Simple calculation, HARP stores only the maximum one-hour concentration at each receptor (i,j) from each source (A and B) as the dispersion model marches down each hour of the simulation (e.g., one to five years of hourly data). At the end of the simulation period, HARP reports back only the maximum impacts at each receptor from each source regardless of which hour of the simulation period this occurred. For example, the Simple Maximum Acute Impacts would be the summation of Source A impacts from Wind Direction 1 and Source B impacts from Wind Direction 2 as shown in Figure 2.

For the Refined simulation, HARP stores each hourly concentration at each receptor (i,j) from each source. At the end of the simulation period, HARP evaluates the coincident impact at each receptor from all sources for each hour of the simulation period. In this case the maximum impacts will be identified by a particular hour of the period with associated wind speed, direction, and atmospheric conditions. For example, the Refined Maximum Acute impact from Sources A and B on receptor (i,j) could be from any wind direction (1,2, or 3) as shown in Figure 2. Since HARP stores all simulations for all sources – at all receptors – for all hours to calculate the refined impacts, there is great potential to fill large amounts of disk storage space. The Refined simulation provides a more representative picture of the maximum acute hazard index from a facility. The Simple calculation will provide an upper bound to the acute hazard index.

Figure 2 Acute Scenarios



4.13 Modeling Special Cases; Specialized Models

Special situations arise in modeling some sources that require considerable professional judgment; a few are outlined below. It is recommended that the reader consider retaining professional consultation services if the procedures are unfamiliar. The following sections, taken mostly from the document "On-Site Meteorological Program Guidance for Regulatory Modeling Applications" (U.S. EPA, 1995e), provide general information on data formats and representativeness. Some Districts may have slightly different recommendations from those given here.

4.13.1 *Building Downwash*

The entrainment of a plume in the wake of a building can result in the "downwash" of the plume to the ground. This effect can increase the maximum ground-level concentration downwind of the source. Therefore, stack sources must be evaluated to determine whether building downwash is a factor in the calculation of maximum ground-level concentrations.

The PRIME algorithm, included with AERMOD, has several advances in modeling building downwash effects including enhanced dispersion in the wake, reduced plume rise due to streamline deflection and increased turbulence, and continuous treatment of the near and far wakes (Schulman, 2000).

Complicated situations involving more than one building may necessitate the use of the Building Profile Input Program (BPIP) which can be used to generate the building dimension section of the input file of the ISC models (U.S. EPA, 1993). The BPIP program calculates each building's direction-specific projected width. The Building Profile Input Program for PRIME (BPIPPRM) is the same as BPIP but includes an algorithm for calculating downwash values for input into the PRIME algorithm which is contained in such models as AERMOD. The input structure of BPIPPRM is the same as that of BPIP.

4.13.2 *Deposition*

There are two types of deposition: wet deposition and dry deposition. Wet deposition is the incorporation of gases and particles into rain-, fog- or cloud water followed by a precipitation event and also rain scavenging of particles during a precipitation event. Wet deposition of gases is therefore more important for water soluble chemicals; particles (and hence particle-phase chemicals) are efficiently removed by precipitation events (Bidleman, 1988). Dry deposition refers to the removal of gases and particles from the atmosphere.

In the Air Toxics "Hot Spots" program, deposition is quantified for particle-bound pollutants and not gases. Wet deposition of water-soluble gas phase chemicals is thus not considered. When calculating pollutant mass deposited to surfaces without including depletion of pollutant mass from the plume, airborne concentrations remaining in the plume and deposition to surfaces can be overestimated, thereby resulting in overestimates of both the inhalation and multi-pathway risk estimates. However, neglecting deposition in the air dispersion model, while accounting for it in the multipathway health risk assessment, is a conservative, health protective approach (CAPCOA, 1987; Croes, 1988). Misapplication of plume depletion can also lead to possible underestimates of multi-pathway risk and for that reason no depletion is the default assumption. If plume depletion is incorporated, then some consideration for possible resuspension is warranted. An alternative modeling methodology accounting for plume depletion can be discussed with the Air District and used in an approved modeling protocol.

Although not generally used, several air dispersion models can provide downwind concentration estimates that take into account the upwind deposition of pollutants to surfaces and the consequential reduction of mass remaining in the plume. Air dispersion models having deposition and plume depletion algorithms require particle distribution data that are not always readily available. These variables include particle size, mass fraction, and density for input to AERMOD. In addition, the meteorological fields need to include additional parameters including relative humidity, precipitation, cloud cover, and surface pressure. Consequently, depletion of pollutant mass from the plume often is not taken into account.

In conclusion, multipathway risk assessment analyses normally incorporate deposition to surfaces in a screening mode, specifically by assigning a default deposition velocity of 2 cm/s for controlled sources and 5 cm/s for uncontrolled sources in lieu of actual measured size distributions (ARB, 1989). For particles (and particle-phase chemicals), the deposition velocity depends on particle size and is minimal for particles of diameter approximately 0.1-1 micrometer; smaller and larger particles are removed more rapidly.

4.13.3 *Short Duration Emissions*

Short-duration emissions (i.e., much less than an hour) require special consideration. In general, "puff models" provide a better characterization of the dispersion of pollutants having short-duration emissions. Continuous Gaussian plume models have traditionally

been used for averaging periods as short as about 10 minutes and are not recommended for modeling sources having shorter continuous emission duration.

4.13.4 *Fumigation*

Fumigation occurs when a plume that was originally emitted into a stable layer in the atmosphere is mixed rapidly to ground-level when unstable air below the plume reaches plume level. Fumigation can cause very high ground-level concentrations. Typical situations in which fumigation occurs are:

- Breaking up of a nocturnal radiation inversion by solar warming of the ground surface (rising warm unstable air); note that the break-up of a nocturnal radiation inversion is a short-lived event and should be modeled accordingly.
- Shoreline fumigation caused by advection of pollutants from a stable marine environment to an unstable inland environment
- Advection of pollutants from a stable rural environment to a turbulent urban environment

SCREEN3 incorporates concentrations due to inversion break-up and shoreline fumigation and is limited to maximum hourly evaluations. The Offshore and Coastal Dispersion Model incorporates overwater plume transport and dispersion as well as changes that occur as the plume crosses the shoreline – hourly meteorological data are needed from both offshore and onshore locations.

4.13.5 *Raincap on Stack*

The presence of a raincap or any obstacle at the top of the stack hinders the momentum of the exiting gas. The extent of the effect is a function of the distance from the stack exit to the obstruction and of the dimensions and shape of the obstruction.

On the conservative side, the stack could be modeled as having a non-zero, but negligible exiting velocity, effectively eliminating any momentum rise. Such an approach would result in final plume heights closer to the ground and therefore higher concentrations nearby. There are situations where such a procedure might lower the actual population-dose and a comparison with and without reduced exit velocity should be examined.

Plume buoyancy is not strongly reduced by the occurrence of a raincap. Therefore, if the plume rise is dominated by buoyancy, it is not necessary to adjust the stack conditions. (The air dispersion models determine plume rise by either buoyancy or momentum, whichever is greater.)

The stack conditions should be modified when the plume rise is dominated by momentum and in the presence of a raincap or a horizontal stack. Sensitivity studies with the SCREEN3 model, on a case-by-case basis, can be used to determine whether

plume rise is dominated by buoyancy or momentum. The District should be consulted before applying these procedures.

- Set exit velocity to 0.001 m/sec
- Turn stack tip downwash off
- Reduce stack height by 3 times the stack diameter

Stack tip downwash is a function of stack diameter, exit velocity, and wind speed. The maximum stack tip downwash is limited to three times the stack diameter in the AERMOD air dispersion model. In the event of a horizontal stack, stack tip downwash should be turned off and no stack height adjustments should be made. Note: This approach may not be valid for large (several meter) diameter stacks.

An alternative, more refined, approach could be considered for stack gas temperatures which are slightly above ambient (e.g., ten to twenty degrees Fahrenheit above ambient). In this approach, the buoyancy and the volume of the plume remain constant and the momentum is minimized.

- Turn stack tip downwash off
- Reduce stack height by 3 times the stack diameter ($3D_o$)
- Set the stack diameter (D_b) to a large value (e.g., 10 meters)
- Set the stack velocity to $V_b = V_o (D_o/D_b)^2$

Where V_o and D_o are the original stack velocity and diameter and V_b and D_b are the alternative stack velocity and diameter for constant buoyancy. This approach is advantageous when $D_b >> D_o$ and $V_b << V_o$ and should only be used with District approval.

In the presence of building downwash and in the event that PRIME downwash is being utilized in AERMOD, an alternative approach is recommended. PRIME algorithms use the stack diameter to define initial plume radius and to solve conservation laws. The user should input the actual stack diameter and exit temperature but set the exit velocity to a nominally low value (e.g., 0.001 m/s). Also since PRIME does not explicitly consider stack-tip downwash, no adjustments to stack height should be made.

Currently U.S. EPA is BETA testing options for capped and horizontal releases in AERMOD. It is expected that these options will replace the above guidance when BETA testing is complete.

4.13.6 *Landfill Sites*

Landfills should be modeled as area sources. The possibility of non-uniform emission rates throughout the landfill area should be investigated. A potential cause of non-uniform emission rates would be the existence of cracks or fissures in the landfill cap (where emissions may be much larger). If non-uniform emissions exist, the landfill should be modeled with several smaller areas assigning an appropriate emission factor to each one of them, especially if there are nearby receptors (distances on the same order as the dimensions of the landfill).

4.14 Specialized Models

Some models have been developed for application to very specific conditions. Examples include models capable of simulating sources where both land and water surfaces affect the dispersion of pollutants and models designed to simulate emissions from specific industries.

4.14.1 *Buoyant Line and Point Source Dispersion Model (BLP)*

BLP is a Gaussian plume dispersion model designed for the unique modeling problems associated with aluminum reduction plants, and other industrial sources where plume rise and downwash effects from stationary line sources are important.

4.14.1.1 Regulatory Application

Regulatory application of BLP model requires the selection of the following options:

- rural (IRU=I) mixing height option;
- default (no selection) for all of the following: plume rise wind shear (LSHEAR), transitional point source plume rise (LTRANS), vertical potential temperature gradient (DTHTA), vertical wind speed power law profile exponents (PEXP), maximum variation in number of stability classes per hour (IDELS), pollutant decay (DECFAC), the constant in Briggs' stable plume rise equation (CONST2), constant in Briggs' neutral plume rise equation (CONST3), convergence criterion for the line source calculations (CRIT), and maximum iterations allowed for line source calculations (MAXIT); and
- terrain option (TERAN) set equal to 0.0, 0.0, 0.0, 0.0, 0.0, 0.0.

For more information on the BLP model consult the user's guide (Schulman and Scire, 1980).

4.14.2 *Offshore and Coastal Dispersion Model (OCD)*

OCD (DiCristofaro and Hanna, 1989) is a straight-line Gaussian model developed to determine the impact of offshore emissions from point, area or line sources on the air quality of coastal regions. OCD incorporates "over-water" plume transport and dispersion as well as changes that occur as the plume crosses the shoreline. Hourly meteorological data are needed from both offshore and onshore locations. Additional data needed for OCD are water surface temperature, over-water air temperature, mixing height, and relative humidity.

Some of the key features include platform building downwash, partial plume penetration into elevated inversions, direct use of turbulence intensities for plume dispersion, interaction with the overland internal boundary layer, and continuous shoreline fumigation.

4.14.2.1 Regulatory Application

OCD has been recommended for use by the Minerals Management Service for emissions located on the Outer Continental Shelf (50 FR 12248; 28 March 1985). OCD is applicable for over-water sources where onshore receptors are below the lowest source height. Where onshore receptors are above the lowest source height, offshore plume transport and dispersion may be modeled on a case-by-case basis in consultation with the District.

4.14.3 *Shoreline Dispersion Model (SDM)*

SDM (PEI, 1988) is a hybrid multipoint Gaussian dispersion model that calculates source impact for those hours during the year when fumigation events are expected using a special fumigation algorithm and the MPTER regulatory model for the remaining hours.

SDM may be used on a case-by-case basis for the following applications:

- tall stationary point sources located at a shoreline of any large body of water;
- rural or urban areas;
- flat terrain;
- transport distances less than 50 km;
- 1-hour to 1-year averaging times.

4.15 Interaction with the District

The risk assessor must contact the District to determine if there are any specific requirements. Examples of such requirements may include, but are not limited to: specific receptor location guidance, specific usage of meteorological data, and specific report format (input and output). See Chapter 9 for more information on the format and content of modeling protocols and HRAs.

4.15.1 *Submittal of Modeling Protocol*

It is strongly recommended that a modeling protocol be submitted to the District for review and approval prior to extensive analysis with an air dispersion model. The modeling protocol is a plan of the steps to be taken during the air dispersion modeling process. Following is an example of the format that may be followed in the preparation of the modeling protocol. **Consult with the District to confirm format and content requirements or to determine the availability of District modeling guidelines before submitting the protocol.**

Outline for a Modeling Protocol

I. Introduction

Include the facility name, address, and a brief overview describing the facility's operations.

- Provide a description of the terrain and topography surrounding the facility and potential receptors.

- Indicate the format in which data will be provided. Ideally, the report and summary of data will be on paper and all data and model input and output files will be provided electronically (e.g., compact disk or CD).

- Identify the guidelines used to prepare the protocol (e.g., District Guidelines).

II. Emissions

For each pollutant and process whose emissions are required to be quantified in the HRA, list the annual average emissions (pounds/year and grams/second) and the maximum one-hour emissions (pounds/hour and grams/second)[2]. Maximum 1-hour emissions are used for acute noncancer health impacts while annual emissions are used for chronic exposures (i.e., chronic and 8-hour noncancer health impacts or cancer risk assessment).

- Identify the reference and method(s) used to determine emissions (e.g., source tests, emission factors, etc.). Clearly indicate any emission data that are not reflected in the previously submitted emission inventory report. In this event, a revised emission inventory report will need to be submitted to the District.

- Identify if this will be a multipathway assessment based on emitted substances.

III. Models / Modeling Assumptions

Specify the model and modeling assumptions

- Identify the model(s) to be used, including the version number.

- Identify the model options that will be used in the analysis.

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[2] Except radionuclides, for which annual and hourly emissions are reported in Curies/year and millicuries/hour, respectively.

- Identify the modeling domain(s) and the spacing of receptor grid(s). Grid spacing should be sufficient in number and detail to capture the concentration at all of the receptors of interest.

- Indicate complex terrain options that may be used, if applicable.

- Identify the source type(s) that will be used to represent the facility's operations (e.g., point, area, or volume sources, flare options or other).

- Indicate the preliminary source characteristics (e.g., stack height, gas temperature, exit velocity, dimensions of volume source, etc.).

- Identify and support the use of urban or rural dispersion coefficients for those models that require dispersion coefficients. For other models, identify and support the parameters required to characterize the atmospheric dispersion due to land characteristics (e.g., surface roughness, Monin-Obukhov length).

IV. Meteorological Data

Specify the type, source, and year(s) of hourly meteorological data (e.g., hourly surface data, upper air mixing height information).

- State how the data are representative for the facility site.

- Describe QA/QC procedures.

- Identify any gaps in the data; if gaps exist, describe how the data gaps are filled.

V. Deposition

- Specify the method to calculate deposition (if applicable).

VI. Receptors

Specify the type and location of receptors. Include all relevant information describing how the individual and population-related receptors will be evaluated.

- Identify and describe the location(s) of known or anticipated potential sensitive receptors, the point of maximum impact (PMI), and the maximum exposed individual residential (MEIR) and worker (MEIW) receptors. Identify any special considerations or grids that will be used to model these receptors. This information should correspond with information provided in Section III (e.g., fine receptor spacing of 20 meters at the fence line and centered on the maximum impacts; coarse receptor spacing of 100 meters out to 2,000 meters; extra coarse spacing of 1,000 meters out to 20,000 meters).

- Identify if spatial averaging will be used. Include necessary background information on each receptor including how the domain and spacing will be determined for each receptor or exposure pathway.

- Describe how the cancer burden or population impact estimates are calculated. Clarify the same information for the presentation of noncancer population impacts (e.g., centroids of the census tracts in the area within the zone of impact).

- Specify that actual UTM coordinates and the block/street locations (i.e., north side of 3,000 block of Smith Street), where possible, will be provided for specified receptor locations.

- Identify and support the use of any exposure adjustments (e.g., time a location, diurnal).

- Include the list of anticipated exposure pathways that will be included and indicate which substance will be evaluated in the multipathway assessment. Identify if sensitive receptors are present and which receptors will be evaluated in the HRA.

VII. Maps

Identify how the information will be graphically presented.

- Indicate which cancer risk isopleths will be plotted for the cancer zone of impact (e.g., 10^{-7}, 10^{-6} see Section 4.6.1).

- Indicate the hazard quotients or hazard indices to be plotted for the noncancer acute, 8 hour, and chronic zones of impact (e.g., 0.5, 1.0, etc.).

4.16 Health Risk Assessment Report

This section describes the information related to the air dispersion modeling process that needs to be reported in the risk assessment. This section is also presented in Chapter 9, Summary of the Requirements for a Modeling Protocol and a Health Risk Assessment Report, in Section 9.2. The District may have specific requirements regarding format and content (see Section 4.15). Sample calculations should be provided at each step to indicate how reported emissions data were used. Reviewing agencies must receive input, output, and supporting files of various model analyses on computer-readable media (e.g., CD).

4.16.1 *Information on the Facility and its Surroundings*

Report the following information regarding the facility and its surroundings:

- Facility Name

- Location (UTM coordinates and street address)
- Land use type (see Section 2.4)
- Local topography
- Facility plot plan identifying:
  - source locations
  - property line
  - horizontal scale
  - building heights
  - emission sources

4.16.2 *Source and Emission Inventory Information*[3]

4.16.2.1 Release Parameters

Report the following information for each release location in table format:

- Release location identification number
- Release name
- Release type (e.g., point, volume, area, line, pit, etc.)
- Source identification number(s) used by the facility that emit out of this release location
- Release location using UTM coordinates
- Release parameters by release type (e.g., shown for point source):
  - Stack height (m), stack diameter (building dimensions for downwash), exhaust gas exit velocity (m/s), exhaust gas volumetric flow rate (ACFM), exhaust gas exit temperature (K), etc.

4.16.2.2 Source Description and Operating Schedule

The description and operating schedule for each source should be reported in table form including the following information:

- Source identification number used by the facility
- Source name
- Number of operating hours per day and per year (e.g., 0800-1700, 2700 hr/yr)
- Number of operating days per week (e.g., Mon-Sat)
- Number of operating days or weeks per year (e.g., 52 wk/yr excluding major holidays)
- Release point identification number(s) for where source emissions are released

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[3] Health and Safety Code section 44346 authorizes facility operators to designate certain "Hot Spots" information as trade secret. Section 44361(a) requires districts to make health risk assessments available for public review upon request. Section 44346 specifies procedures to be followed upon receipt of a request for the release of trade secret information. See also the Inventory Guidelines Report regarding the designation of trade secret information in the Inventory Reports.

- Fraction of source emissions emitted at each release point by release point ID number

4.16.2.3 Emission Control Equipment and Efficiency

Report emission control equipment and efficiency by source and by substance

4.16.2.4 Emissions Data Grouped By Source

Report emission rates for each toxic substance, grouped by source (i.e., emitting device or process identified in Inventory Report), in table form including the following information:

- Source name
- Source identification number
- Substance name and CAS number (from Inventory Guidelines)
- Annual average emissions for each substance (lb/yr)
- Hourly maximum emissions for each substance (lb/hr)

4.16.2.5 Emissions Data Grouped by Substance

Report facility total emission rate by substance for all emitted substances listed in the Air Toxics "Hot Spots" Program including the following information:

- Substance name and CAS number (from Inventory Guidelines)
- Annual average emissions for each substance (lb/yr)
- Hourly maximum emissions for each substance (lb/hr)

4.16.2.6 Emission Estimation Methods

Report the methods used in obtaining the emissions data indicating whether emissions were measured or estimated. Clearly indicate any emission data that are not reflected in the previously submitted emission inventory report and submit a revised emission inventory report to the district. A reader should be able to reproduce the risk assessment without the need for clarification.

4.16.2.7 List of Substances

Include tables listing all "Hot Spots" Program substances which are emitted, plus any other substances required by the District. Indicate substances to be evaluated for cancer risks and noncancer health impacts.

4.16.3 *Exposed Population and Receptor Location*

Report the following information regarding exposed population and receptor locations. See Chapter 9 and specific sections within this chapter for more detailed information.

- Description of zone of impact including map showing the location of the facility, boundaries of zone of impact, census tracts, emission sources, sites of maximum exposure, and the location of all appropriate receptors. This should be a true map (one that shows roads, structures, etc.), drawn to scale, and not just a schematic drawing. USGS 7.5 minute maps or GIS based maps are usually the most appropriate choices. (If significant development has occurred since the user's survey, this should be indicated.)
- Separate maps for the cancer risk zone of impact and the hazard index (noncancer) zone of impact(s). The cancer zone of impact should include isopleths down to at least the 1/1,000,000 risk level. Because some districts use a level below 1/1,000,000 to define the zone of impact, the District should be consulted. Three separate maps (to represent both chronic, 8-hour, and acute HI) should be created to define the zone of impact for the hazard index from both inhalation and noninhalation pathways greater than or equal to 0.5. The point of maximum impact (PMI), maximum exposed individual at a residential receptor (MEIR), the maximum exposed individual worker (MEIW), and any other locations of interest for both cancer and noncancer risks should be located on the maps.
- Tables identifying population units and sensitive receptors (UTM coordinates, receptor IDs, and street addresses of specified receptors).
- Heights or elevations of the receptor points.
- For each receptor type (e.g., PMI, MEIR, MEIW, and any other location(s) of interest) that will utilize spatial averaging, the domain size and grid resolution must be clearly identified. If another domain or grid resolution other than 20 meters by 20 meters with 5-meter grid spacing will be used for a receptor, then care should be taken to determine the proper domain size and grid resolution that should be used. For a worker, the HRA shall support all assumptions used, including, but not limited to, documentation for all workers showing the area where each worker routinely performs their duties. The final domain size should not be greater than the smallest area of worker movement. Other considerations for determining domain size and grid spacing resolution may include an evaluation of the concentration gradients across the worker area. The grid spacing used within the domain should be sufficient in number and detail to obtain a representative concentration across the area of interest. When spatial averaging over the deposition area of a pasture, garden, or water body, care should be taken to determine the proper domain size to make sure it includes all reasonable areas of potential deposition. The size and shape of the pasture, garden, or water body of interest should be identified and used for the modeling domain. The grid spacing or resolution used within the domain should be sufficient in detail to obtain a representative deposition concentration across the area of interest. One way to determine the grid resolution is to include an evaluation of the concentration gradients across the deposition area. The HRA shall support all assumptions used, including, but not limited to, documentation of the deposition area (e.g., size and shape of the pasture or water body, maps,

representative coordinates, grid resolution, concentration gradients, etc.). The use or spatial averaging is subject to approval by the reviewing authority. This includes the size of the domain and grid resolution that is used for spatial averaging of a worksite or multipathway deposition area.

4.16.4 *Meteorological Data*

If meteorological data were not obtained directly from the District, then the report must clearly indicate the data source and time period used. Meteorological data not obtained from the District must be submitted in electronic form along with justification for their use including information regarding representativeness and quality assurance.

The risk assessment should indicate if the District required the use of a specified meteorological data set. All memos indicating the District's approval of meteorological data should be attached in an appendix.

4.16.5 *Model Selection and Modeling Rationale*

The report should include an explanation of the model chosen to perform the analysis and any other decisions made during the modeling process. The report should clearly indicate the name of the models that were used, the level of detail (screening or refined analysis) and the rationale behind the selection.

Also report the following information for each air dispersion model used:

- version number
- selected options and parameters in table form
- Identify the modeling domain(s) and the spacing of receptor grid(s). Grid spacing should be sufficient in number and detail to capture the concentration at all receptors of interest.

4.16.6 *Air Dispersion Modeling Results*

- Maximum hourly and annual average concentrations of chemicals at appropriate receptors such as the residential and worker MEI receptors
- Annual average and maximum one-hour (and 30-day average for lead only) concentrations of chemicals at appropriate receptors listed and referenced to computer printouts of model outputs
- Model printouts (numbered), annual concentrations, maximum hourly concentrations
- Disk with input/output files for air dispersion program (e.g., the AERMOD input file containing the regulatory options and emission parameters, receptor locations, meteorology, etc.)
- Include tables that summarize the annual average concentrations that are calculated for all the substances at each site. The use of tables that present the relative contribution of each emission point to the receptor concentration is recommended. (These tables should have clear reference to the computer

model which generated the data. It should be made clear to any reader how data from the computer output were transferred to these tables.) [As an alternative, the above two tables could contain just the values for sites of maximum impact (i.e., PMI, MEIR and MEIW), and sensitive receptors, if required. All the values would be found in the Appendices.]

4.17 References

Auer Jr., A.H. (1978). Correlation of land use and cover with meteorological anomalies. Journal of Applied Meteorology, 17(5):636-643.

ARB (1994). ARB memorandum dated 4/11/94 from A. Ranzieri to J. Brooks on the subject, "One-hour to Thirty-day Average Screening Factor."

ARB (1989). "Screening Deposition Velocities," Internal memorandum from A. Ranzieri to G. Shiroma dated 8/17/89.

Bidleman, T.F. (1988). Atmospheric processes. Environmental Science & Technology, 22(4):361-367.

Bjorklund, J.R. and J.F. Bowers (1982). User's Instructions for the SHORTZ and LONGZ Computer Programs, Volumes I and II. EPA-903/9-82-004A and B. U.S. Environmental Protection Agency. Philadelphia, PA.

Burt, E.W. (1977). Valley Model User's Guide. EPA-450/2-77-018. U.S. Environmental Protection Agency, Research Triangle Park, NC.

CAPCOA (1987). "Deposition Rate Calculations for Air Toxics Source Assessments," in Air Toxics Assessment Manual, Appendix C.7.

Catalano, J.A., D.B. Turner and H. Novak (1987). User's Guide for RAM - Second Edition. U.S. Environmental Protection Agency. Research Triangle Park, NC. (Distributed as part of UNAMAP Version 6 Documentation)

Chico, T. and J. A. Catalano (1986). Addendum to the User's Guide for MPTER. U. S. Environmental Protection Agency. Research Triangle Park, NC.

Croes, B. (1988). "Deposition Rate Calculations for Air Toxic Risk Assessments in California," Proceedings of the 81st Annual Meeting of the Air Pollution Control Association, Dallas, TX, June 20-24, 1988.

DiCristofaro, D. C. and S. R. Hanna (1989). OCD: The Offshore and Coastal Dispersion Model, Version 4. Volume I: User's Guide, and Volume II: Appendices. Sigma Research Corporation, Westford, MA. (NTIS Nos. PB 93-144384 and PB 93-144392)

Irwin, J.S. (1978). Proposed Criteria for Selection of Urban Versus Rural Dispersion Coefficients. (Draft Staff Report). Meteorology and Assessment Division. U.S. Environmental Protection Agency, Research Triangle Park, NC. (Docket No. A-80-46, II-B-8).

OEHHA (2012). Air Toxics Hot Spots Program Risk Assessment Guidelines; Technical Support Document for Exposure Assessment and Stochastic Analysis. Available online at http://www.oehha.ca.gov

PEI Associates (1988). User's Guide to SDM - A Shoreline Dispersion Model. U.S. EPA Publication No. EPA-450/4-88-017. U.S. Environmental Protection Agency, Research Triangle Park, NC.

Perry, S.G., D.J. Burns, A.J. Cimorelli (1990). User's Guide to CTDMPLUS: Volume 2. The Screening Mode (CTSCREEN). EPA-600/8-90-087. Office of Research and Development, U.S. Environmental Protection Agency, Research Triangle Park, NC.

Pierce, T.E., D.B. Turner, J.A. Catalano, and F.V. Hale (1982). PTPLU - A Single Source Gaussian Dispersion Algorithm User's Guide. EPA-600-/8-82-014. U.S. Environmental Protection Agency, Research Triangle Park, NC.

Pierce, T.E. (1986). Addendum to PTPLU - A Single Source Gaussian Dispersion Algorithm. EPA/600/8-86-042. U.S. Environmental Protection Agency, Research Triangle Park, NC.

Schulman, L.L., and J.S. Scire (I980). Buoyant Line and Point Source (BLP) Dispersion Model User's Guide. Document P-7304B. Environmental Research and Technology, Inc., Concord, MA. (NTIS No. PB 8I-I64642)

Schulman, L.L., Strimaitis, D. G., and Scire, J. S. (2000). Development and evaluation of the PRIME plume rise and building downwash model. Journal of the Air and Waste Management Association, 50:378-390,.

Tikvart, J. (1993). "Proposal for Calculating Plume Rise for Stacks with Horizontal Releases or Rain Caps for Cookson Pigment, Newark, New Jersey," Internal memorandum from J. Tikvart to K. Eng dated 7/9/93.

Turner, D. and J.H. Novak (1978). User's Guide for RAM. Vol. 1. Algorithm Description and Use, Vol. II. Data Preparation and Listings. EPA-600/8-78-016a and b. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (1984a). Calms Processor (CALMPRO) User's Guide. EPA-901/9-84-001. U.S. Environmental Protection Agency, Region I, Boston, MA.

U.S. EPA (1984b). Interim Procedures for Evaluating Air Quality Models (Revised). EPA-450/4-84-023. U.S. Environmental Protection Agency, Research Triangle Park, NC. (NTIS No. PB 85-106060)

U.S. EPA (1985a). Interim Procedures for Evaluating Air Quality Models: Experience with Implementation. U.S. EPA Publication No. EPA-450/4-85-006. U.S. Environmental Protection Agency, Research Triangle Park, NC. (NTIS No. PB 85-242477)

U.S. EPA (1985b). Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) - Revised EPA-450/4-80-023R, U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (1992). Protocol for Determining the Best Performing Model. U.S. EPA Publication No. EPA-454/R-92-025. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (1993). User's Guide to the Building Profile Input Program (BPIP). Revised February, 1995. EPA-454/R-93-038. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (1995a). Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised. EPA-450/R-92-019. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (1995b). User's Guide for the Industrial Source Complex (ISC) Dispersion Models. Volume I: User Instructions. EPA-454/B-95-003a. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (1995c). User's Guide for the Industrial Source Complex (ISC) Dispersion Models. Volume II: User Instructions. EPA-454/B-95-003a. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (1995d). SCREEN3 Model User's Guide. EPA-454/B-95-004. U.S. Environmental Protection Agency. Research Triangle Park, NC.

U.S. EPA (1995e). On-Site Meteorological Program Guidance For Regulatory Modeling Applications. EPA-450/4-87-013. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (2004a). User's Guide for the AMS/EPA Regulatory Model - AERMOD. EPA-454/B-03-001. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (2004b). AERMOD: Description of Model Formulation. EPA-454/R-03-004. U.S. Environmental Protection Agency, Research Triangle Park, NC.

U.S. EPA (2005). Federal Register / Volume 70, Number 216 / November 9, 2005 / Rules and Regulations, 40 CFR Part 51 Appendix W, Revision to the Guideline on Air Quality Models, U.S. Environmental Protection Agency.

U.S. EPA (2009). AERMOD Implementation Guide. Last Revised: March 19, 2009. AERMOD Implementation Workgroup, U. S. Environmental Protection Agency. Online at: http://www.epa.gov/ttn/scram/7thconf/aermod/aermod_implmtn_guide_19March2009.pdf

U.S. EPA (2011). AERSCREEN User's Guide. EPA-454/B-11-001. U.S. Environmental Protection Agency, Research Triangle Park, NC.

5 - Exposure Assessment Estimation of Concentration and Dose

5.1 Introduction

This chapter provides a summary of how toxicant ground level air concentrations estimated from air dispersion modeling or monitoring results are used to determine dose at receptors of interest. This chapter includes all the algorithms and data (e.g., point estimates, distributions, and transfer factors) that are needed to determine the substance-specific concentration in exposure media and the dose at a receptor of interest. The determination of exposure concentration and dose precedes the calculations of potential health impacts. See Chapter 8 and Appendix I for information on calculating potential health impacts.

At a minimum, three receptors are evaluated in Hot Spots health risk assessments (HRA) (see Section 4.7); these are:

- the Point of Maximum Impact (PMI),
- the Maximally Exposed Individual Resident (MEIR), and
- the Maximally Exposed Individual Worker (MEIW).

The PMI is defined as the receptor point(s) with the highest acute, 8-hour, chronic, or cancer health impact outside the facility boundary. The facility boundary is defined as the property line. Often the fence is on the property line. The MEIR is typically defined as the existing off-site residence(s) (i.e., house, apartment or other dwelling) with the highest acute, chronic, or cancer health impact. Calculating an 8-hour hazard index is not required for the MEIR, but can be performed at the discretion of the District. The MEIW is typically defined as the existing offsite workplace with the highest acute, 8-hour, chronic, or cancer health impact.

In addition, it may be necessary to determine risks at sensitive receptors (e.g., schools, day care centers, elder care centers, and hospitals). The District or reviewing authority should be consulted in order to determine the appropriate sensitive receptors for evaluation. Some situations may require that on-site receptor (worker or residential) locations be evaluated. Some examples where the health impacts of on-site receptors may be appropriate could be military base housing, prisons, universities, or locations where the public may have regular access for the appropriate exposure period (e.g., a lunch time café or museum for acute exposures). The risk assessor should contact the Air Pollution Control or Air Quality Management District (the District) for guidance about any on-site exposure situations at the emitting facility. These on-site locations should be included in the health risk assessment (HRA). If the facility emits multiple substances from two or more stacks, the acute, 8-hour, chronic, and cancer health impacts at the PMI may be located at different physical locations. The MEIR or MEIW cancer, acute, 8-hour, and chronic receptors may also be at different locations.

The process for determining dose at the receptor location, and ultimately potential health impacts, will likely include air dispersion modeling, and, with less frequency, air monitoring data. Air dispersion modeling combines the facility emissions and release parameters and uses default or site-specific meteorological conditions to estimate downwind, ground-level concentrations at various (user-defined) receptor locations. Air dispersion modeling is described in Chapter 4 and is presented in detail in the *Air Toxics Hot Spots Program Risk Assessment Guidelines; Technical Support Document for Exposure Assessment and Stochastic Analysis (OEHHA, 2012a*).

In summary, the process of using air dispersion modeling results as the basis of an HRA follows these four steps:

- Air dispersion modeling is used to estimate annual average and maximum one-hour ground level concentrations (GLC). The air dispersion modeling results are expressed as an air concentration or in terms of (Chi over Q) for each receptor point. (Chi over Q) is the modeled downwind air concentration (Chi) based on an emission rate of one gram per second (Q). (Chi over Q) is expressed in units of micrograms per cubic meter per gram per second, or $(\mu g/m^3)/(g/s)$. (Chi over Q) is sometimes written as (χ/Q) and is sometimes referred to as the dilution factor.

- When multiple substances are evaluated, the χ/Q is normally utilized since it is based on an emission rate of one gram per second. The χ/Q at the receptor point of interest is multiplied by the substance-specific emission rate (in g/s) to yield the substance-specific ground-level concentration (GLC) in units of $\mu g/m^3$. The following equations illustrate this point.

$$\mathbf{GLC} = \left(\frac{\chi}{\mathbf{Q}}\right) \mathbf{x} \left(\mathbf{Q}_{\mathbf{substance}}\right)$$

$$\frac{\chi}{\mathbf{Q}} = \mathbf{(Chi\ over\ Q)\ in} \left(\frac{\frac{\mu \mathbf{g}}{\mathbf{m}^3}}{\frac{\mathbf{g}}{\mathbf{s}}}\right), \mathbf{\ from\ model\ results\ with\ unit\ emission\ rate}$$

$$\mathbf{Q}_{\mathbf{substance}} = \mathbf{substance\ specific\ emission\ rate} \left(\frac{\mathbf{g}}{\mathbf{s}}\right)$$

- The applicable exposure pathways (e.g., inhalation, soil contact, fish consumption) are identified for the emitted substances, and the receptor locations are identified. This determines which exposure algorithms in this chapter are ultimately used to estimate dose. After the exposure pathways are identified, the fate and transport algorithms described in this chapter are used to estimate concentrations in the applicable exposure media (e.g., soil or water) and the exposure algorithms are used to determine the substance-specific dose.

- The dose is used with cancer and noncancer health values to calculate the potential health impacts for the receptor (Chapter 8). An example calculation

using the high-end point-estimates for the inhalation (breathing) exposure pathway can be found in Appendix I. Appendix I and Chapters 5 (this Section) and 8 also contain information on how the annual average and maximum one-hour ground level concentrations are used for chronic, 8-hour, and acute health risk calculations.

The algorithms in this chapter are also used to calculate media concentrations and dose in the rare instance, for the Hot Spots program, when monitoring equipment was used rather than air dispersion modeling to obtain a receptor's substance-specific GLC. One situation that is specific to monitored data is the treatment of results below the sampling method level of detection (LOD). In short, it is standard risk assessment practice when monitoring results are reported both above and below the LOD to use one-half of the LOD for those sample concentrations reported below the LOD. If all testing or monitoring results fall below the LOD, then assessors should contact the District for appropriate procedures. For more information about reporting emissions under the Hot Spots Program, see the ARB's *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5),* and the *Emission Inventory Criteria and Guidelines Report* (EICG Report), which is incorporated by reference therein (ARB, 2007*)*.

The recommended model for calculating and presenting HRA results for the Hot Spots Program is the HARP software, available from the Air Resources Board (ARB). More information on HARP and directions for downloading the software can be found on the ARB's web site at http://www.arb.ca.gov/toxics/harp/downloads.htm.

5.2 Criteria for Exposure Pathway Evaluation

In order to determine total dose to the receptor the applicable pathways of exposure need to be identified. The inhalation pathway must be evaluated for all Hot Spots substances emitted by the facility. A small subset of Hot Spots substances is subject to deposition onto soil, plants, and water bodies. These substances need to be evaluated by the appropriate noninhalation pathways, as well as by the inhalation pathway, and the results must be presented in all HRAs. These substances include semi-volatile organic chemicals and heavy metals. Such substances are referred to as multipathway substances. Two steps are necessary to determine if a substance should be evaluated for multipathway impacts:

1. Determine whether the substance or its group (e.g., dioxins, PAHs) is listed in Table 5.1.
2. Determine if the substance has an oral reference exposure level (REL) listed in Table 6.4, or if it has an oral cancer slope factor listed in Table 7.1. Two other references for checking the presence of oral health factors are OEHHA's website (OEHHA, 2012b) and the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* on the Air Resources Board website (ARB, 2012). Oral or noninhalation exposure pathways include the ingestion of soil, angler-caught fish, drinking water from surface water sources, mother's milk,

homegrown produce, beef, pork, chicken, eggs and cow's milk. The dermal pathway is also evaluated via contact with contaminated soil.

For all multipathway substances, the minimum exposure pathways that must be evaluated at every residential site (in addition to inhalation) are soil ingestion and dermal exposure. If dioxins, furans, PCBs, PAHs or lead are emitted, then the breast-milk consumption pathway also becomes mandatory. The other exposure pathways (e.g., the ingestion of homegrown produce or angler-caught fish) are evaluated on a site-by-site basis. If the resident can be exposed through an impacted exposure pathway, then it must be included in the HRA. However, if there are no vegetable gardens or fruit trees within the zone of impact for a facility, for example, then the produce pathways need not be evaluated. Note that on-site residential receptors are potentially subject to inhalation and noninhalation exposure pathways. Table 8.2 identifies the residential and worker receptor exposure pathways that are mandatory and those that are dependent on the site-specific decisions. While residents can be exposed though several exposure pathways, worker receptors are only evaluated for inhalation, soil ingestion, and dermal exposure using point estimates.

Table 5.1 shows the multipathway substances that, based on available scientific data, can be considered for each noninhalation exposure pathway. The exposure pathways that are evaluated for a substance depend on two factors: 1) whether the substance is considered a multipathway substance for the Hot Spots Program (Table 5.1), and 2) what the site-specific conditions are. A multipathway substance may be excluded from a particular exposure pathway because its physical-chemical properties can preclude significant exposure via the pathway. For example, some water-soluble substances do not appreciably bioaccumulate in fish; therefore, the fish pathway is not appropriate. In addition, if a particular exposure pathway is not impacted by the facility or is not present at the receptor site, then the pathway is not evaluated. For example, if a fishable water body is not impacted by the facility, or the water source is impacted but no receptor uses it for fishing, then the angler-caught fish pathway is not evaluated.

Table 5.1 Specific Pathways to be Analyzed for Each Multipathway Substance

Substance	Soil Ingestion	Dermal	Meat, Milk & Egg Ingestion	Fish Ingestion	Exposed Vegetable Ingestion	Leafy Vegetable Ingestion	Protected Vegetable Ingestion	Root Vegetable Ingestion	Water Ingestion	Breast Milk Ingestion
Inorganic chemicals										
Arsenic & compounds	X	X	X	X	X	X	X	X	X	
Beryllium & compounds	X	X	X	X	X	X	X	X	X	
Cadmium & compounds	X	X	X	X	X	X	X	X	X	
Chromium VI & compounds	X	X	X[a]	X	X	X	X	X	X	
Fluorides (soluble compounds)	X	X	X		X	X	X	X	X	
Lead & compounds	X	X	X	X	X	X	X	X	X	X
Mercury & compounds	X	X	X	X	X	X	X	X	X	
Nickel & compounds	X	X	X	X	X	X	X	X	X	
Selenium & compounds	X	X	X	X	X	X	X	X	X	
Organic chemicals										
Creosotes	X	X	X	X	X	X			X	X
Diethylhexylphthalate	X	X	X	X	X	X			X	
Hexachlorobenzene	X	X	X	X	X	X			X	
Hexachlorocyclohexanes	X	X	X	X	X	X			X	
4,4'-Methylene dianiline	X	X			X	X			X	
Pentachlorophenol[b]										
PCBs	X	X	X	X	X	X			X	X
Polychlorinated dibenzo-p-dioxins and dibenzofurans	X	X	X	X	X	X			X	X
PAHs	X	X	X	X	X	X			X	X

[a] Cow's milk only; no multipathway analysis for meat and egg ingestion

[b] To be evaluated by pathway in future amendments to the Hot Spots Program

5.3 Estimation of Concentrations in Air, Soil, and Water

Once emissions exit the source, the substances emitted will be dispersed in the air. The substances in the exhaust gas with high vapor pressures will remain largely in the vapor phase, and substances with lower vapor pressures will tend to adsorb to fly ash or other particulate matter. The emission plume may contain both vapor phase substances and particulates. A semivolatile organic toxicant can partition into both vapor and particulate phases. Particulates will deposit on vegetation, on soil, and in water at a rate that is dependent on the particle size. Use the 0.02 m/s deposition rate for emission sources that have verifiable particulate matter control devices or for emission sources that may be uncontrolled but only emit particulate matter that is less than 2.5 microns (e.g., internal combustion engines). The following algorithms are used to estimate concentrations in environmental media including air, soil, water, vegetation, and animal products.

5.3.1 *Air*

The ground level concentration (GLC, or C_{air} as shown in EQ 5.3.1) of a substance in air is a function of the facility emission rate and the dilution factor (χ/Q) at the points under evaluation.

A. Equation 5.3.1: $$C_{air} = Q_{substance} \times \chi/Q$$

1. C_{air} = Ground level concentration ($\mu g/m^3$)
2. $Q_{substance}$ = Substance emission rate (g/sec)
3. χ/Q = Dilution factor provided by dispersion modeling ($\mu g/m^3/g/sec$)

a. Recommended values for EQ 5.3.1:

1. $Q_{substance}$ = Facility-specific, substance emission rate
2. χ/Q = For point of interest, site specific, from dispersion modeling

b. Assumptions for EQ 5.3.1:

1. No plume depletion
2. Emission rate is constant, i.e., assumes steady state

5.3.2 *Soil*

The average concentration of the substance in soil (C_s) is a function of the deposition, accumulation period, chemical specific soil half-life, mixing depth, and soil bulk density. For simplicity and health protection, the Tier 1 default assumes 70-year soil deposition for the accumulation period at end of 70-year facility lifetime. The risk assessor may also choose a supplemental Tier 2 approach, subject to District approval or reviewing authority approval, in which the assessor applies a soil accumulation period based on the facility's start date of operation (e.g., historical date when emissions began), or the current exposure conditions, and the expected duration of operation.

A. Equation 5.3.2 A: $$C_s = Dep \times X / (K_s \times SD \times BD \times T_t)$$

1. C_s = Average soil concentration over the evaluation period ($\mu g/kg$)
2. Dep = Deposition on the affected soil area per day ($\mu g/m^2$-d)
3. X = Integral function for soil accumulation (d), see **EQ 5.3.2 C** below
4. K_s = Soil elimination constant (d^{-1})
5. SD = Soil mixing depth (m)
6. BD = Soil bulk density (kg/m^3)
7. T_t = Soil exposure duration or soil accumulation period (d)

a: Recommended default values for EQ 5.3.2 A:

1. Dep = Calculated in EQ 5.3.2 B
2. X = Calculated in EQ 5.3.2 C
3. K_s = Calculated in EQ 5.3.2 D
4. SD = 0.01 (m) for playground setting (soil ingestion and dermal pathways) and 0.15 (m) for agricultural setting (produce and meat pathways)
5. BD = 1,333 (kg/m^3)
6. T_t = 25,550 (d) = 70 years

b: Assumptions for EQ 5.3.2 A:

1. Substances are uniformly mixed in soil.
2. Substances are not leached or washed away, except where evidence exists to the contrary.
3. It is assumed that toxicants accumulate in the soil for 70 years from deposition over the 70 year lifespan of the facility. Use 70-year soil accumulation (T_t) for Tier 1 estimation of 9-, 30- and 70-year residential exposure, and 25-year off-site worker exposure.
4. For a receptor ingesting mother's milk, the mother is exposed from birth to 25 years of age; the infant is then born and receives mother's milk for one year. Default assumes 70-year soil accumulation for mother's milk pathway. See Table 5.1 for information on which substances or groups of substances must be evaluated by the mother's milk pathway.

B. Equation 5.3.2 B: $$\mathbf{Dep = C_{air} \times Dep\text{-}rate \times 86{,}400}$$

1. C_{air} = Ground level concentration ($\mu g/m^3$)
2. Dep-rate = Vertical rate of deposition (m/sec)
3. 86,400 = Seconds per day conversion factor (sec/d)

a: Recommended default values for EQ 5.3.2 B:

1. C_{air} = Calculated above in EQ 5.3.1 A
2. Dep-rate = Use 0.02 meters/second for controlled sources, or 0.05 meters/second for uncontrolled sources.

b: Assumptions for EQ 5.3.2 B:

1. Deposition rate remains constant. A deposition rate must be used when determining potential noninhalation health impacts. In the absence of facility specific information on the size of the emitted particles, the default values for deposition rate should be used. Currently, the default value of 0.02 meters per second is used for emission sources that have verifiable particulate matter control devices or for emission sources that may be uncontrolled but only emit particulate matter that is less than 2.5 microns

(e.g., internal combustion engines). The 0.05 meters per second default value is used for risk assessment if the emissions are uncontrolled. If other deposition rate factors are used, sufficient support documentation must be included with the HRA.

C. Equation 5.3.2 C: $$X = [\{e^{-Ks * Tf} - e^{-Ks * To}\} / K_s] + T_t$$

1. e = 2.718
2. K_s = Soil elimination constant
3. T_f = End of soil accumulation evaluation period (d)
4. T_o = Beginning of soil accumulation evaluation period (d)
5. T_t = Total days of soil exposure (soil accumulation period) T_f-T_o (d)

a: Recommended default values for EQ 5.3.2 C:

1: K_s = Calculated in EQ 5.3.2 D
2: T_f = 25,550 (d) = 70 years. Total soil exposure time at end of facility operation
3: T_o = 0 (d) The initial time (start period) of soil exposure to all receptors that are impacted by the soil pathway.

Note: Under a Tier 2 scenario, the risk assessor may also adjust T_f and T_t, subject to District approval, to replicate current soil accumulation and expected accumulation at the end of facility operation.

D. Equation 5.3.2 D: $$K_s = 0.693 / t_{1/2}$$

1. 0.693 = Natural log of 2
2. $t_{1/2}$ = Chemical specific soil half-life (d)

a: Recommended default values for EQ 5.3.2 D:

1. $t_{1/2}$ = Chemical-specific. See Table 5.2

5.3.3 *Water*

The water pathway is evaluated if a standing water body (e.g., pond or lake) is impacted by facility emissions and is used as a source for drinking water by food-producing animals or humans, or is a source of angler-caught fish. The average concentration of the substance in water (C_w) is a function of direct deposition and material carried in by surface run-off. However, only the contribution from direct deposition will be considered at this time.

A. Equation 5.3.3 A: $$C_w = C_{depw}$$

1. C_w = Average concentration in water (μg/kg)
2. C_{depw} = Contribution due to direct deposition (μg/kg)

B. Equation 5.3.3 B: $C_{depw} = Dep \times SA \times 365 / (WV \times VC)$

1. Dep = Deposition on water body per day ($\mu g/m^2/d$)
2. SA = Water surface area (m^2)
3. 365 = Days per year (d/yr)
4. WV = Water volume (kg)
5. VC = Number of volume changes per year

a: Recommended default values for EQ 5.3.3 B:

1. Dep = Calculated above in EQ 5.3.2 B
2. SA = Site specific water surface area (m^2)
3. WV = Site specific water volume in (kg) (1L = 1 kg)
4. VC = Site specific number of volume changes per year (SA, WV, and VC values can be obtained from the appropriate Department of Water Resources (DWR) Regional office)

b: Assumptions for EQ 5.3.3 B:

1. With the exception of dilution via number of volume changes per year, all material deposited into the water remains suspended or dissolved in the water column and is available for bioaccumulation in fish.

5.3.4 *Estimation of Concentrations in Vegetation, Animal Products, and Mother's Milk*

Estimates of the concentration of the substance in vegetation, animal products and mother's milk require the use of the results of the air, water, and soil environmental fate evaluation. Plants, animals and nursing mothers will be exposed to the substances at the concentrations previously calculated in Section 5.31 to 5.33 above.

5.3.4.1 Vegetation

The average concentration of a substance in and on vegetation (C_v) is a function of direct deposition of the substance onto the vegetation and of root translocation or uptake from soil contaminated by the substance. We currently recommend root translocation only for the inorganic compounds.

A. Equation 5.3.4.1 A: $C_v = C_{depv} + C_{trans}$

1. C_v = Average concentration in and on specific types of vegetation ($\mu g/kg$)
2. C_{depv} = Concentration due to direct deposition ($\mu g/kg$)
3. C_{trans} = Concentration in vegetation due to root translocation or uptake ($\mu g/kg$) – see EQ 5.3.4.1 C below

B. Equation 5.3.4.1 B: $C_{depv} = [Dep \times IF / (k \times Y)] \times (1 - e^{-kT})$

1. Dep = Deposition on affected vegetation per day ($\mu g/m^2/d$)
2. IF = Interception fraction
3. k = Weathering constant (d^{-1})
4. Y = Yield (kg/m^2)
5. e = Base of natural logarithm (2.718)
6. T = Growth period (d)

a: Recommended default values for EQ 5.3.4.1 B:

1. Dep = Calculated above in EQ 5.3.2 B
2. IF = Crop specific:
   - a: Root crops = 0.0
   - b: Leafy crops = 0.2
   - c: Protected crops = 0.0
   - d: Exposed crops = 0.1
   - e: Pasture = 0.7
3. k = 0.1 (d^{-1})
4. Y = 2 (kg/m^2) for root, leafy, protected, exposed and pasture [CA Department of Food and Agriculture dot maps]
5. T = 45 (d) for leafy crops
   T = 90 (d) for exposed crops

b: Crop-type definitions for EQ 5.3.4.1 B:

1. **Leafy** crop category consists of broad-leafed vegetables in which the leaf is the edible part. Examples include spinach, lettuce, cabbage, and kale.
2. **Root** crop category includes vegetables in which the edible portion is underground. Examples are potato, radish, and carrot.
3. **Exposed** produce category consists of crops with a small surface area subject to air deposition. Examples include strawberries, tomato, cucumber, zucchini, green bean and bell pepper.
4. **Protected** produce category consists of crops in which the edible part is not exposed to air deposition (e.g., the exposed skin of the crop is removed and not eaten). Examples are corn, pea, pumpkin and oranges.

Tables H-9 through H-15 in Appendix H provide more examples of various leafy, root, exposed and protected crop types.

c: Assumptions for EQ 5.3.4.1 B:

1. No deposition on root or protected crops
2. No uptake and translocation of deposited chemicals onto crops

C. Equation 5.3.4.1 C: (for inorganic compounds)

$$C_{trans} = C_s \times UF_2$$

1. C_s = Average soil concentration (μg/kg)
2. UF_2 = Uptake factor based on soil concentration

a: Recommended default values for EQ 5.3.4.1 C:

1. C_s = Calculated above in EQ 5.3.2 A
2. UF_2 = See Table 5.2

D. Equation 5.3.4.1 D: (for organic compounds)

$$UF_2 = [(0.03 \times K_{ow}^{0.77}) + 0.82] / [(K_{oc})(F_{oc})]$$

1. 0.03 = Empirical constant
2. K_{ow} = Octanol:water partition factor
3. 0.77 = Empirical constant
4. 0.82 = Empirical constant
5. K_{oc} = Organic carbon partition coefficient
6. F_{oc} = Fraction organic carbon in soil

a: Recommended default values for EQ 5.3.4.1 D:

1. K_{ow} = Chemical specific, see Table 5.2
2. K_{oc} = Chemical specific, see Table 5.2
3. F_{oc} = 0.1

b: Assumptions for EQ 5.3.4.1 D:

1. OEHHA currently has no recommended root uptake factors for organic compounds listed in Table 5.2. Evidence suggests this route is insignificant compared to airborne deposition. Nevertheless, if it becomes necessary in specific cases to assess root uptake for an organic compound, Equation 5.3.4.1 D would be the algorithm OEHHA recommends using to assess root uptake.

5.3.4.2 Animal Products

The average concentration of the substance in animal products (C_{fa}) depends on which routes of exposure exist for the animals. Animal exposure routes include inhalation, soil ingestion, ingestion of contaminated feed and pasture, and ingestion of contaminated water.

A. Equation 5.3.4.2:

$$C_{fa} = (\text{Inhalation} + \text{Water ingestion} + \text{Feed ingestion} + \text{Pasture/Grazing ingestion} + \text{Soil ingestion}) * Tco$$

1. C_{fa} = Average concentration in farm animals and their products (μg/kg)
2. Inhalation, water ingestion, etc. = Dose through inhalation, water ingestion, etc. (μg/d)
3. Tco = Chemical-specific transfer coefficient of contaminant from diet to animal product (d/kg)

a: Recommended default values for EQ 5.3.4.2:

1. Tco = See Tables 5.3a and 5.3b

b: Assumptions for EQ 5.3.4.2:

1. The Tco for a given chemical is the same for all exposure routes

5.3.4.2.1 Inhalation

A. Equation 5.3.4.2.1: $\text{Inhalation} = BR_a \times C_{air}$

1. Inhalation = Dose through inhalation (μg/d)
2. BR_a = Breathing rate for animal (m^3/d)
3. C_{air} = Ground-level concentration (μg/m^3)

a: Recommended default values for EQ 5.3.4.2.1:

1. BR_a = See Table 5.4
2. C_{air} = Calculated above in EQ 5.3.1 A

b: Assumptions for EQ 5.3.4.2.1:

1. All material inhaled is 100% absorbed

5.3.4.2.2 Water Ingestion

The water ingestion pathway is applied if there are surface water sources of drinking water, such as springs, ponds or lakes, which are exposed to airborne deposition of facility emissions. Due to the site-specific nature for this exposure pathway, OEHHA recommends that the risk assessor conduct a survey at the site to estimate the fraction of contaminated drinking water ingested by the animals, if such sources exist.

A. Equation 5.3.4.2.2: **Water ingestion = $WI_a \times FSW \times C_w$**

1. Water ingestion = Dose through water ingestion (μg/d)
2. WI_a = Water ingestion for animal (kg/d)
3. FSW = Fraction of water ingested from a contaminated body of water (site-specific)
4. C_w = Average concentration in water (μg/kg)
   For water 1 kg = 1 L

a: Recommended default values for EQ 5.3.4.2.2:

1. WI_a = See Table 5.4
2. FSW = Site specific fraction, need to survey water ingestion practices in affected area
3. C_w = Calculated above in EQ 5.3.3 A

5.3.4.2.3 Feed Ingestion

The fraction of feed intake by cattle, pigs and poultry that is contaminated by facility emissions can vary considerably depending on the manner in which the animals are raised. Due to the site-specific nature for this exposure pathway, OEHHA recommends that the risk assessor conduct a survey at the site to estimate the fraction of contaminated feed eaten by the animals. For a Tier 1 assessment, default values are provided by OEHHA (see Table 5.4 and Table 5.4 footnotes) for estimation of exposure to the animals.

Agricultural mixing depth should be used for calculating soil concentration for feed and pasture contamination.

5.3.4.2.3.1 Feed Ingestion

A. Equation 5.3.4.2.3.1: **Feed ingestion = $(1.0 - FG) \times FI \times L \times C_v$**

1. Feed ingestion = Dose through the ingestion of feed (μg/d) that is harvested after it is impacted by source emissions
2. FG = Fraction of diet provided by grazing (site-specific)
3. FI = Feed ingestion rate (kg/d)
4. L = Fraction of locally grown (source impacted) feed that is not pasture (site-specific)
5. C_v = Concentration in feed (μg/kg)

a: Recommended default values EQ 5.3.4.2.3.1:

1. FG = Default values in Table 5.4 footnote b, although a site-specific survey for the fraction of diet provided by grazing is recommended
2. FI = See Table 5.4
3. L = Default values in Table 5.4 footnote b, although a site-specific survey for fraction of locally grown (source impacted) feed that is not pasture is recommended
4. C_v = As calculated above in EQ 5.3.4.1 A

b: Assumptions for EQ 5.3.4.2.3.1:

1. Feed (FI) transported from an off-site location (i.e., not grown locally) is not contaminated by facility emissions.

5.3.4.2.3.2 Pasture/Grazing ingestion

A. Equation 5.3.4.2.3.2: $$\text{Pasture/Grazing ingestion} = FG \times C_v \times FI$$

1. Pasture/Grazing ingestion = Dose through pasture/grazing (μg/d)
2. FG = Fraction of diet provided by grazing (site-specific)
3. C_v = Concentration in pasture/grazing material (μg/kg)
4. FI = Feed ingestion rate (kg/d)

a: Recommended default values EQ 5.3.4.2.3.2:

1. FG = Default values in Table 5.4 for fraction of diet provided by grazing, although a site-specific survey is recommended
2. C_v = As calculated above in EQ 5.3.4.1 A
3. FI = See Table 5.4

5.3.4.2.4 Soil ingestion

The feeds provided to dairy and beef cattle may contain small quantities of soil. A larger fraction of soil by weight of food is taken up during grazing. Rooting behavior by pigs with access to soil will result in soil ingestion. Likewise, poultry with free access to soil or pasture will also ingest soil. Defaults for soil ingestion are shown in Table 5.4.

A. Equation 5.3.4.2.4 A: $$\text{Soil ingestion} = SI_a \times C_s$$

1. Soil ingestion = Dose through soil ingestion (μg/d)
2. SI_a = Soil ingestion rate for animal (kg/d)
3. C_s = Average soil concentration (μg/kg)

a: Recommended default values for EQ 5.3.4.2.4 A:

1. SI_a = Calculated below
2. C_s = Calculated above in EQ 5.3.2 A

B. Equation 5.3.4.2.4 B: $SI_a = [(1 - FG) \times FS_f \times FI] + [FG \times FS_p \times FI]$

1. FG = Fraction of diet provided by grazing
2. FS_f = Soil ingested as a fraction of feed ingested
3. FI = Feed ingestion rate (kg/d)
4. FS_p = Soil ingested as a fraction of pasture ingested

a: Recommended default values for EQ 5.3.4.2.4 B:

1. FG = Site specific fraction of diet provided by grazing
2. FS_f = See Table 5.4
3. FI = See Table 5.4
4. FS_p = See Table 5.4

b: Assumptions for EQ 5.3.4.2.4 B:

1. The transfer coefficient is the same for all exposure routes.
2. Soil ingested in feed (FS_f) transported from an off-site location (i.e., not grown locally) is assumed not to be contaminated by facility emissions.

5.3.4.3 Bioaccumulation in Angler-Caught Fish

The average concentration in fish (C_f) is based on the concentration in water and a chemical-specific bioaccumulation factor.

A. Equation 5.3.4.3: $Ct = Cw \times BAF$

1. Ct = Concentration in wet weight tissue (muscle) of fish (µg/kg)
2. Cw = Concentration in water (µg/kg)
3. BAF = Fish bioaccumulation factor (unitless)

a: Recommended default values for Equation 5.3.4.3:

1. Cw = As calculated above in Equation 5.3.3 A
2. BAF = Chemical-specific; see Table 5.2

b: Assumptions for Equation 5.3.4.3:

1. For conversion of a chemical concentration in a volume of water shown as µg/L, 1 L water = 1 kg water; thus, for concentration of chemical in water, µg/L = µg/kg.
2. For organic chemicals, BAFs lipid-normalized to adult rainbow trout with 4% lipid content in muscle tissue
3. For organic chemicals, BAFs based on the freely dissolved fraction in water under conditions of average particulate organic carbon and dissolved organic carbon in U.S. lakes and other water bodies
4. For inorganic compounds, BAFs based on wet weight muscle tissue concentration and on the total water concentration of the inorganic compound in water.
5. Contaminant concentrations are uniform in water based on dispersion

5.3.4.4 Bioaccumulation in Mother's Milk

The average concentration of a chemical in mother's milk (C_m) is a function of the mother's exposure through all exposure routes (i.e., inhalation, ingestion via food, drinking water, and soil, and dermal absorption via skin contact with soil contaminated with the chemical), the contaminant half-life in the mother's body, and transfer of absorbed chemical to mother's milk. The contaminant half-life in the body and transfer to mother's milk is incorporated in biotransfer coefficients (Tco) in Equation 5.3.4.4. See the TSD (OEHHA, 2012a), Appendix J for details on development of biotransfer factors. The substances assessed by the mother's milk pathway are shown in Table 5.1.

A. Equation 5.3.4.4: $$C_m = [(D_{inder} \times Tco_{m\_inder}) + (D_{ing} \times Tco_{m\_ing})] \times BW$$

1. C_m = Concentration in mother's milk (mg/kg-milk)
2. D_{inder} = The sum of DOSEair + DOSEdermal through inhalation and dermal absorption (mg/kg-BW-day)
3. D_{ing} = The sum of DOSEfood + DOSEsoil + DOSEwater through ingestion (mg/kg-BW-day)
4. Tco_{m_inder} = Biotransfer coefficient from inhalation and dermal absorption to mother's milk (d/kg-milk)
5. Tco_{m_ing} = Biotransfer coefficient from ingestion to mother's milk (d/kg-milk)
6. BW = Body weight of mother (Kg)

a: Recommended cancer risk default values for EQ 5.3.4.4:

1. D_{ing} = As calculated through ingestion of soil in EQ 5.4.3.1.1 + home-grown produce in EQ 5.4.3.2.1 + home-raised animal products in EQ 5.4.3.2.2 + drinking water in EQ 5.4.3.3.1 + angler-caught fish in EQ 5.4.3.4.1
2. D_{inder} = As calculated through inhalation in EQ 5.4.1.1 + dermal exposure in EQ 5.4.2.1
3. Tco_{m_inder} = See Table 5.5
4. Tco_{m_ing} = See Table 5.5

b: Recommended noncancer risk default values for EQ 5.3.4.4:

1. D_{ing} = As calculated through ingestion of soil in EQ 5.4.3.1.2 + home-grown produce and home-raised animal products in EQ 5.4.3.2.3 + drinking water in EQ 5.4.3.3.2 + angler-caught fish in EQ 5.4.3.4.2
2. D_{inder} = As calculated through inhalation in EQ 5.4.1.1 + dermal exposure in EQ 5.4.2.2
3. Tco_{m_inder} = See Table 5.5
4. Tco_{m_ing} = See Table 5.5

c: Assumptions for EQ 5.3.4.4:

1. Default age of mother at birth is 25 years of age, then nurses the infant for 1 year; Use 16<30 year old high-end (95th percentile) daily breathing rate and intake rates for D_{ing} and D_{inder} for estimating dose to mother.
2. For inhalation dose to mother's milk, it is recommended that the EF variate in EQ 5.4.1.1 is left out for calculation of inhalation dose in the mother's milk pathway.
3. Biotransfer coefficient, Tco_{m_inder}, the same for both inhalation and dermal pathways based on lack of first-pass metabolism through the liver for both of these pathways.
4. Biotransfer coefficient, Tco_{m_ing}, the same for all ingestion pathways based on first-pass metabolism through the liver.
5. For chemicals in Table 5.5 lacking either an oral or inhalation Tco, use the oral Tco for the absent inhalation Tco (i.e., for PCDDs and PCDFs and dioxin-like PCBs), or the inhalation Tco for the absent oral Tco (i.e., for lead) in Equation 5.3.4.4.
6. The concentration in the mother's milk is determined using the derived approach to risk assessment. This method allows use of the high-end dose point estimate for driving exposure pathways and the average dose point estimates for other exposure pathways. See Sections 8.2.6 (cancer) and 8.3.3 (noncancer) for the description of the methodology on how to implement the derived methodology.

Table 5.2a Substance-Specific Default Values for Organic Multipathway Substances

				Root Uptake Factors					
Multipathway Substance	**Log K_{oc}**	**Log K_{ow}**	**Fish BAF**	**Root**	**Leafy**	**Exposed**	**Protected**	**GRAF[2]**	**Soil HalfLife (days)**
Creosotes	NA	NA	$8 \times 10^{+2}$	NA	NA	NA	NA	1.0	$4.3 \times 10^{+2}$
Diethylhexyl-phthalate	5.34[1]	7.63[1]	$4 \times 10^{+1}$	NA	NA	NA	NA	1.0	$1.5 \times 10^{+1}$
Dioxins and Furans	NA	NA	$3 \times 10^{+5}$	NA	NA	NA	NA	0.43	$7.0 \times 10^{+3}$
Hexachlorobenzene	NA	NA	$8 \times 10^{+4}$	NA	NA	NA	NA	1.0	$1.0 \times 10^{+8}$
Hexachlorocyclo-hexanes	NA	NA	$3 \times 10^{+3}$	NA	NA	NA	NA	1.0	$9.4 \times 10^{+1}$
4,4'-Methylene dianiline	2.24[3]	1.59[4]	NA	NA	NA	NA	NA	1.0	$4.6 \times 10^{+2}$
Pentachlorophenol[5]									
Polycyclic Aromatic Hydrocarbons (PAHs)	NA	NA	$8 \times 10^{+2}$	NA	NA	NA	NA	1.0	$4.3 \times 10^{+2}$
Polychlorinated Biphenyls	NA	NA	$2 \times 10^{+6}$	NA	NA	NA	NA	1.0	$3.2 \times 10^{+3}$

(1) Averaged log Kow and Koc values determined by most reliable methods (Staples et al., 1997)

(2) GRAF (Gastrointestinal Relative Absorption Factor). The guidelines allow for adjusting for bioavailability where the evidence warrants. For example, there are good data which indicate that dioxin is not as available to an organism when bound to soil or fly ash matrices relative to when it is in solution or in food. Therefore, a bioavailability factor is incorporated into the model to account for this difference. When information becomes available for other chemicals of concern, this type of bioavailability will be incorporated into the model.

(3) Measured by Hansch et al. (1985)

(4) Estimated according to methodology of Lyman et al. (1990)

(5) To be evaluated for specific default values in future amendments to the Hot Spots Program.

NA - Data Not Available or Not Applicable

Table 5.2b Substance-Specific Default Values for Inorganic Multipathway Substances

				Root Uptake Factors					
Multipathway Substance	Log K_{oc}	Log K_{ow}	Fish BAF	Root	Leafy	Exposed	Protected	GRAF[1]	Soil HalfLife (days)
Arsenic & Inorganic Compounds	NA	NA	$2 \times 10^{+1}$	8×10^{-3}	1×10^{-2}	2×10^{-2}	7×10^{-2}	1.0	$1.0 \times 10^{+8}$
Beryllium & Compounds	NA	NA	$4 \times 10^{+1}$	5×10^{-3}	2×10^{-4}	8×10^{-3}	3×10^{-4}	1.0	$1.0 \times 10^{+8}$
Cadmium & Compounds	NA	NA	$4 \times 10^{+1}$	8×10^{-2}	1×10^{-1}	2×10^{-2}	1×10^{-2}	1.0	$1.0 \times 10^{+8}$
Chromium VI & Compounds	NA	NA	$2 \times 10^{+1}$	$3 \times 10^{+0}$	3×10^{-1}	2×10^{-2}	7×10^{-2}	1.0	$1.0 \times 10^{+8}$
Fluorides (soluble compounds)	NA	NA	NA	9×10^{-3}	4×10^{-2}	4×10^{-3}	4×10^{-3}	1.0	$1.0 \times 10^{+8}$
Lead & Compounds	NA	NA	$2 \times 10^{+1}$	4×10^{-3}	8×10^{-3}	7×10^{-3}	3×10^{-3}	1.0	$1.0 \times 10^{+8}$
Mercury & Inorganic Compounds[2]	NA	NA	$8 \times 10^{+1}$	2×10^{-2}	2×10^{-2}	9×10^{-3}	1×10^{-2}	1.0	$1.0 \times 10^{+8}$
Nickel and compounds	NA	NA	$2 \times 10^{+1}$	6×10^{-3}	1×10^{-2}	3×10^{-3}	3×10^{-2}	1.0	$1.0 \times 10^{+8}$
Selenium & compounds	NA	NA	$1 \times 10^{+3}$	7×10^{-2}	6×10^{-2}	4×10^{-2}	3×10^{-1}	1.0	$1.0 \times 10^{+8}$

(1) GRAF (Gastrointestinal Relative Absorption Factor). The guidelines allow for adjusting for bioavailability where the evidence warrants. For example, there are good data which indicate that dioxin is not as available to an organism when bound to soil or fly ash matrices relative to when it is in solution or in food. Therefore, a bioavailability factor is incorporated into the model to account for this difference. When information becomes available for other chemicals of concern, this type of bioavailability will be incorporated into the model.

(2) Methyl mercury (MeHg) is not represented in the category "mercury & inorganic compounds". The BAF for methyl mercury is orders of magnitude higher than for inorganic mercury. Assessment of MeHg for the fish pathway is not directly applicable to the Hot Spots program, as no facilities are known to emit MeHg directly into the air (OEHHA, 2012; OEHHA, 2006), but it may be formed by action of microbes in sediment. Assessing the methylation of mercury deposited into a water body is difficult, and is also very water body-specific. At this time OEHHA cannot address this issue in the Hot Spots program, but will consider addressing this problem in future amendments of the Guidance.

NA - Data Not Available or Not Applicable.

Table 5.3a Animal Transfer Coefficients for Persistent Organic Chemicals

Organic Chemical	Tco (d/kg)[a]				
	Cow's Milk	Chicken Egg	Chicken Meat	Cattle Meat	Pig Meat
Diethylhexylphthalate	9×10^{-5}	0.04	0.002	6×10^{-4}	5×10^{-4}
Hexachlorobenzene	0.02	20	10	0.2	0.08
Hexachlorocyclohexanes	0.01	7	5	0.2	0.09
PAHs	0.01	0.003	0.003	0.07	0.06
Polychlorinated biphenyls					
Congener 77	0.001	6	4	0.07	0.4
81	0.004	10	7	0.2	0.4
105	0.01	10	7	0.6	0.7
114	0.02	10	7	0.9	0.7
118	0.03	10	7	1	0.7
123	0.004	10	7	0.2	0.7
126	0.04	10	7	2	0.7
156	0.02	10	8	0.9	2
157	0.01	10	8	0.5	2
167	0.02	10	8	1	2
169	0.04	10	8	2	2
189	0.005	10	8	0.2	1
Unspeciated (PCB 126)[b]	0.04	10	7	2	0.7
PCDD/Fs					
Congener 2,3,7,8-TCDD	0.02	10	9	0.7	0.1
1,2,3,7,8-PeCDD	0.01	10	9	0.3	0.09
1,2,3,4,7,8-HxCDD	0.009	10	6	0.3	0.2
1,2,3,6,7,8-HxCDD	0.01	10	6	0.4	0.1
1,2,3,7,8,9-HxCDD	0.007	7	3	0.06	0.02
1,2,3,4,6,7,8-HpCDD	0.001	5	2	0.05	0.2
OCDD	0.0006	3	1	0.02	0.1
2,3,7,8-TCDF	0.004	10	6	0.1	0.02
1,2,3,7,8-PeCDF	0.004	30	10	0.1	0.01
2,3,4,7,8-PeCDF	0.02	10	8	0.7	0.09
1,2,3,4,7,8-HxCDF	0.009	10	5	0.3	0.1
1,2,3,6,7,8-HxCDF	0.009	10	6	0.3	0.09
2,3,4,6,7,8-HxCDF	0.008	5	3	0.3	0.06
1,2,3,7,8,9-HxCDF	0.009	3	3	0.3	0.03
1,2,3,4,6,7,8-HpCDF	0.002	3	1	0.07	0.06
1,2,3,4,7,8,9-HpCDF	0.003	3	1	0.1	0.02
OCDF	0.002	1	0.6	0.02	0.03
Unspeciated (2,3,7,8-TCDD)[b]	0.02	10	9	0.7	0.1

[a] All Tco values were rounded to the nearest whole number.

[b] For unspeciated mixtures, use PCB 126 Tcos to represent the class of PCBs, and 2378-TCDD Tcos to represent the class of PCDDs/Fs.

Table 5.3b Animal Transfer Coefficients for Inorganic Chemicals

Inorganic Metals and Chemicals	Tco (d/kg)[a]				
	Cow's Milk	Chicken Egg	Chicken Meat	Cattle Meat	Pig Meat
Arsenic	5×10^{-5}	0.07	0.03	2×10^{-3}	0.01[b]
Beryllium	9×10^{-7}	0.09	0.2	3×10^{-4}	0.001
Cadmium	5×10^{-6}	0.01	0.5	2×10^{-4}	0.005
Chromium (VI)	9×10^{-6}	NA[c]	NA	NA	NA
Fluoride	3×10^{-4}	0.008	0.03	8×10^{-4}	0.004[b]
Lead	6×10^{-5}	0.04	0.4	3×10^{-4}	0.001[b]
Mercury	7×10^{-5}	0.8	0.1	4×10^{-4}	0.002[b]
Nickel	3×10^{-5}	0.02	0.02	3×10^{-4}	0.001
Selenium	0.009	3	0.9	0.04	0.5

[a] All Tco values were rounded to the nearest whole number.

[b] The meat Tco was estimated using the metabolic weight adjustment ratio of 4.8 from cattle to pig

[c] NA – no data available or was not applicable

Table 5.4 Point Estimates for Animal Pathway

Parameter	Beef Cattle	Lactating Dairy Cattle	Pigs	Meat Poultry	Egg-laying Poultry
BW (body weight in kg)	533	575	55	1.7	1.6
BR_a (inhalation rate in m^3/d)	107	115	7	0.4	0.4
WI_a (water consumption in kg/d)	45	110	6.6	0.16	0.23
FI (Food Intake in kg/d) DMI[a] and/or pasture grazing[b]	9	22	2.4	0.13	0.12
FS_f (soil fraction of feed)	0.01	0.01	NA	NA	NA
FS_p (soil fraction of pasture)	0.05	0.05	0.04	0.02	0.02

[a] Dry matter intake

[b] For beef and dairy cattle, pasture grazing is assumed to be leafy vegetation (grasses, including greenchop) and accounts for half of the cattle's diet (FG=0.5 in Section 5.3.4.2.3). The default assumes on-site pasture grazing contaminated by facility emissions. Fraction of feed or dry matter intake (e.g., hay, grain) grown on-site is assumed to be contaminated by facility emissions and fraction of feed that is grown off-site is not assumed to be contaminated. A default may be used that assumes all feed is grown off-site (L=0 in Section 5.3.4.2.3), but a survey is recommended to verify the fractions of feed grown on-site and off-site.

For pigs with access to soil, but usually confined to a pen, default assumes no pasture grazing (FG=0 in Section 5.3.4.2.3). For feed, estimated intake consists of equal portions of all plant types including exposed, leafy, protected and root in which 10% (L=0.1 in Section 5.3.4.2.3) of the diet is homegrown and contaminated by facility emissions. The fraction of feed that was transported from an off-site location is assumed not to be contaminated by facility emissions.

For poultry including egg-laying and broiler chickens that have access to soil, default assumes no pasture grazing (FG=0 in Section 5.3.4.2.3). Estimated feed intake is composed of equal proportions of all plant types with 5% (L=0.05 in Section 5.3.4.2.3) homegrown and contaminated by facility emissions. The fraction of feed grown off-site and transported to the receptor was not contaminated by facility emissions.

NA - Not applicable. Assume FS_f is equal to zero.

Table 5.5 Mother's Milk Transfer Coefficients (Tco_m)[a]

Chemical/chem. group	Tco_m (day/kg-milk)
PCDDs - oral[b]	3.7
PCDFs - oral[b]	1.8
Dioxin-like PCBs - oral[b]	1.7
PAHs – inhalation[c]	1.55
PAHs – oral	0.401
Lead - inhalation[d]	0.064

[a] These compound classes represent the chemicals of greatest concern for the mother's milk pathway under the Hot Spots program. It is expected that additional transfer coefficients will be developed for other multipathway chemicals in the Hot Spots Program as data becomes available and is reviewed.

[b] Use the oral Tco_m for the inhalation and dermal pathways. The PCDD, PCDF and dioxin-like PCB Tcos were derived using a Random-effects model from individual Tco_m estimates for 7 PCDDs, 9 PCDFs and 12 dioxin-like PCBs (See OEHHA, 2012, Appendix J).

[c] Use the inhalation Tco_m for the dermal pathway

[d] Use the inhalation Tco_m for the ingestion and dermal pathways

5.4 Estimation of Dose

Once the concentrations of substances are estimated in air, soil, water, plants, and animal products, they are used to evaluate estimated exposure to people. Exposure is evaluated by calculating the daily dose in milligrams per kilogram body weight per day (mg/kg/d). The following algorithms calculate this dose for exposure through inhalation, dermal absorption, and ingestion pathways. All chemicals must be assessed for exposure through inhalation. If there are emissions of one or more of the subset of semi- or non-volatile multipathway substances, the soil ingestion pathway and the dermal soil exposure pathway are also assessed. The mother's milk pathway may also be a mandatory pathway depending on the multipathway substance released (See Table 5.1). The other exposure pathways may also need to be assessed if a survey of the exposure site shows they are present (e.g., ingestion of water, home-grown crops, home-raised animal products, and angler-caught fish).

This section contains average and high-end point estimates and data distributions for adults and children for many exposure pathways. The point-estimates and data distributions for children fall within the 3rd trimester, 0<2, 2<9, and 2<16 year age groupings. The point-estimates and data distributions for adults fall within the 16<30 and 16-70 year age groupings. When evaluating 9-, 30-, and 70-year exposure durations for cancer risk assessment, assessors will use distributions starting at the third trimester.

Workers are assessed for cancer risk as adults using 8-hour breathing rate point estimates (See Table 5.8). Point estimates for workers are listed under "offsite worker." OEHHA has not developed stochastic distributions for worker exposure. Therefore, there is no Tier 3 stochastic approach for offsite worker cancer risk assessment.

5.4.1 *Estimation of Exposure through Inhalation*

The dose through the inhalation route is estimated for cancer risk assessment and noncancer hazard assessment. Both residential and offsite worker exposures are considered. Since residential exposure includes near-continuous long-term exposure at a residence and workers are exposed only during working hours (i.e., 8 hours/day), different breathing rate distributions are used.

5.4.1.1 Residential Inhalation Dose for Cancer Risk Assessment

Exposure through inhalation is a function of the breathing rate, the exposure frequency, and the concentration of a substance in the air. For residential exposure, the breathing rates are determined for specific age groups, so inhalation dose (Dose-air) is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. OEHHA used the mother's breathing rates to estimate dose for the 3rd trimester fetus assuming the dose to the fetus during the 3rd trimester is the same as the mother's dose. These age-specific groupings are needed in order to properly use the age sensitivity factors for cancer risk assessment (see Chapter 8). A Tier 1 evaluation uses the high-end point estimate (i.e., the 95th percentiles) breathing rates for the inhalation

pathway in order to avoid underestimating cancer risk to the public, including children. A possible exception for using high-end breathing rates are when there is exposure to multipathway substances and two of the non-inhalation pathways drive the risk, rather than the inhalation pathway (see Chapter 8).

A. Equation 5.4.1.1: $$\text{Dose-air} = C_{air} \times \{BR/BW\} \times A \times EF \times 10^{-6}$$

1. Dose-air = Dose through inhalation (mg/kg/d)
2. C_{air} = Concentration in air ($\mu g/m^3$)
3. {BR/BW} = Daily Breathing rate normalized to body weight (L/kg body weight - day)
4. A = Inhalation absorption factor (unitless)
5. EF = Exposure frequency (unitless), days/365 days
6. 10^{-6} = Micrograms to milligrams conversion, liters to cubic meters conversion

a: Recommended default values for EQ 5.4.1.1:

1. {BR/BW} = Daily breathing rates by age groupings, see As supplemental information, the assessor may wish to evaluate the inhalation dose by using the mean point estimates in Table 5.6 to provide a range of breathing rates for cancer risk assessment to the risk manager.
2. Table (point estimates) and Table 5.7 (parametric model distributions for Tier III stochastic risk assessment). For Tier 1 residential estimates, use 95th percentile breathing rates in Table 5.6.
3. A = 1
4. EF = 0.96 (350 days/365 days in a year for a resident)

b: Assumption for EQ 5.4.1.1:

1. The fraction of chemical absorbed (A) is the same fraction absorbed in the study on which the cancer potency or Reference Exposure Level is based.

As supplemental information, the assessor may wish to evaluate the inhalation dose by using the mean point estimates in Table 5.6 to provide a range of breathing rates for cancer risk assessment to the risk manager.

Table 5.6 Point Estimates of Residential Daily Breathing Rates for 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years (L/kg BW-day)

	3rd Trimester[a]	0<2 years	2<9 years	2<16 years	16<30 years	16<70 years
	L/kg-day					
Mean	225	658	535	452	210	185
95th Percentile	361	1090	861	745	335	290

[a] 3rd trimester **breathing rates** based on breathing rates of pregnant women using the assumption that the dose to the fetus during the 3rd trimester is the same as that to the mother.

Table 5.7 Daily Breathing Rate Distributions by Age Group for Residential Stochastic Analysis (L/kg BW-day)

	3rd Trimester	0<2 years	2<9 years	2<16 years	16<30 years	16-70 years
Distribution	Max extreme	Max extreme	Max extreme	Log-normal	Logistic	Logistic
Minimum	78	196	156	57	40	13
Maximum	491	2,584	1,713	1,692	635	860
Scale	59.31	568.09	125.59		40.92	36.19
Likeliest	191.50	152.12	462.61			
Location				-144.06		
Mean	225	658	535	452	210	185
Std Dev	72	217	168	172	75	67
Skewness	0.83	2.01	1.64	1.11	0.83	1.32
Kurtosis	3.68	10.61	7.88	6.02	5.17	10.83
Percentiles						
5%	127	416	328	216	96	86
10%	142	454	367	259	118	104
25%	179	525	427	331	161	141
50%	212	618	504	432	207	181
75%	260	723	602	545	252	222
80%	273	758	631	572	261	233
90%	333	934	732	659	307	262
95%	361	1090	861	745	335	290
99%	412	1430	1140	996	432	361

5.4.1.2 Offsite Worker (MEIW) Inhalation Dose for Cancer Risk Assessment

For worker exposure, the default assumes working age begins at 16 years, and that exposures to facility emissions occur during the work shift, typically up to 8 hours per day during work days. Breathing rates that occur over an 8-hour period vary depending on the intensity of the activity (See Table 5.8), and are used to estimate the inhalation dose. The 8-hour breathing rates may also be useful for cancer risk assessment of children and teachers exposed at schools during school hours.

Another risk management consideration for the offsite worker scenario for cancer assessment of a Hot Spots facility is whether there are women of child-bearing age at the MEIW location and whether the MEIW has a daycare center. Since the third trimester is only a short segment of the 25 year exposure duration used for the MEIW, the resulting risk estimate would not differ significantly. An exception to this assumption is high exposure to carcinogens over a short period, as might occur during short-term projects (see Section 8.2.10). In this case, risk assessment during the third trimester may be warranted. However, if there is onsite daycare at the MEIW, then the risks to the children will be underestimated using the offsite adult worker scenario due to increased exposure (per kg body weight) and increased sensitivity to carcinogen exposure (see Section 8.2.1). In this case, the Districts may wish to include a calculation of inhalation dose for the children in the onsite daycare, assuming they could be there from 0 to age 6 years.

Exposed workers may be engaged in activities ranging from desk work, which would reflect breathing rates of sedentary/passive or light activities, to farm worker activities, which would reflect breathing rates of moderate intensity (See Table 5.9). OEHHA recommends default (Tier 1) point estimate 8-hour breathing rates in L/kg-8-hrs based on the mean and 95th percentile of moderate intensity activities, 170 and 230 L/kg-8-hrs, respectively, for adults 16-70 years old.

Many facilities operate non-continuously, as in only 8-10 hours per day, but the air dispersion modeling is performed as if the emissions were uniformly emitted over 24 hours a day, 7 days per week. The air dispersion computer model used, including AERMOD and other models, typically calculate an annual average air concentration based on actual operating conditions but also include the hours of nonoperation in the average concentration.

Therefore, there are two components that determine the worker exposure to facility emissions:

1) What is the estimated concentration the worker is exposed to (i.e., breathes), during the work shift, and

2) What is the amount of time the offsite worker's schedule overlaps with the facility's emission schedule?

There are two approaches to estimating the modeled concentration the worker is breathing during the work shift. The first approach uses a worker adjustment factor (i.e.,

the WAF) to approximate what the worker is breathing based on the modeling run used for residential receptors. The second approach uses a special modeling run with the hourly raw results from an air dispersion analysis and is described in Appendix M.

The first and more basic approach is to obtain the long term average concentration as you would for modeling a residential receptor, then adjusting this exposure concentration using the calculated WAF (EQ 5.4.1.2 B) to estimate the concentration the offsite worker is exposed to during the work shift (shown as (C_{air} × WAF) in EQ 5.4.1.2 A). This method is characteristic of a default approach used in a Tier 1 assessment. Once the exposure concentration is determined, the worker's inhalation dose (Dose-air) can be calculated as shown in EQ 5.4.1.2 A.

The second approach for determining the air concentration the worker is exposed to uses a refined modeling run where the hourly raw dispersion model output are post processed to examine the hourly concentrations that fall within the offsite worker's shift. This method provides a more representative estimate of the air concentration, but is more complex, and time consuming than the first method. See Appendix M for information on how to simulate the long term concentration for the offsite worker that can be used to estimate inhalation cancer risk.

The HARP software has the ability to calculate worker impacts using an approximation factor and, in the future, it will have the ability to post process refined worker concentrations using the hourly raw results from an air dispersion analysis.

If the off-site worker's shift does not completely overlap the emission schedule of the facility, then a Discount Factor (DF) may be applied to the WAF. Calculation of the DF is shown in EQ 5.4.1.2 C. The default assumption is that the offsite worker's shift falls completely within the emission schedule of the facility, in which case DF=1. Use of a DF less than 1 requires a survey at the MIEW to verify that some portion of the off-site worker shift is not subject to the facility emissions.

A. Equation 5.4.1.2 A: $\text{Dose-air} = (C_{air} \times WAF) \times \{BR/BW\} \times A \times EF \times 10^{-6}$

1. Dose-air = Dose through inhalation (mg/kg/d)
2. C_{air} = Annual average concentration in air ($\mu g/m^3$)
3. WAF = Worker air concentration adjustment factor (unitless)
4. {BR/BW} = Eight-hour breathing rate normalized to body weight (L/kg body weight - day)
5. A = Inhalation absorption factor (unitless)
6. EF = Exposure frequency (unitless), days/365 days)
7. 10^{-6} = Micrograms to milligrams conversion, Liters to cubic meters conversion

a: Recommended default values for EQ 5.4.1.2 A:

1. WAF = See EQ. 5.4.1.2 B for formula to calculate WAF, or App. M for refined post-processing modeling to calculate WAF.
2. {BR/BW} = For workers, use age16-70 year, 95th percentile, moderate intensity 8-hour point estimate breathing rates (see Table 5.8). No worker breathing rate distributions exist for stochastic risk assessment.
3. A = 1
4. EF = 0.68 (250 days / 365 days). Equivalent to working 5 days/week, 50 weeks/year.

b: Assumption for EQ 5.4.1.2 A:

1. The fraction of chemical absorbed (A) through the lungs is the same fraction absorbed in the study on which the cancer potency factor is based.
2. The source emits during the daylight hours. Calculate WAF (EQ 5.4.1.2 B) if a special post-processing modeling run described in App. M was not completed. For nighttime emissions and exposure scenarios, see Appendix N.

B. Equation 5.4.1.2 B: $$WAF = (H_{res} / H_{source}) \times (D_{res} / D_{source}) \times DF$$

1. WAF = Worker adjustment factor (unitless)
2. H_{res} = Number of hours per day the annual average residential air concentration is based on (always 24 hours)
3. H_{source} = Number of hours the source operates per day
4. D_{res} = Number of days per week the annual average residential air concentration is based on (always 7 days)
5. D_{source} = Number of days the emitting source operates per week
6. DF = Discount factor, for when the offsite worker's schedule partially overlaps the source's emission schedule

b: Recommended default values for EQ 5.4.1.2 B:

1. DF = 1 for offsite worker's schedule occurring within the source's emission schedule. A site-specific survey may be used to adjust the DF using EQ 5.4.1.2 C.

C. Equation 5.4.1.2 C: $$DF = (H_{coincident} / H_{worker}) \times (D_{coincident} / D_{worker})$$

1. $H_{coincident}$ = Number of hours per day the offsite worker's schedule and the source's emission schedule coincide
2. H_{worker} = Number of hours the offsite worker works per day
3. $D_{coincident}$ = Number of days per week the offsite worker's schedule and the source's emission schedule coincide
4. D_{worker} = Number of days the offsite worker works per week

Tier 2 adjustments for EQ 5.4.1.2 A-C may be used for:

1. Eight-hour breathing rate. Point estimates in Table 5.8 for lower breathing rates of sedentary/passive and light intensity work activities may be substituted in site-specific Tier 2 scenarios. Table 5.9 can be used to estimate breathing rate intensities for various job activities. Use of different breathing rates requires a survey of the exposed workplace and approval by Air District, ARB and OEHHA.
2. Discount Factor (DF) in EQ 5.4.1.2 C. If a site-specific survey of the offsite worker schedule only partially overlaps with the source's emission schedule, then a DF less than 1 may be calculated. Use of a DF less than 1 requires a survey of the exposed workplace and approval by the Air District or ARB.

The 8-hour breathing rates are based on minute ventilation rates derived by U.S. EPA (2009). U.S. EPA employed a metabolic equivalent (METS) approach for estimating breathing rates. This method determines daily time-weighted averages of energy expenditure (expressed as multipliers of the basal metabolic rate) across different levels of physical activity. The 8-hour breathing rates shown in Table 5.8 are divided into three categories:

Sedentary & Passive Activities (METS ≤ 1.5)

Light Intensity Activities (1.5 < METs ≤ 3.0)

Moderate Intensity Activities (3.0 < METs ≤ 6.0)

For example, a METS = 1 is roughly equivalent to energy expenditure during sleep and is close to the basal metabolic rate. A METS activity that is two to three times greater (METS = 2 to 3) is characteristic of light intensity activities, such as administrative office work or sales work as shown in Table 5.9.

Under a Tier 1 scenario, the risk assessor may simply use the 95th percentile breathing rate for moderate intensity activities of 230 L/kg-8 hrs in Eq. 5.4.1.2 A to calculate the daily dose via the inhalation route to the worker. In an example of a Tier 2 scenario, the risk assessor surveys the workplace and determines that the worker(s) at the MEIW receptor are primarily sitting at a desk performing administrative-type work on a computer. Referring to Table 5.9, this activity corresponds most closely to "administrative office work" with a mean activity level of 1.7 and a SD = 0.3. This level of activity is considered "light intensity activity" (i.e., 1.5 < METs ≤ 3.0). With the prior approval of the Air District or ARB, the risk assessor may then use the 95th percentile breathing rate of 100 L/kg-8 hr for light intensity activities in Equation 5.4.1.2 A.

Table 5.8. Eight-Hour Breathing Rate (L/kg per 8 Hrs) Point Estimates for Males and Females Combined[a,b]

	0<2 years	2<9 years	2<16 years	16<30 years	16-70 years
	Sedentary & Passive Activities (METS ≤ 1.5)				
Mean	200	100	80	30	30
95th Percentile	250	140	120	40	40
	Light Intensity Activities (1.5 < METs ≤ 3.0)				
Mean	490	250	200	80	80
95th Percentile	600	340	270	100	100
	Moderate Intensity Activities (3.0 < METs ≤ 6.0)				
Mean	890	470	380	170	170
95th Percentile	1200	640	520	240	230

[a] For pregnant women, OEHHA recommends using the mean and 95th percentile 8-hour breathing rates based on moderate intensity activity of 16<30 year-olds for 3rd trimester.
[b.] Breathing rates in the table may be used for worker, school, or residential exposures

Table 5.9. METS Distributions for Workplace and Home Activities

Activity Description	Mean	Median	SD	Min	Max
Workplace Activities					
Administrative office work	1.7	1.7	0.3	1.4	2.7
Sales work	2.9	2.7	1.0	1.2	5.6
Professional	2.9	2.7	1.0	1.2	5.6
Precision/production/craft/repair	3.3	3.3	0.4	2.5	4.5
Technicians	3.3	3.3	0.4	2.5	4.5
Private household work	3.6	3.5	0.8	2.5	6.0
Service	5.2	5.3	1.4	1.6	8.4
Machinists	5.3	5.3	0.7	4.0	6.5
Farming activities	7.5	7.0	3.0	3.6	17.0
Work breaks	1.8	1.8	0.4	1.0	2.5
Household/Neighborhood Activities					
Sleep or nap	0.9	0.9	0.1	0.8	1.1
Watch TV	1.0	1.0	-	1.0	1.0
General reading	1.3	1.3	0.2	1.0	1.6
Eat	1.8	1.8	0.1	1.5	2.0
Do homework	1.8	1.8	-	1.8	1.8
General personal needs and care	2.0	2.0	0.6	1.0	3.0
Indoor chores	3.4	3.0	1.4	2.0	5.0
Care of plants	3.5	3.5	0.9	2.0	5.0
Clean house	4.1	3.5	1.9	2.2	5.0
Home repairs	4.7	4.5	0.7	4.0	6.0
General household chores	4.7	4.6	1.3	1.5	8.0
Outdoor chores	5.0	5.0	1.0	2.0	7.0
Walk/bike/jog (not in transit) age 20	5.8	5.5	1.8	1.8	11.3
Walk/bike/jog (not in transit) age 30	5.7	5.7	1.2	2.1	9.3
Walk/bike/jog (not in transit) age 40	4.7	4.7	1.8	2.3	7.1

Table 5.10 lists some WAFs for a few typical scenarios. For example, if the source is continuously emitting, then the offsite worker is assumed to breathe the long-term annual average concentration during their work shift. The WAF then becomes one and no concentration adjustments are necessary in this situation when estimating the inhalation cancer risk. If the source is non-continuously emitting for 8 hours/day, 5 days/week and the offsite worker's shift completely overlaps the emitting facility's operating schedule, then the WAF would be 4.2:

$$(24 \text{ hrs/day} / 8 \text{ hrs/day}) \times (7 \text{ days/week} / 5 \text{ days/week}) = 4.2$$

If the offsite worker's 8 hour/day shift only overlaps the emitting facility's operation schedule for 4 hrs/day, then the WAF is 2.1 because the DF = 0.5 will reduce the WAF by half: DF = (4 hrs/day / 8 hrs/day) x (5 days/week / 5 days/week) = 0.5

Table 5.10: Example Worker Adjustment Factors (WAF) to Convert a Long-Term Daily Average Emission Concentration to an Off-Site Worker Receptor Exposure

Off-Site Workers' Shift Overlap with Facility's Emission Schedule[a]	Facility Operating Schedule	Adjustment Factor
8 hrs/day, 5 days/week	Continuous (24 hrs/7 days/week)	1.0
8 hrs/day, 5 days/week[b]	Non-continuous (8 hrs/5 days/week)	4.2
4 hrs/day, 5 days/week	Non-continuous (8 hrs/5 days/week)	2.1

[a] Worker works 8 hours per day, 5 days per week
[b] Workers' work hours completely overlap the facilities operating hours

5.4.1.3 Inhalation Dose for Children at Schools and Daycare Facilities for Cancer Risk Assessment

The 8-hour breathing rates and inhalation dose equations (EQ 5.4.1.2 A-C) may also be used to estimate risk to children when exposures occur while at school or at day care facilities. Breathing rate point estimates to use in Table 5.8 depend on the ages of the children at the exposed schools and day cares. As a Tier 1 default, moderate intensity breathing rates are recommended. Equations 5.4.1.2 A-C is used in the same way to estimate dose in children as it is for workers.

5.4.1.4 Non-Cancer Inhalation Exposure for Workers and Residents

For typical daily work shifts of 8-9 hours, acute, 8-hour and chronic Reference Exposure Levels (RELs) described in Chapter 8 are used in health risk assessments to characterize the noncancer risks using the Hazard Index approach described in Chapter 8 and in OEHHA (2008). Uncertainty factors are already incorporated into the RELs used to assess noncancer risk, as explained in Chapter 8, so all that is needed to evaluate the noncancer hazard is the air concentration that the worker is exposed to. The modeled maximum 1-hour air concentration is determined for acute hazard assessment and the annual average air concentration is determined for chronic hazard assessment. The modeled average air concentration during a work shift is determined for 8-hour hazard assessment using the adjusted annual average air concentration described below.

The 8-hour RELs are primarily designed to address offsite worker inhalation exposure at the MEIW because they better characterize the daily intermittent exposures of workers than the chronic RELs do. They are used in estimating the 8 hour Hazard Index for offsite workers. The 8-hour RELs should be used for typical daily work shifts of 8-9 hours. For further questions, assessors should contact OEHHA, the District, or reviewing authority to determine if the 8-hour RELs should be used in your HRA. Any discussions or directions to exclude the 8-hour REL evaluation should be documented in the HRA.

Note, however, there are only a handful of 8-hour RELs currently adopted for use in the Hot Spots program. Therefore, we also recommend performing chronic noncancer exposure assessment for the offsite worker (MEIW) based on the annual average air concentration at the MEIW. Evaluation of the chronic Hazard Index should help protect workers who routinely work longer than 8 hour shifts. Exposure to multipathway substances also requires noncancer hazard assessment for the dermal and oral soil exposure pathways for offsite workers. Because there are few 8-hour RELs currently available, hazard assessment for the noninhalation pathways for multipathway substances is only applied when estimating the chronic Hazard Index.

In addition, the Districts may wish to determine if there is an onsite daycare at the MEIW and include a calculation of the chronic and 8-hour inhalation dose for children, although onsite hazard assessment is not a requirement for a Hot Spots risk assessment.

As explained in Section 5.4.1.2 for cancer risk, the modeled annual average air concentration is adjusted to the air concentration that the worker is actually exposed to if the facility operates non-continuously. The typical method for this adjustment is by calculating the Worker Adjustment Factor (WAF) shown in EQ 5.4.1.4 B and multiplying this value by the annual average air concentration (C_{air}, in $\mu g/m^3$) in EQ 5.4.1.4 A.

Unlike cancer risk assessment, no discount factor (DF) is applied in noncancer assessment for partial overlap between the worker's schedule and the source's emission schedule. Adjustments for worker vacations, work shifts for shortened weeks (e.g., 1 - 4 days), and worker time away on weekends are also not appropriate.

An alternative refined post-processing method, described in Appendix M, may be used to estimate the air concentration the worker is exposed to during their work schedule. OEHHA may be consulted about the particular chemical involved if it is important to make a more refined analysis.

The equation to adjust the annual average air concentration to a worker 8-hour exposure concentration (i.e., the adjusted annual average ground level concentration) is expressed as:

A. Equation 5.4.1.4 A: $$\text{Adjusted } C_{air} \ (\mu g/m^3) = C_{air} \times WAF$$

Where WAF is determined as:

B. Equation 5.4.1.4 B: $$WAF = (H_{res} / H_{source}) \times (D_{res} / D_{source})$$

a: Assumptions for EQ 5.4.1.4 B:

1. No adjustment of the WAF allowed for partial overlap of the worker's schedule and the source's emission schedule.

Alternatives for calculating off-site worker Adjusted C_{air} in EQ 5.4.1.4 A-B:

1. Rather than calculate the WAF for a non-continuous emitting facility, a post-processing of the hourly raw dispersion model output and examination of the hourly concentrations that fall within the offsite worker's shift can be conducted to estimate the air concentration the worker is exposed to. This method is a more refined, complex, and time consuming approach, but should result in a more representative exposure concentration. See Appendix M for information on how to simulate the exposure concentration for the off-site worker.
2. For continuously-emitting facilities (i.e., 24 hrs/day, 7 days/week), if an assessor does not wish to assume the worker breathes the long-term annual average concentration during the work shift, then a refined concentration can also be post-processed as described in Appendix M. All alternative assumptions should be approved by the reviewing authority and supported in the presentation of results.

For residential exposure to non-continuously operating facilities, the modeled maximum 1-hour and chronic air concentrations at the MEIR are determined for noncancer hazard assessment. Hazard assessment for repeated 8-hour exposure at the MEIR is not required. Chronic exposure assessment based on the annual average air concentration should adequately protect individuals, in part because residents are considered to be present at the MEIR at or near 24 hrs per day. Many facilities operate for periods longer than 8 hours per day and the hazards are better characterized based on chronic exposure. Nevertheless, differences between 8-hour and chronic exposures (i.e., higher daily 8-hour exposures vs. lower longer daily exposure 24 hrs/day) may result in different toxicological responses including potentially greater toxicological responses with either 8-hour or chronic exposure. There may also be cases such as special meteorological situations (e.g., significant diurnal-nocturnal meteorological differences) where the 8-hour REL will be more protective than the chronic REL. Thus, the air districts may also elect to have an 8-hour hazard assessment performed at the MEIR, using daily 8 hour exposures and the 8 hr RELs.

Eight-hour exposure assessment is not recommended for continuously emitting sources for residential receptors. In this situation it is only necessary to estimate chronic exposure based on the annual average concentration. However, there may be situations where the air district may wish to assess an 8-hour residential exposure to continuously operating facilities, for example, where there are significant differences in modeled concentration of emissions during the day due to diurnal wind patterns.

For estimating the air concentration from non-continuously operating facilities, EQ 5.4.1.4.A is also used to adjust the annual average concentration to what the residents are exposed to. This is the air concentration that the 8-hour REL will be compared to as discussed in Chapter 8. The alternative refined post-processing method described in Appendix M may also be used to estimate residential exposure.

In summary, the requirements for noncancer hazard assessment using the Hazard Index approach at the MEIW and MEIR are as follows.

For offsite worker exposure:

- Acute hazard assessment based on the maximum 1-hour air concentrations and 1-hour RELs
- Eight-hour hazard assessment based on daily average 8-hour exposure (estimated using adjusted annual average air concentration in EQ 5.4.1.4 A and B or by post-processing method in App. M) for those substances with 8-hour RELs
- Chronic hazard assessment based on annual average exposure and chronic RELs, and oral chronic RELs for noninhalation routes of multipathway substances

For residential exposure:

- Acute hazard assessment based on the maximum 1-hour air concentration and 1-hour RELs
- Eight-hour hazard assessment based on daily average 8-hour exposure not required, but can be performed at the discretion of the air districts for exposure to non-continuously operating facilities based on the adjusted annual average air concentration (EQ 5.4.1.4 A and B or method in App. M). Eight-hour assessments not recommended for exposure to continuously operating facilities
- Chronic hazard assessment based on annual average exposure and chronic RELs, and oral chronic RELs for noninhalation routes of multipathway substances

5.4.1.5 Exposure Frequency and Age Groupings for Noncancer Hazard Assessment

For cancer risk, the basic assumption is that risk is associated with cumulative dose of carcinogen. Thus, the dose used to estimate cancer risk can be adjusted for exposure frequency, as well as time spent within the MEIR or MEIW location. Chronic RELs are not necessarily related to cumulative dose. Thus, adjusting the estimated dose used to calculate hazard index for exposure frequency or time away from the MEIR or MEIW is not appropriate.

The average daily dose for chronic noncancer assessment is based on exposure beginning at birth to 70 years of age, necessitating calculation of a time-weighted average for age 0-2, 2-16 and 16-70 years. Since we are not applying Age Sensitivity Factors for assessing non-cancer hazard, the 3rd trimester is not explicitly called out for determining dose, as it is for cancer risk assessment. Rather adult exposure is considered, which would include pregnant women in any trimester. Both inhalation and oral RELs incorporate safety factors to protect sensitive human populations.

5.4.2 *Estimation of Exposure through Dermal Absorption*

Exposure through dermal absorption (dose-dermal) is a function of the soil or dust loading of the exposed skin surface, the amount of skin surface area exposed, and the concentration and availability of the substance. In the previous edition of OEHHA's

exposure guidelines document (OEHHA, 2000), we recommended using specified average and high-end point estimate values for four of the variates (body weight, exposed surface area of skin, soil load on skin and frequency of exposure) in the stochastic analysis for dermal dose. This equation required multiplying values together, which could lead to overly conservative exposure estimates when high-end values were used. By combining information from the four variates into one composite distribution, over-conservatism may be avoided.

To this end, OEHHA created a new variate, "annual dermal load", or ADL, which is a composite of the body surface area (BSA) per kg body weight, exposure frequency, and soil adherence variates. Point estimates from the composite "annual dermal load" can be used for point estimate assessments while parameters and information on the type of distribution (e.g., lognormal) can be used for Tier III stochastic risk assessments. For details on the development of the ADL, refer to the Technical Support Document for Exposure and Stochastic Analysis (OEHHA, 2012).

5.4.2.1 Dermal Dose for Cancer Risk Assessment

The dose through residential dermal exposure to contaminated soil varies by age and is calculated for each age group (e.g., 3rd trimester, 0<2 yrs, 2<9 yrs, 2<16 yrs, 16<30 and 16-70 yrs). These age-specific groupings are needed in order to properly use the age sensitivity factors for cancer risk assessment (see Chapter 8). This pathway is also assessed for exposure to offsite workers; a separate ADL for offsite workers is presented in Table 5.11. Children at a MEIW daycare, if present, may also be assessed for exposure if the District deems it advisable.

A. Equation 5.4.2.1: $$\mathbf{Dose_{dermal} = ADL \times Cs \times ABS \times 10^{-9} / 365}$$

1. $Dose_{dermal}$ = Exposure dose through dermal absorption (mg/kg-d)
2. ADL = Annual dermal load (mg soil/kg BW-yr)
3. C_s = Average soil concentration (µg/kg)
4. ABS = Fraction absorbed across skin (unitless)
5. 10^{-9} = Conversion factor for chemical & soil (µg to mg, mg to kg)
6. 1/365 = Conversion factor for ADL from yrs to days

a: Recommended default values for EQ 5.4.2.1:

1. ADL = See Table 5.11 (point estimates) & Table 5.12 a-d (distributions)
2. C_s = Calculated above in EQ 5.3.2 A
3. ABS = See Table 5.13

b: Assumption for EQ 5.4.2.1:

1. The ADL for the third trimester of the fetus is based on the ADL of the mother; when normalized to body weight, we assume that exposure to the

mother and the fetus will be the same. The mother's exposure is based on that of adults 16-30 years of age in Table 5.11 and 5.12d.

2. Exposure frequency (EF) for vacation time spent away from exposure does not appear as a variate in EQ 5.4.2.1, as it is incorporated in the ADL and includes a 2-week vacation per year away from dermal soil exposure for both residents and offsite workers.

Climate will strongly influence people's choice of clothing. Due to California's varied climatic regions and existing data on clothing choices at different temperatures, three levels of climatic conditions, warm, mixed, and cold, are used to describe California's climate regions:

1. A warm climate is characteristic of Southern California areas such as Los Angeles, which can have warm to hot temperatures throughout the year.
2. A "mixed" climate is one that has warm-to-hot temperatures during much of the year (daily highs over 80 degrees are common), roughly from April to October, and cold temperatures (lows near or below freezing) during the remainder of the year. The mountains and central valley are examples of a mixed climate.
3. A cold climate is representative of San Francisco, Eureka, and other northern coastal communities, which have cool temperatures (daily highs of less than 65 degrees) for the majority of the year and can receive a considerable amount of fog and rainfall.

OEHHA recommends consulting the local air district for assistance on selecting the most appropriate climate.

Table 5.11 Recommended Annual Dermal Load Point Estimates (in mg/kg-yr) for Dermal Exposure

	3rd Trimester[a]	Children 0<2 yrs	Children 2<9 yrs	Children 2<16 yrs	Adults[b]	Offsite Worker[c]
Warm climate						
Mean	1.2×10^3	3.6×10^3	7.5×10^3	6.4×10^3	1.2×10^3	2.6×10^3
95th percentile	2.6×10^3	4.3×10^3	9.1×10^3	8.5×10^3	2.6×10^3	5.0×10^3
Mixed climate						
Mean	1.1×10^3	2.2×10^3	6.6×10^3	5.7×10^3	1.1×10^3	2.6×10^3
95th percentile	2.4×10^3	2.9×10^3	8.7×10^3	8.1×10^3	2.4×10^3	5.0×10^3
Cold climate						
Mean	0.7×10^3	1.2×10^3	3.1×10^3	2.8×10^3	0.7×10^3	2.6×10^3
95th percentile	2.1×10^3	1.9×10^3	5.2×10^3	5.1×10^3	2.1×10^3	5.0×10^3

[a] The ADL for the 3rd trimester of the fetus is based on the ADL of the mother; when normalized to body weight, we assume that exposure to the mother and the fetus will be the same

[b] Residential adult ADLs are for both 16<30 and 16-70 year age groups

[c] Assumes exposure only to face, hands and forearms regardless of climate region

Tables 5.12a - d Annual Dermal Load Distributions by Age Group and Climate for Stochastic Analysis

Table 5.12a Annual Dermal Load (mg/kg-yr) Distributions for the 0<2 Year Age Group

Climate Type	Warm climate	Mixed climate	Cold climate
Distribution	Student's t	Logistic	Triangular
Minimum			0.2×10^3
Likeliest			0.7×10^3
Maximum			2.6×10^3
Scale	0.41	0.28	
Deg. freedom	3		
Midpoint	3.6×10^3		
Mean	3.6×10^3	2.2×10^3	1.2×10^3
50th percentile	3.6×10^3	2.2×10^3	0.9×10^3
90 th percentile	4.1×10^3	2.8×10^3	1.9×10^3
95 th percentile	4.3×10^3	2.9×10^3	1.9×10^3
99 th percentile	4.7×10^3	3.1×10^3	2.1×10^3

Table 5.12b Annual Dermal Load (mg/kg-yr) Distributions for the 2<9 Year Age Group

Climate Type	Warm climate	Mixed climate	Cold climate
Distribution	Min extreme	Min extreme	Triangular
Minimum			0.4×10^3
Likeliest	8.0×10^3	7.3×10^3	1.9×10^3
Maximum			6.9×10^3
Scale	0.1	1.3	
Mean	7.5×10^3	6.6×10^3	3.1×10^3
50 th percentile	7.7×10^3	6.5×10^3	2.3×10^3
90 th percentile	8.7×10^3	8.4×10^3	5.1×10^3
95 th percentile	9.1×10^3	8.7×10^3	5.2×10^3
99 th percentile	9.7×10^3	9.4×10^3	5.7×10^3

Table 5.12c Annual Dermal Load (mg/kg-yr) Distributions for the 2<16 Year Age Group

Climate Type	Warm climate	Mixed climate	Cold climate
Distribution	Min extreme	Logistic	Triangular
Minimum			0.3×10^3
Likeliest	7.2×10^3		1.6×10^3
Maximum			6.9×10^3
Scale	1.29	0.91	
Mean	6.4×10^3	5.7×10^3	2.8×10^3
50 th percentile	6.6×10^3	5.7×10^3	2.2×10^3
90 th percentile	8.1×10^3	7.7×10^3	4.8×10^3
95 th percentile	8.5×10^3	8.1×10^3	5.1×10^3
99 th percentile	9.3×10^3	8.9×10^3	5.6×10^3

Table 5.12d Annual Dermal Load (mg/kg-yr) Distributions for Residential Adults (Age 16-30 and 16-70 Years) [a] and Offsite Workers

Receptor	Residential Adult			Offsite Worker
Climate Type	Warm	Mixed	Cold	All Climates [b]
Distribution	Beta	Beta	Gamma	Lognormal
Minimum	0.2×10^3	0.02×10^3		
Maximum	3.3×10^3	0.3×10^3		
Scale			0.07	
Mean	1.2×10^3	1.1×10^3	0.7×10^3	2.6×10^3
50 th percentile	1.2×10^3	1.0×10^3	0.5×10^3	2.3×10^3
90 th percentile	2.4×10^3	2.1×10^3	1.6×10^3	4.5×10^3
95 th percentile	2.6×10^3	2.4×10^3	2.1×10^3	5.0×10^3
99 th percentile	2.9×10^3	2.6×10^3	2.3×10^3	6.4×10^3

[a] The ADL distribution for the 3rd trimester is based on the ADL distribution of the mother; we assume the same ADL distribution for residential adult (the mother) and the fetus

[b] Face, hands and forearms are exposed only, regardless of climate

Table 5.13 Dermal Absorption Fraction Factors (ABS) as Percent from Soil for Semi-Volatile and Solid Chemicals under the OEHHA "Hot Spots" Program

Chemical	ABS
Inorganic chemicals	
Arsenic	6
Beryllium	3
Cadmium	0.2
Chromium (VI)	2
Fluorides (soluble compounds)	3
Lead	3
Mercury	4
Nickel	2
Selenium	3
Organic chemicals	
Creosotes	13
Diethylhexylphthalate	9
Hexachlorobenzene	4
Hexachlorocyclohexanes	3
4,4'methylene dianiline	10
Pentachlorophenol	[a]
Polychlorinated biphenyls	14
Polychlorinated dibenzo-p-dioxins and dibenzofurans	3
Polycyclic aromatic hydrocarbons	13

[a] To be determined in future amendments to the Hot Spots Program

Skin permeability is related to the solubility or strength of binding of the chemical in the delivery matrix (soil or other particles) versus the receptor matrix, the skin's stratum corneum. Fractional dermal absorption point estimate values were derived by OEHHA from available literature sources for the semi-volatile and nonvolatile chemicals in the "Hot Spots" program. The rationale for the chemical-specific dermal absorption fraction values, and the use of default values in cases where sufficient data are lacking, can be found in Appendix F of the Technical Support Document for Exposure and Stochastic Analysis (OEHHA, 2012).

5.4.2.2 Chronic Noncancer Dermal Dose

Dermal exposure, and thus annual dermal load (ADL), varies by age group. Therefore, a time-weighted average ADL for age 0-70 years (0-2, 2-16, and 16-70 years) is estimated for chronic residential exposure using ADL values in Table 5.12. This exposure pathway is also assessed for offsite workers using the offsite worker ADL values in Table 5.12d. Children at a MEIW daycare, if present, may also be assessed for exposure if the District deems it advisable. The contribution to the dermal dose is determined for each age group in EQ 5.4.2.2:

A. Equation 5.4.2.2: $\mathbf{Dose_{dermal} = ADL \times Cs \times ABS \times 10^{-9} \times ED/AT \times (1/350)}$

1. $Dose_{dermal}$ = Exposure dose through dermal absorption (mg/kg/d)
2. ADL = Annual dermal load (mg/kg-yr), age-specific
3. Cs = Average soil concentration (μg/kg)
4. ABS = Fraction absorbed across skin (unitless)
5. 10^{-9} = Conversion factor for chemical & soil (μg to mg, mg to kg)
6. 1/350 = Conversion factor for ADL from yrs to days (Note: this conversion is needed to remove EF, expressed as 350 days/365 days, from the ADLs in Table 5.12a-d)
7. ED = Exposure duration for specified age groups: 2 yrs for 0<2, 14 yrs for 2<16, 54 yrs for 16-70 for residential exposure,
8. AT = Averaging time for residential exposure – 70 yrs

a: Recommended default values for EQ 5.4.2.2:

1. ADL = See Table 5.11 for point estimates by age group, climate region and receptor type (resident or worker)
2. Cs = Calculated above in EQ 5.3.2 A
3. ABS = See Table 5.13

b: Recommended off-site worker default modifications to EQ 5.4.2.2:

1. Chronic dermal dose to the off-site worker assumes only adult exposure and is incorporated into the off-site worker ADL in Table 5.12d.
2. A time-weighted average estimate of dose is not necessary and the ED and AT variates are left out of EQ 5.4.2.2 for dermal dose to the worker.

c: Recommended nursing mother default modifications to EQ 5.4.2.2:

1. For dermal dose to mother's milk, use the ADL for age 16-30 years in Table 5.12d.
2. The ED and AT variates in EQ 5.4.2.2 are left out for dermal dose in the mother's milk pathway.

d: Assumptions for EQ 5.4.2.2:

1. For cancer risk assessment, Exposure Frequency (EF) for vacation time away from exposure is incorporated into the ADLs shown in Tables 5.11 and 5.12 using the basic assumption that cancer risk is associated with cumulative dose of carcinogen. The dose used to estimate cancer risk can be adjusted for EF, and for time spent within the MEIR or MEIW location. Chronic RELs are not necessarily related to cumulative dose. Thus, adjusting the estimated dose for EF at the MEIR or MEIW is not appropriate, and the unadjusted daily rate is used in EQ 5.4.2.2.
2. For worker exposure, the annual average concentration should not be adjusted to account for worker and facility emission schedules, as done for

inhalation cancer risk assessment. The pollutant will be deposited and accumulate in the soil in the absence or presence of the worker; therefore, the total deposition and soil concentration will be dependent on the annual average air concentration.

For residential chronic exposure, the dermal dose contribution for each age group is summed together to obtain the time-weighted average daily dermal dose for chronic hazard assessment:

(ADL age 0<2 × Cs × ABS × 10^{-9} × 2 / 70 × (1/350)) +

(ADL age 2<16 × Cs × ABS × 10^{-9} × 14 / 70 × (1/350)) +

(ADL age 16-70 × Cs × ABS × 10^{-9} × 54 / 70 × (1/350)) = Chronic $Dose_{dermal}$

5.4.3 *Estimation of Exposure through Ingestion*

Exposure through ingestion is a function of the concentration of the substance in the ingested soil, water, and food, the gastrointestinal absorption of the substance, and the amount ingested.

5.4.3.1 Exposure through Ingestion of Soil

There are no distributions for soil ingestion currently recommended. Tier III stochastic risk assessments should include a high-end point estimate of soil ingestion, soil loading, exposure frequency and soil area.

5.4.3.1.1 Soil Ingestion Dose for Cancer Risk

The exposure dose through residential soil ingestion varies by age and is calculated for each age group ((e.g., 3rd trimester, 0<2 yrs, 2<9 yrs, 2<16 yrs, 16<30 and 16-70 yrs). These age-specific groupings are needed in order to properly use the age sensitivity factors for cancer risk assessment (see Chapter 8). This pathway is also assessed for exposure to off-site workers. Children at a MEIW daycare, if present, may also be assessed for exposure if the District deems it advisable. The dose from inadvertent soil ingestion can be estimated by the point estimate approach using the following general equation:

A. Equation 5.4.3.1.1: $DOSE_{soil} = C_{soil} \times GRAF \times SIR \times 10^{-9} \times EF$

1. $DOSE_{soil}$ = Dose from soil ingestion (mg/kg BW-day)
2. 10^{-9} = Conversion factor (μg to mg, mg to kg)
3. C_{soil} = Concentration of contaminant in soil (μg/kg)
4. GRAF = Gastrointestinal relative absorption fraction, chemical-specific (unitless)
5. SIR = Soil ingestion rate (mg/kg BW-day)
6. EF = Exposure frequency (unitless), (days/365 days)

a: Recommended default values for EQ 5.4.3.1.1:

1. C_{soil} = Calculated above in EQ 5.3.2 A
2. GRAF = See Table 5.2
3. SIR = See Table 5.14
4. EF = 350 d/year resident, 250 d/year worker

In this approach, it is assumed that the soil ingested contains a representative concentration of the contaminant(s) and the concentration is constant over the exposure period.

The term **GRAF**, or gastrointestinal relative absorption factor, is defined as the fraction of contaminant absorbed by the GI tract relative to the fraction of contaminant absorbed from the matrix (feed, water, other) used in the study(ies) that is the basis of either the cancer potency factor (CPF) or the Reference Exposure Level (REL). If no data are available to distinguish absorption in the toxicity study from absorption from the environmental matrix in question (i.e., soil), then GRAF = 1. The GRAF allows for adjustment for absorption from a soil matrix if it is known to be different from absorption across the GI tract in the study used to calculate the CPF or REL. In most instances, the GRAF will be 1.

Table 5.14 Recommended Soil Ingestion Rate (SIR) Estimates for Adults and Children (mg/kg-day)*

Age Groups (years)	Mean (mg/kg-day)	95th % (mg/kg-day)
3rd Trimester[a]	0.7	3
0<2	20	40
2<9	5	20
2<16	3	10
16<30	0.7	3
16 to 70	0.6	3
PICA adult	NR	-

[a] Assumed to be the mother's soil ingestion rate (adult age 16 <30)
* Soil includes outdoor settled dust
NR = No recommendation

5.4.3.1.2 Chronic Noncancer Dose for Soil Ingestion

The soil ingestion rate varies by age. A time-weighted average approach is used to combine soil intake rates of the age groupings (i.e., 0<2 yrs, 2<16 yrs, and 16-70 yrs) to determine the residential soil ingestion dose for chronic noncancer hazard assessment. This pathway is also assessed for exposure to offsite workers using the adult intake values for age 16-70 years in Table 5.14. Children at a MEIW daycare, if present, may also be assessed for exposure if the District deems it advisable. The contribution to the soil ingestion dose by each age group is determined in EQ 5.4.3.1.2:

A. Equation 5.4.3.1.2: $$DOSE_{soil} = C_{soil} \times GRAF \times SIR \times 10^{-9} \times ED/AT$$

1. $DOSE_{soil}$ = Dose from soil ingestion (mg/kg BW-day)
2. 10^{-9} = Conversion factor (μg to mg, mg to kg)
3. C_{soil} = Concentration of contaminant in soil (μg/kg)
4. GRAF = Gastrointestinal relative absorption fraction, unitless; chemical-specific
5. SIR = Soil ingestion rate (mg/kg BW-day)
6. ED = Exposure duration for a specified age group: 2 yrs for 0<2, 14 yrs for 2<16, 54 yrs for 16-70
7. AT = Averaging time for lifetime exposure – 70 yrs

a: Recommended default values for EQ 5.4.3.1.2:

1. C_{soil} = Calculated above in EQ 5.3.2 A
2. GRAF = See Table 5.2
3. SIR = See Table 5.14; use 16-70 age group SIR for workers

b: Recommended off-site worker default modifications to EQ 5.4.3.1.2:

1. A time-weighted average estimate of dose is not necessary and the ED and AT variates are left out of EQ 5.4.3.1.2 for oral soil dose to the worker.

c: Recommended nursing mother default modifications to EQ 5.4.3.1.2:

1. For mother's ingested soil dose to milk, use the SIR for age 16-30 years in Table 5.14.
2. The ED and AT variates in EQ 5.4.3.1.2 are left out for soil ingestion dose in the mother's milk pathway.

d: Assumptions for EQ 5.4.3.1.2:

1. For worker exposure, the annual average concentration should not be adjusted to account for overlap of worker and facility emission schedules. The pollutant will be deposited and accumulate in the soil in the absence or presence of the worker; therefore, the total deposition and soil concentration will be dependent on the annual average air concentration.

For residential exposure, the soil ingestion dose contribution for each age group is summed together to obtain the time-weighted average daily soil intake dose for chronic hazard assessment:

$$(\text{SIR for age } 0<2 \text{ yrs} \times C_{soil} \times \text{GRAF} \times 10^{-9} \times 2 / 70) +$$

$$(\text{SIR for age } 2<16 \text{ yrs} \times C_{soil} \times \text{GRAF} \times 10^{-9} \times 14 / 70) +$$

$$(\text{SIR for age 16-70 yrs} \times C_{soil} \times \text{GRAF} \times 10^{-9} \times 54 / 70) = \text{Chronic Dose}_{soil}$$

5.4.3.2 Exposure through Ingestion of Food

The exposure through food ingestion can be through ingestion of home-grown plant products (categorized as leafy, protected, exposed and root produce), home-raised animals (categorized as meat, cow's milk and eggs), angler-caught fish and mother's milk. When a specific food pathway is a dominant pathway (e.g., homegrown produce), and multiple pathways such as home raised meat, milk, and eggs categories all need to be assessed, the 95th percentile default consumption rate for the driving exposure pathway is used, while the mean consumption values for the remaining exposure pathways (i.e., food categories) are used. See Section 8.2.6 for a complete discussion of the methodology on how to implement the derived methodology.

5.4.3.2.1 Dose for Cancer Risk from Home-Grown Produce

Exposure through ingesting home-grown produce (DOSEp) is a function of the type of crop (i.e., exposed, leafy, protected, root), gastrointestinal relative absorption factor, bioavailability and the fraction of plant ingested that is homegrown. The calculation is done for each type of crop, then summed to get total dose for this pathway. The

exposure dose through ingestion of home-grown produce varies by age and is calculated for each age group (e.g., 3rd trimester, 0<2 yrs, 2<9 yrs, 2<16 yrs, 16<30 and 16-70 yrs). These age-specific groupings are needed in order to properly use the age sensitivity factors for cancer risk assessment (see Chapter 8).

A. Equation 5.4.3.2.1: $$DOSEp = C_v \times IP \times GRAF \times L \times EF \times 10^{-6}$$

1. DOSEp = Exposure dose through ingestion of home-grown produce (mg/kg/d)
2. C_v = Concentration in specific type of crop, i.e., exposed, leafy, protected, root (μg/kg)
3. IP = Consumption of specific type of crop (g/kg BW*day)
4. GRAF = Gastrointestinal relative absorption factor (unitless)
5. L = Fraction of plant type consumed that is home-grown or locally grown (unitless)
6. EF = Exposure frequency (unitless, days/365 days)
7. 10^{-6} = Conversion factors (μg/kg to mg/g)

a: Recommended default values for Equation 5.4.3.2.1:

1. C_v = Calculated above in EQ 5.3.4.1 A
2. IP = See Table 5.15 (point estimates) and 5.16a-e (distributions)
3. GRAF = See Table 5.2
4. L = Site-specific survey is recommended. Otherwise, see Table 5.17 for Tier I default values
5. EF = 0.96 (350 d/365 d in a yr)

Once the dose for each type of crop that applies is calculated (See Section 5.3.4.1 for definition of crops types), the doses are summed to get the total dose for the home-grown produce pathway:

Total DOSEp = DOSEp (leafy) + DOSEp (root) + DOSEp (exposed) + DOSEp (protected)

The total home-grown produce dose will need to be calculated for each age group that applies.

5.4.3.2.2 Dose for cancer risk from home-raised meat, eggs, and cow's milk

Exposure through ingesting home-raised or farm animal products ($DOSE_{fa}$) is a function of the type of food (meat, eggs and cow's milk), gastrointestinal relative absorption factor, bioavailability and the fraction of food ingested that is home-raised. The only meat sources considered here are beef, pork and poultry. Unlike the home-grown produce pathway, the dose is calculated and presented separately for each type of home-raised food. The age-specific groupings to determine dose (3rd trimester, 0<2 yrs, 2<9 yrs, 2<16 yrs, 16<30 yrs or 16-70 yrs) is needed in order to properly use the age sensitivity factors for cancer risk assessment (see Chapter 8).

A. Equation 5.4.3.2.2: $DOSE_{fa} = C_{fa} \times I_{fa} \times GRAF \times L \times EF \times 10^{-6}$

1. $DOSE_{fa}$ = Exposure dose through ingestion of home-raised animal product (mg/kg/d)
2. C_{fa} = Concentration in animal product, e.g., beef, pork, poultry, dairy, eggs (μg/kg)
3. I_{fa} = Consumption of animal product (g/kg BW-day)
4. GRAF = Gastrointestinal relative absorption factor (unitless)
5. L = Fraction of animal product consumed that is home-raised or locally produced (unitless)
6. EF = Exposure frequency (unitless, days/365 days)
7. 10^{-6} = Conversion factors (μg/kg to mg/g)

a: Recommended default values for EQ 5.4.3.2.2:

1. C_{fa} = Calculated above in EQ 5.3.4.2 A
2. I_{fa} = See Table 5.15 (point estimates) and Table 5.16a-e (distributions)
3. GRAF = See Table 5.2
4. L = Site-specific survey is recommended. Otherwise, see Table 5.17 for Tier I default values
5. EF = 0.96 (350 days / 365 days in a year)

5.4.3.2.3 Chronic Noncancer Dose for Ingestion of Food

For oral noncancer hazard assessment, a time-weighted average approach is used to combine food ingestion rates for the age groups (i.e., 0<2, 2<16 and 16-70 yrs) to estimate the chronic dose for residential exposure. The equation used to estimate dose through home-grown produce and home-raised meat/eggs/cow's milk is similar and is shown below in one equation. Similar to the cancer risk dose calculation, home-grown produce is presented as a total dose for all types of crops (See Section 5.4.3.2.1) and home-raised animal product dose is presented separately for each type of animal product that applies (See Section 5.4.3.2.2).

The contribution to the food intake dose is determined for each age group in EQ 5.4.3.2.3:

A. Equation 5.4.3.2.3: $DOSE_{food} = C_{food} \times I_{food} \times GRAF \times L \times 10^{-6} \times ED/AT$

1. $DOSE_{food}$ = Exposure dose through ingestion of home-grown produce or home-raised animal product (mg/kg/d)
2. C_{food} = Concentration (μg/kg) in produce (e.g., exposed, leafy, protected, root) or animal product (e.g., beef, pork, poultry, dairy, eggs)
3. I_{food} = Consumption of produce or animal product (g/kg BW-day)
4. GRAF = Gastrointestinal relative absorption factor (unitless)
5. L = Fraction of produce or animal product consumed that is home-grown (unitless)
6. 10^{-6} = Conversion factors (μg/kg to mg/g)
7. ED = Exposure duration for a specified age group (2 yrs for 0<2, 14 yrs for 2<16, 54 yrs for 16-70
8. AT = Averaging time for lifetime exposure: 70 yrs

a: Recommended default values for EQ 5.4.3.2.3:

1. C_{food} = Calculated above in EQ 5.3.4.1 A (for home-grown produce) or EQ 5.3.4.2 A (for home-raised animal products)
2. I_{food} = Age-specific, see Table 5.15 for point estimates
3. GRAF = See Table 5.2
4. L = Site-specific survey is recommended. Otherwise, see Table 5.17 for Tier I default values

b: Recommended nursing mother default modifications to EQ 5.4.3.2.3:

1. For the mother's dose to milk through ingested food, use the food intake rates for age 16-30 years in Table 5.15 and 5.16d.
2. The ED and AT variates in EQ 5.4.3.2.3 are left out for ingested food dose in the mother's milk pathway.

Following calculation of the intake dose contributions for each age group, the intake rates for home-grown produce and the intake rates for home-raised animal products are summed separately to obtain the residential time-weighted average intake dose for chronic residential exposure to home-grown produce and to home-raised animal products:

(I_{food} for age 0<2 yrs × C_{food} × GRAF × L × 10^{-6} × 2 / 70) +

(I_{food} for age 2<16 yrs × C_{food} × GRAF × L × 10^{-6} × 14 / 70) +

(I_{food} for age 16-70 yrs × C_{food} × GRAF × L × 10^{-6} × 54 / 70) = Chronic $Dose_{food}$

Table 5.15 Recommended Average and High End Point Estimate Values for Home Produced Food Consumption (g/kg-day)[a]

Food Category	Third Trimester[b]		Ages 0<2		Ages 2<9	
Produce	Avg.	High End	Avg.	High End	Avg.	High End
Exposed	1.9	5.9	11.7	30.2	7.4	21.7
Leafy	0.9	3.2	3.8	10.8	2.5	7.9
Protected	1.7	5.8	5.9	17.5	4.7	13.3
Root	1.7	4.6	5.7	15.3	3.9	10.8
Meat						
Beef	2.0	4.8	3.9	11.3	3.5	8.6
Pork	0.9	2.9	2.9	10.5	2.2	7.8
Poultry	1.8	4.7	4.5	11.4	3.7	9.0
Milk	5.4	15.9	50.9	116.1	23.3	61.4
Eggs	1.6	4.2	6.1	15.0	3.9	9.4
	Ages 2<16		Ages 16<30		Ages 16-70	
Produce	Avg.	High End	Avg.	High End	Avg.	High End
Exposed	5.5	16.6	1.9	5.9	1.8	5.6
Leafy	1.7	5.8	0.9	3.2	1.1	3.4
Protected	3.6	10.6	1.7	5.8	1.6	5.2
Root	3.0	8.7	1.7	4.6	1.5	4.2
Meat						
Beef	3.0	7.6	2.0	4.8	1.7	4.4
Pork	1.8	5.7	0.9	2.9	0.9	2.8
Poultry	3.0	7.5	1.8	4.7	1.5	3.8
Milk	16.5	48.4	5.4	15.9	4.3	13.2
Eggs	3.1	8.1	1.6	4.2	1.3	3.4

[a] April 22, 2022: Transcription errors in Table 5.15 were corrected in accordance with corrections made to the source table, Table 7.1 of the 2012 Exposure Assessment and Stochastic Analysis Technical Support Document (EASA TSD). In the original Table 7.1 of the EASA TSD, data from Table 7.12 were incorrectly copied onto the "Ages 2<16" column. The corrected Table 7.1 replaces the data for this age group with data from Table 7.11 and replaces the column header "Ages 2>16" with "Ages 2<16". Additionally, the corrected Table 7.1 also switches the order of meat types in the Food Category column to reflect the order shown in the source data tables (Tables 7.8 – 7.13 of EASA TSD). The corrections made to Table 7.1 of the EASA TSD on April 22, 2022 were also made to Table 5.15 of this document.).

[b] Food consumption values for 3rd trimester calculated by assuming that the fetus receives the same amount of contaminated food on a per kg BW basis as the mother (adult age 16 to less than 30).

Table 5.16a - e Parametric Models of Per Capita Food Consumption by Age Group for Stochastic Analysis

Table 5.16a Per Capita Food Consumption (g/kg-day) for Ages 0<2

Food Category	Distrib. Type	Anderson-Darling Statistic	Mean	Std. Dev	Location	Scale	Shape	Like-liest
Produce								
Exposed	Gamma	60			0.01	6.56	0.830	
Leafy	Gamma	167			0.01	3.30	1.161	
Protected	LogN	67	6.03	7.31				
Root	Gamma	83			0.06	4.44	1.28	
Meat								
Beef	LogN	16	1.97	1.73				
Poultry	LogN	58	4.5	4.08				
Pork	LogN	230	3.00	4.46				
Dairy	Max Ext.	169				27.82		33.79
Eggs	LogN	172	6.11	4.21				

Table 5.16b Per Capita Food Consumption (g/kg-day) for Ages 2<9

Food Category	Distribution Type	Anderson-Darling Statistic	Mean	Std. Dev	Location	Scale	Shape	Rate
Produce								
Exposed	Exponential	206						0.14
Leafy	LogN	127	2.64	3.89				
Protected	Weibull	68			0.02	4.76	1.063	
Root	LogN	60	3.95	3.85				
Meat								
Beef	LogN	35	3.55	2.79				
Poultry	LogN	17	3.71	2.67				
Pork	LogN	66	2.25	2.84				
Milk	LogN	12	23.4	20.78				
Eggs	LogN	38	3.93	3.00				

Table 5.16c Per Capita Food Consumption (g/kg-day) for Ages 2<16

Food Category	Distribution Type	Anderson-Darling Statistic	Mean	Std. Dev	Location	Scale	Shape
Produce							
Exposed	Gamma	60			0.01	6.54	0.8325
Leafy	LogN	68	1.83	2.91			
Protected	Gamma	47			0.00	3.69	0.9729
Root	LogN	51	3.10	3.44			
Meat							
Beef	LogN	10	2.96	2.49			
Poultry	LogN	27	2.98	2.52			
Pork	LogN	48	1.84	2.79			
Milk	LogN	35	16.8	19.2			
Eggs	LogN	71	3.16	2.95			

Table 5.16d Per Capita Food Consumption (g/kg-day) for Ages 16-30[a]

Food Category	Distribution Type	Anderson-Darling Statistic	Mean	Std. Dev	Location	Scale	Shape
Produce							
Exposed	Gamma	70			0.01	2.05	0.9220
Leafy	Weibull	191			0.00	0.88	0.8732
Protected	LogN	93	1.81	3.31			
Root	LogN	43	1.69	1.69			
Meat							
Beef	LogN	26	1.98	1.54			
Poultry	LogN	26	1.80	1.42			
Pork	LogN	242	1.01	1.74			
Milk	Gamma	22			0.02	5.66	0.9421
Eggs	LogN	29	1.55	1.36			

[a] These distributions are also recommended for the third trimester. Food consumption values for 3rd trimester are calculated by assuming that the fetus receives the same amount of contaminated food on a per kg BW basis as the mother (adult age 16<30).

Table 5.16e Per Capita Food Consumption (g/kg-day) for Ages 16-70

Food Category	Distribution Type	Anderson-Darling Statistic	Mean	Std. Dev	Location	Scale	Shape
Produce							
Exposed	Gamma	148			0.01	2.07	0.8628
Leafy	Gamma	83			0.00	1.15	0.9713
Protected	Gamma	78			0.01	1.90	0.8325
Root	Gamma	14			0.00	1.28	1.166
Meat							
Beef	LogN	20	1.75	1.40			
Poultry	LogN	18	1.53	1.18			
Pork	LogN	190	0.97	1.59			
Milk	Gamma	20			0.00	4.50	0.9627
Eggs	LogN	30	1.3	1.01			

Table 5.17 Default Values for L in EQs 5.4.3.2.1., 5.4.3.2.2 and 5.4.3.2.3: Fraction of Food Intake that is Home-Produced

Food Type	Households that Garden[a]	Households that Farm[a]
Avg. Total Veg & Fruits	0.137	0.235
	Households that Garden/Hunt[b]	**Households that Farm[b]**
Beef	0.485	0.478
Pork	0.242	0.239
Poultry	0.156	0.151
Eggs	0.146	0.214
Total Dairy (Cow's milk)	0.207	0.254

[a] As a default for home-produced leafy, exposed, protected and root produce, OEHHA recommends 0.137 as the fraction of produce that is home-grown. The households that grow their own vegetables and fruits are the population of concern. In rural situations where the receptor is engaged in farming, OEHHA recommends 0.235 as the default value for fraction of leafy, exposed, protected and root produce that is home-grown.

[b] OEHHA recommends the fraction home-raised under "Households that raise animals/hunt" (for beef, pork, poultry (chicken), eggs and dairy (cow's milk), with the exception of rural household receptors engaged in farming. OEHHA recommends that the fractions listed under "Households that farm" be used for the rural household receptors.

5.4.3.3 Exposure through Ingestion of Water

Intake of drinking water varies by age on a ml per kg body weight per day basis resulting in differences in exposure dose by age. The age-specific groupings to determine dose are needed in order to properly use the age sensitivity factors for

cancer risk assessment (see Chapter 8) and to calculate a time-weighted average dose for chronic noncancer assessment.

5.4.3.3.1 Dose for Cancer Risk through Ingestion of Water

$DOSE_{water}$ is calculated for each age group (i.e., 3rd trimester, 0<2 yrs, 2<9 yrs, 2<16 yrs, 16<30 yrs and 16-70 yrs), then incorporated into EQ 8.2.5 in Chapter 8 to determine cancer risk through exposure in drinking water.

A. Equation 5.4.3.3.1: $$\mathbf{DOSE_{water} = C_w \times WIR \times ABS_{wa} \times Fdw \times EF \times 10^{-6}}$$

1. $DOSE_{water}$ = Exposure dose through ingestion of water (mg/kg BW/d)
2. C_w = Water concentration (μg/L)
3. WIR = Water ingestion rate (ml/kg BW-day)
4. ABS_{wa} = Gastrointestinal relative absorption factor (unitless)
5. Fdw = Fraction of drinking water from contaminated source
6. EF = Exposure frequency (unitless, days/365 days)
7. 10^{-6} = Conversion factors (mg/μg)(L/ml)

a: Recommended default values for EQ 5.4.3.3.1:

1. C_w = Calculated above 5.3.3 A
2. WIR = See 5.18 (point estimates) and Table 5.19 (distributions)
3. ABS_{wa} = Default set to 1
4. Fdw = Default set to 1, although a site-specific survey is recommended for this variate
5. EF = 0.96 (350 days/365 days in a year)

5.4.3.3.2 Chronic Noncancer Dose through Ingestion of Water

Because water intake varies by age group, a time-weighted average intake approach is used to determine the daily water ingestion dose for chronic residential exposure. The contribution to the water ingestion dose is determined for each age group (i.e., 0<2, 2<16 and 16-70 yrs) in EQ 5.4.3.3.2.

A. Equation 5.4.3.3.2:

$$DOSE_{water} = C_w \times WIR \times ABS_{wa} \times Fdw \times 10^{-6} \times ED/AT$$

1. $DOSE_{water}$ = Exposure dose through ingestion of water (mg/kg BW/d)
2. C_w = Water concentration (μg/L)
3. WIR = Water ingestion rate (ml/kg BW-day)
4. ABS_{wa} = Gastrointestinal absorption factor
5. Fdw = Fraction of drinking water from contaminated source (site-specific)
6. 10^{-6} = Conversion factors (mg/μg)(L/ml)
7. ED = Exposure duration for a specified age group: 2 yrs for 0<2, 14 yrs for 2<16, 54 yrs for 16-70
8. AT = Averaging time for residential exposure: 70 yrs

a: Recommended default values for EQ 5.4.3.3.2:

1. C_w = Calculated above in 5.3.3 A
2. WIR = See 5.18 (point estimates)
3. ABS_{wa} = Default set to 1
4. Fdw = Default set to 1, although a site-specific survey is recommended for this variate

b: Recommended nursing mother default modifications to EQ 5.4.3.3.2:

1. For the dose to mother's milk through water ingestion, use the WIR for age 16-30 years in Table 5.18.
2. The ED and AT variates in EQ 5.4.3.3.2 are left out for ingested water dose in the mother's milk pathway.

The water intake dose contribution for each age group is summed together to obtain the time-weighted average daily residential water ingestion dose:

(WIR for age 0<2 yrs × C_w × ABS_{wa} × Fdw × 10^{-6} × 2 / 70) +

(WIR for age 2<16 yrs × C_w × ABS_{wa} × Fdw × 10^{-6} × 14 / 70) +

(WIR for age 16-70 yrs × C_w × ABS_{wa} × Fdw × 10^{-6} × 54 / 70) = Chronic $Dose_{water}$

Table 5.18 Recommended Point Estimate Tap Water Intake Rates (ml/kg-day)

Point Estimates				
Using Mean Values	**For the Age Period**	**9-year scenario**	**30-year scenario**	**70-year scenario**
	3rd trimester	18	18	18
	0<2 years	113	113	113
	2<9 years	26	-	-
	2<16 years	-	24	24
	16-30 years	-	18	-
	16-70 years	-	-	18
Using 95th-percentile values	**For the Age Period**	**9-year scenario**	**30-year scenario**	**70-year scenario**
	3rd trimester	47	47	47
	0<2 years	196	196	196
	2<9 years	66	-	-
	2<16 years	-	61	61
	16-30 years	-	47	-
	16-70 years	-	-	45

Table 5.19 Recommended Distributions of Tap Water Intake Rates (ml/kg-day) for Stochastic Risk Assessment

	9-year scenario	**30-year scenario**	**70-year scenario**
0<2 years	**Max Extreme** Likeliest = 93 Scale = 35	**Max Extreme** Likeliest = 93 Scale = 35	**Max Extreme** Likeliest = 93 Scale = 35
2<9 years	**Weibull** Location = 0.02 Scale = 29 Shape = 1.3		
2<16 years		**Gamma** Location = 0.19 Scale = 15.0 Shape = 1.6	**Gamma** Location = 0.19 Scale = 15.0 Shape = 1.6
16-30 years		**Gamma** location=0.49 scale=13.6 shape=1.26	
16-70 years			**Beta** min=0.17 max=178 alpha=1.5 beta= 12.9

5.4.3.4 Exposure through Ingestion of Angler-caught Fish

Exposure through ingestion of angler-caught fish ($DOSE_{fish}$) is a function of the fraction of fish ingested that is caught in the exposed water body, which differs for each age grouping, and the gastrointestinal absorption factor. Ingestion of angler-caught fish on a mg/kg body weight per day basis varies by age resulting in differences in exposure dose by age. The age-specific groupings to determine dose is needed primarily to properly use the age sensitivity factors for cancer risk assessment (see Chapter 8) and to calculate a time-weighted average dose for chronic noncancer assessment.

5.4.3.4.1 Cancer Risk Dose via Ingestion of Angler-Caught Fish

$DOSE_{fish}$ is calculated for each age group separately (i.e., 3rd trimester, 0<2 yrs, 2<9 yrs, 2<16 yrs, 16<30 yrs and 16-70 yrs), then incorporated into EQ 8.2.5 in Chapter 8 to determine cancer risk through exposure to angler-caught fish.

A. Equation 5.4.3.4.1: $$\mathbf{DOSE_{fish} = C_t \times I_{fish} \times Gf \times L \times EF \times 10^{-6}}$$

1. $DOSE_{fish}$ = Dose via ingestion of angler-caught fish (mg/kg BW-day)
2. Ct = Concentration in fish muscle tissue (μg/kg)
3. I_{fish} = Angler-caught fish ingestion rate (g/kg BW per day)
4. Gf = Gastrointestinal absorption factor (unitless)
5. L = Fraction of fish caught at exposed site (unitless)
6. EF = Exposure frequency (days/365 days)
7. 10^{-6} = Conversion factor (mg/μg, kg/g)

a: Recommended default values for Equation 5.4.3.4.1:

1. Ct = Calculated above in Equation 5.3.4.7
2. I_{fish} = See Table 5.20 (point estimates) and Table 5.21 (distributions)
3. Gf = Default set to 1
4. L = Default set to 1 for fraction of fish caught locally, although a site-specific survey is recommended for this variate
5. EF = 0.96 (350 days/365 days in a yr)

5.4.3.4.2 Chronic Noncancer Dose via Ingestion of Angler-Caught Fish

Angler-caught fish consumption varies by age group. A time-weighted average intake for residential consumption over 70 years is used to determine dose for average and high-end exposure. The contribution to the angler-caught fish consumption dose is determined for each age group in EQ 5.4.3.4.2:

A. Equation 5.4.3.4.2: $\mathbf{DOSE_{fish} = C_t \times I_{fish} \times Gf \times L \times 10^{-6} \times ED/AT}$

1. $DOSE_{fish}$ = Dose via ingestion of angler-caught fish (mg/kg BW-day)
2. C_t = Concentration in fish muscle tissue (μg/kg)
3. I_{fish} = Angler-caught fish ingestion rate (g/kg BW per day)
4. Gf = Gastrointestinal absorption factor (unitless)
5. L = Fraction of fish caught at exposed site (unitless)
6. 10^{-6} = Conversion factor (mg/μg, kg/g)
7. ED = Exposure duration for a specified age group: 2 yrs for 0<2, 14 yrs for 2<16 and 54 yrs for 16-70
8. AT = Averaging time for chronic exposure – 70 yrs

a: Recommended default values for Equation 5.4.3.4.2:

1. C_t = Calculated above in Equation 5.3.4.7
2. I_{fish} = See Table 5.20 (point estimates)
3. Gf = Default set to 1
4. L = Default set to 1 for fraction of fish caught locally, although a site-specific survey is recommended for this variate

b: Recommended nursing mother default modifications to EQ 5.4.3.4.2:

1. For the dose to mother's milk through fish consumption, use the I_{fish} for age 16-30 years in Table 5.20.
2. The ED and AT variates in EQ 5.4.3.4.2 are left out for the dose via fish consumption in the mother's milk pathway.

Following calculation of the angler-caught fish consumption dose contribution for each age group, 0<2 yr, 2<16 yr and 16-70 yr fish consumption doses are summed together to obtain the residential chronic dose:

(I_{fish} for age 0<2 yrs × C_t × Gf × L × 10^{-6} × 2 / 70) +

(I_{fish} for age 2<16 yrs × C_t × Gf × L × 10^{-6} × 14 / 70) +

(I_{fish} for age 16-70 yrs × C_t × Gf × L × 10^{-6} × 54 / 70) = Chronic $Dose_{fish}$

Table 5.20 Point Estimate Values for Angler-Caught Fish Consumption (g/kg-day) by Age Group

	Third Trimester	0 <2 Years	2<9 Years	2<16 Years	16<30 Years	16-70 Years
Mean	0.38	0.18	0.36	0.36	0.38	0.36
95th Percentile	1.22	0.58	1.16	1.16	1.22	1.16

Table 5.21 Empirical Distribution for Angler-Caught Fish Consumption (g/kg-day)

Mean	Percentile									
	10th	20th	30th	40th	50th	60th	70th	80th	90th	95th
Third trimester, 2<9, 2<16, 16<30 and 16-70-year age groups										
0.36	0.06	0.09	0.12	0.16	0.21	0.27	0.36	0.50	0.79	1.16
0<2-year age group										
0.18	0.03	0.05	0.06	0.08	0.11	0.14	0.18	0.25	0.40	0.58

5.4.3.5 Mother's Milk

Exposure through mother's milk ingestion (Dose-Im) is a function of the average concentration of the substance in mother's milk and the amount of mother's milk ingested. The minimum pathways that the nursing mother is exposed to include inhalation, soil ingestion, and dermal, since the chemicals evaluated by the mother's milk pathway are multipathway chemicals. Other pathways may be appropriate depending on site conditions (e.g., the presence of vegetable gardens or home grown chickens). The compounds currently considered for the mother's milk pathway are:

1. Dioxins and Furans (PCDDS and PCDFs)
2. Polychlorinated biphenyls (PCBs)
3. Polycyclic Aromatic Hydrocarbons (PAHs), including creosotes
4. Lead

These compound classes represent the chemicals of greatest concern for the mother's milk pathway under the Hot Spots program, and for which data are available to estimate transfer coefficients. It is expected that additional transfer coefficients will be developed for other multipathway chemicals in the Hot Spots Program as data becomes available and is reviewed. The nursing mother in the mother's milk pathway is not herself subject to the mother's milk pathway. The summed average daily dose (mg/kg BW-day) from all pathways is calculated for the nursing mother using the equations that follow.

5.4.3.5.1 Cancer Risk Dose to Infant via Mother's Milk

A. Equation 5.4.3.5.1: $$\text{Dose-Im} = C_m \times BMI_{bw} \times EF \times 10^{-3}$$

1. Dose-Im = Dose to infant through ingestion of mother's milk (mg/kg BW per day)
2. C_m = Concentration of contaminant in mother's milk (mg/kg milk)
3. BMI_{bw} = Daily breast-milk ingestion rate (g/kg BW-day)
4. EF = Frequency of exposure (days / 365 days)
5. 10^{-3} = Conversion factor (kg to g)

a: Recommended default values for EQ 5.4.3.5.1:

1. C_m = See EQ 5.3.4.8
2. BMI_{bw} = See Table 5.22 for point estimates. For distribution (parametric model) for Tier 3 stochastic risk assessments see Table 5.23.
3. EF = 1 (all 365 days of the first year of birth)

b: Assumptions for EQ 5.4.3.5.1:

1. For the MEIR, mother is exposed from birth up to 25 years of age when the infant is born. The exposed infant is then fully breastfed only during the first year of life.
2. For cancer risk assessment, exposure of breast-feeding infants to contaminants in breast milk applies only to the first year of the 0<2 yr age group for calculation of risk to this group, which then can be summed with the risk calculated for the other age groups (See Chapter 8).

5.4.3.5.2 Chronic Noncancer Dose to Infant via Mother's Milk

For oral noncancer hazard assessment, exposure of the infant through mother's milk ingestion occurs during the first year of life. After one year of age, the mother's milk pathway is not a factor for noncancer assessment.

A. Equation 5.4.3.5.2: $\text{Dose-Im} = C_m \times BMI_{bw} \times 10^{-3}$

1. Dose-Im = Dose to infant through ingestion of mother's milk (mg/kg BW/d)
2. C_m = Concentration of contaminant in mother's milk (mg/kg milk)
3. BMI_{bw} = Daily breast-milk ingestion rate (g/kg BW-day)
4. 10^{-3} = Conversion factor (kg to g)

a: Recommended default values for EQ 5.4.3.5.2:

1. C_m = See EQ 5.3.4.8
2. BMI_{bw} = See Table 5.22 for point estimates

Table 5.22 Default Point Estimates for Breast Milk Intake (BMI_{bw}) for Breastfed Infants

Infant Group	Intake (g/kg-day)
Fully breastfed over the first year (i.e., fed in accordance with AAP recommendations)	
Mean	101
95th percentile	139

Table 5.23 Recommended Distribution of Breast Milk Intake Rates Among Breastfed Infants for Stochastic Assessment* (Averaged Over an Individual's First Year of Life)

	Mean (SD)	Percentile							
		5	10	25	50	75	90	95	99
Intake (g/kg-day)	101 (23)	62	71	85	101	116	130	139	154

* For stochastic analysis, the mother's milk data are normally distributed.

5.5 References

ARB 2007. *Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5),* and the *Emission Inventory Criteria and Guidelines Report* (EICG Report).

ARB, 2012. Consolidated Table of OEHHA / ARB Approved Risk Assessment Health Values. Air Resouces Board, California Environmental Protection Agency. Online at: http://www.arb.ca.gov/toxics/healthval/healthval.htm

Hausch C, Leo AJ, Medchem Project Issue No. 26, Claremont CA: Pomona College (1985)

Lyman WJ, Reehl WF, Rosenblatt DH et al., 1990. Handbook of Chemical Property Estimation Methods. American Chemical Society, Wash. DC

OEHHA, 2000. *Air Toxics Hot Spots Program Risk Asessment Guidelines: Part IV Technical Support Document for Exposure Assessment and Stochastic Analysis.* September 2000.

OEHHA, 2012a. *Air Toxics Hot Spots Program Risk Assessment Guidelines; Technical Support Document for Exposure Assessment and Stochastic Analysis*. Available online at http://www.oehha.ca.gov

OEHHA, 2012b. Hot Spots Unit Risk and Cancer Potency Values. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. Online at: http://oehha.ca.gov/air/hot_spots/pdf/CPFs042909.pdf

Staples CA, Peterson DR, Parkerton TF, Adams WJ. 1997. The environmental fate of phthalate esters: A literature review. Chemosphere 35(4):667-749.

U.S. EPA. (2009). *Metabolically derived human ventilation rates: A revised approach based upon oxygen consumption rates*. U.S. Environmental Protection Agency, National Center for Environmental Assessment, Washington, DC; EPA/600/R-06/129F

6 - Dose-Response Assessment for Noncarcinogenic Endpoints

6.1 Derivation of Toxicity Criteria for Noncancer Health Effects

Dose-response assessment describes the quantitative relationship between the amount of exposure to a substance (the dose) and the incidence or occurrence of an adverse health impact (the response). Dose-response information for noncancer health effects is used to determine Reference Exposure Levels (RELs). Inhalation RELs are air concentrations or doses at or below which adverse noncancer health effects are not expected even in sensitive members of the general population under specified exposure scenarios. The acute RELs are for infrequent 1 hour exposures that occur no more than once every two weeks in a given year, although this time frame of exposure does not necessarily apply to chemicals that can bioaccumulate (e.g., dioxins and furans, PCBs, and various metals). The chronic RELs are for 24 hour per day exposures for at least a significant fraction of a lifetime, defined as about 8 years (≥12 percent of a 70-year lifespan). The 8-hour RELs are for repeated 8-hour exposures for a significant fraction of a lifetime such as the exposures that offsite workers might typically receive. Eight-hour RELs are only available for 10 chemicals at present, but OEHHA will develop 8-hour RELs as we re-evaluate our existing RELs to ensure they are protective of children's health, and as we develop RELs for new chemicals. There are oral chronic RELs for some chemicals in the Hot Spots program that are semivolatile or nonvolatile and thus subject to deposition and oral ingestion or dermal exposure. The methodology for developing RELs is similar to that used by U.S. EPA in developing the inhalation Reference Concentrations (RfCs) and oral Reference Doses (RfDs).

Review and revision of RELs to take into account new information and sensitive subpopulations including infants and children is an ongoing process. All draft RELs for individual chemicals revised under the current noncancer methodology will undergo public comment and peer review, as mandated by the Hot Spots Act. .

The first step in determining an acute, 8-hour, or chronic REL is to determine a point of departure. The point of departure is preferably determined by the benchmark concentration procedure applied to human or animal studies, but if this method of calculation cannot be used with a particular data set, a no observed adverse effect level (NOAEL) or lowest observed adverse effect level (LOAEL) may be used as the point of departure. The benchmark concentration method (also referred to as the benchmark dose method for oral exposures) is a preferred method to estimate a point of departure because it takes all of the available dose-response data into account to statistically estimate, typically, a 5 percent response rate.

Dosimetric or toxicokinetic adjustments are often made to the point of departure to adjust for differences in dosimetry or kinetics across species or among humans. Time adjustments are generally applied to adjust experimental exposure to the exposure of

interest for the REL (e.g., 1 hour for acute, continuous for chronic). A modified Haber's equation is used where needed to adjust studies with different exposure times to the one-hour period needed for acute RELs. A simple Haber's law (C x T) adjustment for exposure period duration is used for most 8-hour and chronic RELs.

The time and dosimetry adjusted point of departure is divided by uncertainty factors that reflect the limitations in the current toxicology of the chemical. For example, an interspecies uncertainty factor is applied to account for the differences between humans and animals when an animal study is used. An intraspecies uncertainty factor is usually included to account for differences in susceptibility among the human population. In addition, where benchmark dose modeling is not suitable and a NOAEL is not available, a LOAEL to NOAEL uncertainty factor may be applied when the LOAEL serves as the point of departure. If a chronic study is not available to serve as a basis for a chronic REL, then a subchronic uncertainty factor (for chronic and 8-hour RELs only) may also be applied. Finally, if there are data deficiencies, for example, lack of a developmental toxicity study for a chemical, then a database deficiency factor may be applied. The individual uncertainty factors, which range from 2 to 10 depending on the limitations in the data, are multiplied together for a total uncertainty factor. The point of departure is then divided by the total UF to obtain the REL.

The most sensitive toxicological end point is selected as the basis for the REL when there are multiple adverse health effects. The selection of the most sensitive endpoint as the basis for a REL helps ensure that the REL is protective for all health effects. The use of uncertainty factors helps ensure that the REL is protective for nearly all individuals, including sensitive subpopulations, within the limitations of current scientific knowledge. For detailed information on the methodology and derivations for RELs, including guidance on selection of uncertainty factors, see the Air Toxics Hot Spots Risk Assessment Guidelines Technical Support Document for the Derivation of Noncancer Reference Exposure Levels (OEHHA, 2008).

It should be emphasized that exceeding the acute or chronic REL does not necessarily indicate that an adverse health impact will occur. The REL is not the threshold where population health effects would first be seen. However, levels of exposure above the REL have an increasing but undefined probability of resulting in an adverse health impact, particularly in sensitive individuals (e.g., depending on the toxicant, the very young, the elderly, pregnant women, and those with acute or chronic illnesses). The significance of exceeding the REL is dependent on the seriousness of the health endpoint, the strength and interpretation of the health studies, the magnitude of combined safety factors, and other considerations. In addition, there is a possibility that a REL may not be protective of certain small, unusually sensitive human subpopulations. Such subpopulations can be difficult to identify and study because of their small numbers, lack of knowledge about toxic mechanisms, and other factors. It may be useful to consult OEHHA staff when a REL is exceeded (hazard quotient or hazard index is greater than 1.0). Chapter 8 discusses the methods used for determining potential noncancer health impacts and Appendix I presents example calculations used to determine a hazard quotient (HQ) and hazard indices (HI).

Tables 6.1 through 6.3 list the currently adopted acute, 8-hour, and chronic inhalation RELs. Some substances that pose a long-term inhalation hazard may also present a chronic hazard via non-inhalation (oral, dermal) routes of exposure. The oral RELs for these substances are presented in Table 6.3. Appendix L provides a consolidated listing of all the acute, 8-hour, and chronic RELs with the respective target organs that are approved for use by OEHHA and ARB for the Hot Spots Program. Periodically, new or updated RELs are adopted by OEHHA and these guidelines will be updated to reflect those changes. See OEHHA's web site at www.oehha.ca.gov (look under "Air", then select "Hot Spots Guidelines") to determine if any new or updated RELs have been adopted since the last guideline update.

6.2 Acute Reference Exposure Levels

OEHHA developed acute RELs for assessing potential noncancer health impacts for short-term, one-hour peak exposures to facility emissions (OEHHA, 2008; http://www.oehha.ca.gov/air/allrels.html). By definition, an acute REL is an exposure that is not likely to cause adverse health effects in a human population, including sensitive subgroups, exposed to that concentration (in units of micrograms per cubic meter or $\mu g/m^3$) for the specified exposure duration on an intermittent basis.

The target organ systems and the acute RELs for each substance are presented in Table 6.1. Many acute RELs are based on mild adverse effects, such as mild irritation of the eyes, nose, or throat, or may result in other mild adverse physiological changes. For most individuals, it is expected that the mild irritation and other adverse physiological changes will not persist after exposure ceases. For RELs that have been recently developed or revised, the notation "sensory irritation" has been added in parenthesis in Table 6.1 for those chemicals that have an acute REL based on sensory irritation of the respiratory system (i.e., nose , throat) and/or eyes.

Other acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or fetotoxicity, which are considered severe adverse effects. The inhalation pathway is the only pathway to assess for acute exposure. Other non-inhalation pathways of exposure are evaluated for worker and residential scenarios where the exposures are chronic or repeated daily in nature. The oral RELs are used to evaluate the non-inhalation pathways of exposure. Noninhalation (oral) RELs are discussed in Section 6.5. Chapter 8 discusses the methods used for determining noncancer acute health impacts. Appendix I presents an example calculation used to determine an HQ and HI.

Table 6.1 Acute Inhalation Reference Exposure Levels (RELs) and Acute Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service Number (CAS)	Acute Inhalation REL ($\mu g/m^3$)	Acute Hazard Index Target Organ Systems(s)
Acetaldehyde	75-07-0	$4.7 \times 10^{+2}$	Eyes; Respiratory System (sensory irritation)
Acrolein	107-02-8	$2.5 \times 10^{+0}$	Eyes; Respiratory System (sensory irritation)
Acrylic Acid	79-10-7	$6.0 \times 10^{+3}$	Eyes; Respiratory System
Ammonia	7664-41-7	$3.2 \times 10^{+3}$	Eyes; Respiratory System
Arsenic and Inorganic Arsenic Compounds (including arsine)	7440-38-2	2.0×10^{-1}	Development; Cardiovascular System; Nervous System
Benzene	71-43-2	$2.7 \times 10^{+1}$	Reproductive/Developmental; Immune System; Hematologic System
Benzyl Chloride	100-44-7	$2.4 \times 10^{+2}$	Eyes; Respiratory System
1,3-Butadiene	106-99-0	$6.6 \times 10^{+2}$	Development
Caprolactam	105-60-2	$5.0 \times 10^{+1}$	Eyes (sensory irritation)
Carbon Disulfide	75-15-0	$6.2 \times 10^{+3}$	Nervous System; Reproductive/Developmental
Carbon Monoxide [a]	630-08-0	$2.3 \times 10^{+4}$	Cardiovascular System
Carbon Tetrachloride	56-23-5	$1.9 \times 10^{+3}$	Alimentary System (Liver); Nervous System Reproductive/Developmental
Chlorine	7782-50-5	$2.1 \times 10^{+2}$	Eyes; Respiratory System
Chloroform	67-66-3	$1.5 \times 10^{+2}$	Nervous System; Respiratory System; Reproductive/Developmental
Chloropicrin	76-06-2	$2.9 \times 10^{+1}$	Eyes; Respiratory System
Copper and Compounds	7440-50-8	$1.0 \times 10^{+2}$	Respiratory System
1,4-Dioxane	123-91-1	$3.0 \times 10^{+3}$	Eyes; Respiratory System
Epichlorohydrin	106-89-8	$1.3 \times 10^{+3}$	Eyes; Respiratory System
Ethylene Glycol Monobutyl Ether	111-76-2	$1.4 \times 10^{+4}$	Eyes; Respiratory System
Ethylene Glycol Monoethyl Ether	110-80-5	$3.7 \times 10^{+2}$	Reproductive/Developmental
Ethylene Glycol Monoethyl Ether Acetate	111-15-9	$1.4 \times 10^{+2}$	Nervous System; Reproductive/Developmental
Ethylene Glycol Monomethyl Ether	109-86-4	$9.3 \times 10^{+1}$	Reproductive/Developmental
Formaldehyde	50-00-0	$5.5 \times 10^{+1}$	Eyes (sensory irritation)
Hydrogen Chloride	7647-01-0	$2.1 \times 10^{+3}$	Eyes; Respiratory System
Hydrogen Cyanide	74-90-8	$3.4 \times 10^{+2}$	Nervous System
Hydrogen Fluoride	7664-39-3	$2.4 \times 10^{+2}$	Eyes; Respiratory System
Hydrogen Selenide	7783-07-5	$5.0 \times 10^{+0}$	Eyes; Respiratory System
Hydrogen Sulfide [a]	7783-06-4	$4.2 \times 10^{+1}$	Nervous System
Isopropanol	67-63-0	$3.2 \times 10^{+3}$	Eyes; Respiratory System
Mercury and Inorganic Mercury Compounds	7439-97-6	6.0×10^{-1}	Nervous System; Development
Methanol	67-56-1	$2.8 \times 10^{+4}$	Nervous System
Methyl Bromide	74-83-9	$3.9 \times 10^{+3}$	Nervous System; Respiratory System; Reproductive/Developmental

Substance	Chemical Abstract Service Number (CAS)	Acute Inhalation REL ($\mu g/m^3$)	Acute Hazard Index Target Organ Systems(s)
Methyl Chloroform	71-55-6	$6.8 \times 10^{+4}$	Nervous System
Methyl Ethyl Ketone	78-93-3	$1.3 \times 10^{+4}$	Eyes; Respiratory System
Methylene Chloride	75-09-2	$1.4 \times 10^{+4}$	Nervous System; Cardiovascular System
Nickel and Nickel Compounds	7440-02-0	2.0×10^{-1}	Immune System
Nitric Acid	7697-37-2	$8.6 \times 10^{+1}$	Respiratory System
Nitrogen Dioxide [a]	10102-44-0	$4.7 \times 10^{+2}$	Respiratory System
Ozone [a]	10028-15-6	$1.8 \times 10^{+2}$	Eyes; Respiratory System
Perchloroethylene (Tetrachloroethylene)	127-18-4	$2.0 \times 10^{+4}$	Eyes; Nervous System; Respiratory System
Phenol	108-95-2	$5.8 \times 10^{+3}$	Eyes; Respiratory System
Phosgene	75-44-5	$4.0 \times 10^{+0}$	Respiratory System
Propylene Oxide	75-56-9	$3.1 \times 10^{+3}$	Eyes; Respiratory System; Reproductive/Developmental
Sodium Hydroxide	1310-73-2	$8.0 \times 10^{+0}$	Eyes; Skin; Respiratory System
Styrene	100-42-5	$2.1 \times 10^{+4}$	Eyes; Respiratory System; Reproductive/Developmental
Sulfates [a]	N/A	$1.2 \times 10^{+2}$	Respiratory System
Sulfur Dioxide [a]	7446-09-5	$6.6 \times 10^{+2}$	Respiratory System
Sulfuric Acid and Oleum	7664-93-9 8014-95-7	$1.2 \times 10^{+2}$	Respiratory System
Tetrachloroethylene (Perchloroethylene)	127-18-4	$2.0 \times 10^{+4}$	Eyes; Nervous System; Respiratory System
Toluene	108-88-3	$3.7 \times 10^{+4}$	Nervous System; Respiratory System; Eyes; Reproductive/Developmental
Triethylamine	121-44-8	$2.8 \times 10^{+3}$	Nervous System; Eyes
Vanadium Pentoxide	1314-62-1	$3.0 \times 10^{+1}$	Eyes; Respiratory System
Vinyl Chloride	75-01-4	$1.8 \times 10^{+5}$	Nervous System; Eyes; Respiratory System
Xylenes (m,o,p-isomers)	1330-20-7	$2.2 \times 10^{+4}$	Eyes; Respiratory System; Nervous System

[a] California Ambient Air Quality Standard

6.3 8-hour Reference Exposure Levels

OEHHA has developed 8-hour RELs for assessing potential noncancer health impacts for exposures to the general public that occur on a recurrent basis, but only during a portion of each day (OEHHA, 2008; http://www.oehha.ca.gov/air/allrels.html). Eight-hour RELs are compared to air concentrations that represent an average (daily) 8-hour exposure. They were designed to address off-site worker exposure at the MEIW, but may also be used at the Districts' discretion to characterize 8-hour residential noncancer exposures, particularly for non-continuous facility operations where exposure is based on air concentrations during facility operation (i.e., the zero emission hours are not included) rather than averaged over 24-hours/day, 7 days/week as assessed for chronic exposure. The 8-hour RELs can also be used to assess exposure of students and teachers while at school (OEHHA, 2008). These RELs were developed because of concerns that applying the chronic REL in some scenarios was

overly conservative. By definition, an 8-hour REL is an exposure that is not likely to cause adverse health effects in a human population, including sensitive subgroups, exposed to that concentration (in units of micrograms per cubic meter or $\mu g/m^3$) for an 8-hour exposure duration on a regular (including daily) basis.

The RELs, target organ systems, and the averaging time for substances that can present a potential hazard from inhalation for 8 hours on a daily basis are presented in Table 6.2. Chapter 8 discusses the methods used for determining noncancer 8-hour health impacts. Appendix I presents an example calculation used to determine an HQ and HI.

Any substances in Table 6.2 with Development or Reproductive System as a target organ system are represented in HARP and in the Appendix L REL tables under the single endpoint "Reproductive/Development".

Table 6.2 Eight-Hour Inhalation Reference Exposure Levels (RELs) and 8-Hour Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service Number (CAS)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Inhalation Hazard Index Target Organ System(s)
Acetaldehyde	75-07-0	$3.0 \times 10^{+2}$	Respiratory System
Acrolein	107-02-8	7.0×10^{-1}	Respiratory System
Arsenic & Inorganic Arsenic Compounds	7440-38-2	1.5×10^{-2}	Cardiovascular System; Development; Nervous System; Respiratory System; Skin
Benzene	71-43-2	$3.0 \times 10^{+0}$	Hematologic System
1,3-Butadiene	106-99-0	$9.0 \times 10^{+0}$	Reproductive System
Caprolactam	105-60-2	$7.0 \times 10^{+0}$	Respiratory System
Formaldehyde	50-0-0	$9.0 \times 10^{+0}$	Respiratory System
Manganese & Manganese Compounds	7439-96-5	1.7×10^{-1}	Nervous System
Mercury & Inorganic Mercury Compounds	7439--97-6	6.0×10^{-2}	Nervous System; Development; Kidney
Nickel & Nickel Compounds	7440-02-0	6.0×10^{-2}	Respiratory System; Immune System

6.4 Chronic Reference Exposure Levels

OEHHA has developed chronic RELs for assessing noncancer health impacts from long-term exposure. (OEHHA, 2008; see also http://www.oehha.ca.gov/air/allrels.html) A chronic REL is a concentration level (expressed in units of micrograms per cubic meter ($\mu g/m^3$) for inhalation exposure and in a dose expressed in units of milligrams per kilogram-day (mg/kg-day) for oral exposures) at or below which no adverse health effects are anticipated following long-term exposure. Long-term exposure for these purposes has been defined by U.S. EPA as at least 12% of a lifetime, or about eight years for humans. Table 6.3 lists the chronic noncancer RELs that should be used in

the assessment of chronic health effects from inhalation exposure. Appendix L provides a consolidated listing of all the acute, 8-hour and chronic RELs and target organs that are approved for use by OEHHA and ARB for the Hot Spots Program. Periodically, new or updated RELs are adopted by OEHHA. See OEHHA's web site http://www.oehha.ca.gov/air/allrels.html to determine if any new or updated RELs have been adopted since the last guideline update.

The organ system(s) associated with each chronic REL are also presented in Table 6.3. Any substances in Table 6.3 with Development or Reproductive System as a target organ system are represented in HARP and in the Appendix L REL tables under the single endpoint "Reproductive/Development". Chapter 8 discusses the methods used for determining potential noncancer health impacts and Appendix I presents example calculations used to determine a HQ and HI.

Table 6.3 Chronic Inhalation Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service Number (CAS)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Inhalation Hazard Index Target Organ System(s)
Acetaldehyde [a]	75-07-0	$1.4 \times 10^{+2}$	Respiratory System
Acrolein	107-02-8	3.5×10^{-1}	Respiratory System
Acrylonitrile	107-13-1	$5.0 \times 10^{+0}$	Respiratory System
Ammonia	7664-41-7	$2.0 \times 10^{+2}$	Respiratory System
Arsenic & Inorganic Arsenic Compounds	7440-38-2	1.5×10^{-2}	Cardiovascular System; Development; Nervous System; Respiratory System; Skin
Benzene	71-43-2	$3.0 \times 10^{+0}$	Hematologic System
Beryllium and Beryllium Compounds	7440-41-7	7.0×10^{-3}	Immune System; Respiratory System
1,3-Butadiene	106-99-0	$2.0 \times 10^{+0}$	Reproductive System
Cadmium and Cadmium Compounds	7440-43-9	2.0×10^{-2}	Kidney; Respiratory System
Caprolactam	105-60-2	$2.2 \times 10^{+0}$	Respiratory System
Carbon Disulfide	75-15-0	$8.0 \times 10^{+2}$	Nervous System; Reproductive System
Carbon Tetrachloride	56-23-5	$4.0 \times 10^{+1}$	Alimentary System (Liver); Development; Nervous System
Chlorine	7782-50-5	2.0×10^{-1}	Respiratory System
Chlorine Dioxide	10049-04-4	6.0×10^{-1}	Respiratory System
Chlorinated Dibenzo-*p*-dioxins [b]			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin [b]	1746-01-6	4.0×10^{-5}	Alimentary System (Liver); Development; Endocrine System; Hematologic System; Reproductive System; Respiratory System
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin [b]	40321-76-4	4.0×10^{-5}	
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin [b]	39227-28-6	4.0×10^{-4}	
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin [b]	57653-85-7	4.0×10^{-4}	
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin [b]	19408-74-3	4.0×10^{-4}	
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin [b]	35822-46-9	4.0×10^{-3}	
1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin [b]	3268-87-9	1.3×10^{-1}	

Table 6.3 Chronic Inhalation Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service Number (CAS)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Inhalation Hazard Index Target Organ System(s)
Chlorinated Dibenzofurans [b]			
2,3,7,8-Tetrachlorodibenzofuran [b]	5120-73-19	4.0×10^{-4}	Alimentary System (Liver); Development; Endocrine System; Hematologic System; Reproductive System; Respiratory System
1,2,3,7,8-Pentachlorodibenzofuran [b]	57117-41-6	1.3×10^{-3}	
2,3,4,7,8-Pentachlorodibenzofuran [b]	57117-31-4	1.3×10^{-4}	
1,2,3,4,7,8-Hexachlorodibenzofuran [b]	70648-26-9	4.0×10^{-4}	
1,2,3,6,7,8-Hexachlorodibenzofuran [b]	57117-44-9	4.0×10^{-4}	
1,2,3,7,8,9-Hexachlorodibenzofuran [b]	72918-21-9	4.0×10^{-4}	
2,3,4,6,7,8-Hexachlorodibenzofuran [b]	60851-34-5	4.0×10^{-4}	
1,2,3,4,6,7,8-Heptachlorodibenzofuran [b]	67562-39-4	4.0×10^{-3}	
1,2,3,4,7,8,9-Heptachlorodibenzofuran [b]	55673-89-7	4.0×10^{-3}	
1,2,3,4,6,7,8,9-Octachlorodibenzofuran [b]	39001-02-0	1.3×10^{-1}	
Chlorobenzene	108-90-7	$1.0 \times 10^{+3}$	Alimentary System (Liver); Kidney; Reproductive System
Chloroform	67-66-3	$3.0 \times 10^{+2}$	Alimentary System (Liver); Development; Kidney
Chloropicrin	76-06-2	4.0×10^{-1}	Respiratory System
Chromium VI & Soluble Chromium VI Compounds (except chromic trioxide)	18540-29-9	2.0×10^{-1}	Respiratory System
Chromic Trioxide (as chromic acid mist)	1333-82-0	2.0×10^{-3}	Respiratory System
Cresol Mixtures	1319-77-3	$6.0 \times 10^{+2}$	Nervous System
1,4-Dichlorobenzene	106-46-7	$8.0 \times 10^{+2}$	Alimentary System (Liver); Kidney; Nervous System; Respiratory System
1,1-Dichloroethylene (Vinylidene Chloride)	75-35-4	$7.0 \times 10^{+1}$	Alimentary System (Liver)
Diesel Exhaust [a]	N/A	$5.0 \times 10^{+0}$	Respiratory System
Diethanolamine	111-42-2	$3.0 \times 10^{+0}$	Hematologic System; Respiratory System
N,N-Dimethylformamide	68-12-2	$8.0 \times 10^{+1}$	Alimentary System (Liver); Respiratory System
1,4-Dioxane	123-91-1	$3.0 \times 10^{+3}$	Alimentary System (Liver); Cardiovascular System; Kidney
Epichlorohydrin	106-89-8	$3.0 \times 10^{+0}$	Eyes; Respiratory System
1,2-Epoxybutane	106-88-7	$2.0 \times 10^{+1}$	Cardiovascular System; Respiratory System
Ethylbenzene	100-41-4	$2.0 \times 10^{+3}$	Alimentary System (Liver); Kidney; Development; Endocrine System
Ethyl Chloride	75-00-3	$3.0 \times 10^{+4}$	Alimentary System (Liver); Development
Ethylene Dibromide	106-93-4	8.0×10^{-1}	Reproductive System
Ethylene Dichloride	107-06-2	$4.0 \times 10^{+2}$	Alimentary System (Liver)
Ethylene Glycol	107-21-1	$4.0 \times 10^{+2}$	Development; Kidney; Respiratory System
Ethylene Glycol Monoethyl Ether	110-80-5	$7.0 \times 10^{+1}$	Hematologic System; Reproductive System
Ethylene Glycol Monoethyl Ether Acetate	111-15-9	$3.0 \times 10^{+2}$	Development

Table 6.3 Chronic Inhalation Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service Number (CAS)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Inhalation Hazard Index Target Organ System(s)
Ethylene Glycol Monomethyl Ether	109-86-4	$6.0 \times 10^{+1}$	Reproductive System
Ethylene Glycol Monomethyl Ether Acetate	110-49-6	$9.0 \times 10^{+1}$	Reproductive System
Ethylene Oxide	75-21-8	$3.0 \times 10^{+1}$	Nervous System
Fluorides (except hydrogen fluoride)	N/A	$1.3 \times 10^{+1}$	Bone and Teeth; Respiratory System
Formaldehyde	50-00-0	$9.0 \times 10^{+0}$	Respiratory System
Glutaraldehyde	111-30-8	8.0×10^{-2}	Respiratory System
Hexane (n-)	110-54-3	$7.0 \times 10^{+3}$	Nervous System
Hydrazine	302-01-2	2.0×10^{-1}	Alimentary System (Liver); Endocrine System
Hydrogen Chloride	7647-01-0	$9.0 \times 10^{+0}$	Respiratory System
Hydrogen Cyanide	74-90-8	$9.0 \times 10^{+0}$	Cardiovascular System; Endocrine System; Nervous System
Hydrogen Fluoride	7664-39-3	$1.4 \times 10^{+1}$	Bone and Teeth; Respiratory System
Hydrogen Sulfide	7783-06-4	$1.0 \times 10^{+1}$	Respiratory System
Isophorone	78-59-1	$2.0 \times 10^{+3}$	Alimentary System (Liver); Development
Isopropanol	67-63-0	$7.0 \times 10^{+3}$	Development; Kidney
Maleic Anhydride	108-31-6	7.0×10^{-1}	Respiratory System
Manganese & Manganese Compounds	7439-96-5	9.0×10^{-2}	Nervous System
Mercury & Inorganic Mercury Compounds	7439-97-6	3.0×10^{-2}	Nervous System; Development; Kidney
Methanol	67-56-1	$4.0 \times 10^{+3}$	Development
Methyl Bromide	74-83-9	$5.0 \times 10^{+0}$	Development; Nervous System; Respiratory System
Methyl Chloroform	71-55-6	$1.0 \times 10^{+3}$	Nervous System
Methyl Isocyanate	624-83-9	$1.0 \times 10^{+0}$	Reproductive System; Respiratory System
Methyl tertiary-Butyl Ether	1634-04-4	$8.0 \times 10^{+3}$	Alimentary System (Liver); Eyes; Kidney
Methylene Chloride	75-09-2	$4.0 \times 10^{+2}$	Cardiovascular System; Nervous System
4,4'-Methylene Dianiline (& its dichloride)	101-77-9	$2.0 \times 10^{+1}$	Alimentary System (Liver); Eyes
Methylene Diphenyl Isocyanate	101-68-8	7.0×10^{-1}	Respiratory System
Naphthalene	91-20-3	$9.0 \times 10^{+0}$	Respiratory System
Nickel & Nickel Compounds (except nickel oxide)	7440-02-0	1.4×10^{-2}	Hematologic System; Respiratory System
Nickel Oxide	1313-99-1	2.0×10^{-2}	Respiratory System
Perchloroethylene (Tetrachloroethylene)[a]	127-18-4	$3.5 \times 10^{+1}$	Alimentary System (Liver); Kidney
Phenol	108-95-2	$2.0 \times 10^{+2}$	Alimentary System (Liver); Cardiovascular System; Kidney; Nervous System
Phosphine	7803-51-2	8.0×10^{-1}	Alimentary System (Liver); Hematologic System; Kidney; Nervous System; Respiratory System

Table 6.3 Chronic Inhalation Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service Number (CAS)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Inhalation Hazard Index Target Organ System(s)
Phosphoric Acid	7664-38-2	$7.0 \times 10^{+0}$	Respiratory System
Phthalic Anhydride	85-44-9	$2.0 \times 10^{+1}$	Respiratory System
Polychlorinated biphenyls (PCBs)[b]			
3,3',4,4'-Tetrachlorobiphenyl (77) [b]	35298-13-3	4.0×10^{-1}	Alimentary System (Liver); Developmental; Endocrine System; Hematologic System; Reproductive System; Respiratory System
3,4,4',5-Tetrachlorobiphenyl (81) [b]	70362-50-4	1.3×10^{-1}	
2,3,3',4,4'- Pentachlorobiphenyl (105) [b]	32598-14-4	$1.3 \times 10^{+0}$	
2,3,4,4'5- Pentachlorobiphenyl (114) [b]	74472-37-0	$1.3 \times 10^{+0}$	
2,3'4,4',5- Pentachlorobiphenyl (118) [b]	31508-00-6	$1.3 \times 10^{+0}$	
2',3,4,4',5- Pentachlorobiphenyl (123) [b]	65510-44-3	$1.3 \times 10^{+0}$	
3,3',4,4',5- Pentachlorobiphenyl (126) [b]	57465-28-8	4.0×10^{-4}	
2,3,3',4,4',5-Hexachlorobiphenyl (156) [b]	38380-08-4	$1.3 \times 10^{+0}$	
2,3,3',4,4',5'-Hexachlorobiphenyl (157) [b]	69782-90-7	$1.3 \times 10^{+0}$	
2,3',4,4',5,5'-Hexachlorobiphenyl (167) [b]	52663-72-6	$1.3 \times 10^{+0}$	
3,3',4,4'5,5'- Hexachlorobiphenyl (169) [b]	32774-16-6	1.3×10^{-3}	
2,3,3'4,4',5,5'-Heptachlorobiphenyl (189) [b]	39635-31-9	$1.3 \times 10^{+0}$	
Propylene	115-07-1	$3.0 \times 10^{+3}$	Respiratory System
Propylene Glycol Monomethyl Ether	107-98-2	$7.0 \times 10^{+3}$	Alimentary System (Liver)
Propylene Oxide	75-56-9	$3.0 \times 10^{+1}$	Respiratory System
Selenium and Selenium compounds (other than Hydrogen Selenide)	7782-49-2	$2.0 \times 10^{+1}$	Alimentary System (Liver); Cardiovascular System; Nervous System
Silica (crystalline, respirable)	N/A	$3.0 \times 10^{+0}$	Respiratory System
Styrene	100-42-5	$9.0 \times 10^{+2}$	Nervous System
Sulfuric Acid	7664-93-9	$1.0 \times 10^{+0}$	Respiratory System
Toluene	108-88-3	$3.0 \times 10^{+2}$	Development; Nervous System; Respiratory System
2,4-Toluene Diisocyanate	584-84-9	7.0×10^{-2}	Respiratory System
2,6-Toluene Diisocyanate	91-08-7	7.0×10^{-2}	Respiratory System
Trichloroethylene [a]	79-01-6	$6.0 \times 10^{+2}$	Eyes; Nervous System
Triethylamine	121-44-8	$2.0 \times 10^{+2}$	Eyes
Vinyl Acetate	108-05-4	$2.0 \times 10^{+2}$	Respiratory System
Xylenes (m, o, p-isomers)	1330-20-7	$7.0 \times 10^{+2}$	Nervous System; Respiratory System; Eyes

[a] These peer-reviewed values were developed under the Toxic Air Contaminant (TAC) Program mandated by AB1807 (California Health and Safety Code Sec. 39650 *et seq.*).

[b] The OEHHA has adopted the World Health Organization Toxicity Equivalency Factor (TEF) scheme for evaluating the cancer risk and noncancer hazard due to exposure to samples containing mixtures of polychlorinated dibenzo-*p*-dioxins (PCDD) (also referred to as chlorinated dioxins and dibenzofurans), polychlorinated dibenzofurans (PCDF) and polychlorinated biphenyls (PCBs). The TEF values are revised from time to time to reflect new data and increased scientific knowledge. Currently OEHHA recommends use of the 2005 revision to the WHO TEF values (WHO_{05}-TEF). See Appendix E for more information about the scheme and for the methodology for calculating 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) equivalents for PCDD and PCDFs. For

convenience, OEHHA has calculated chronic REL values for speciated PCDDs, PCDFs and PCBs based on the WHO_{05} TEF values and the chronic REL for 2,3,7,8-TCDD using the procedure discussed in Appendix E. The chronic REL values can be used to calculate a hazard index when the mixtures are speciated from individual congener ground level concentrations. In those cases where speciation of dioxins and furans has not been performed, then 2,3,7,8-TCDD serves as the surrogate for dioxin and furan emissions.

N/A Not Applicable

6.5 Chronic Oral (Noninhalation) Reference Exposure Levels

As specified throughout the guidelines, estimates of long-term exposure resulting from facility air emissions of specific compounds must be analyzed for both inhalation and noninhalation (multipathway) pathways of exposure for humans. Facilities often emit substances under high temperature and pressure in the presence of particulate matter. While some of these substances are expected to remain in the vapor phase, other substances such as metals and semi-volatile organics can be either emitted as particles, form particles after emission from the facility, or adhere to existing particles. Some substances will partition between vapor and particulate phases. Substances in the particulate phase can be removed from the atmosphere by settling and, thus, potentially present a significant hazard via noninhalation pathways.

Particulate-associated chemicals can be deposited directly onto soil, onto the leaves or fruits of crops, or onto surface waters. Exposure via the oral route is the predominant noninhalation pathway, resulting in the noninhalation RELs being referred to as 'oral RELs' in this document. The oral RELs are used for both ingestion and dermal exposures, and are applied using the chronic non-inhalation exposures in the residential scenario and the worker scenarios. The oral RELs are expressed as doses in milligrams of substance (consumed and dermally absorbed) per kilogram body weight per day (mg/kg-day).

Table 6.4 lists the chronic noncancer RELs to be used in the assessment of chronic health effects from noninhalation pathways of exposure. Any substances in Table 6.4 with Development or Reproductive System as a target organ system are represented in HARP and in the Appendix L REL tables under the single endpoint "Reproductive/Development". Appendix L provides a consolidated listing of all chronic RELs and target organs that are approved for use by OEHHA and ARB for the Hot Spots Program. Periodically, new or updated RELs are adopted by OEHHA and these guidelines will be updated to reflect those changes. See OEHHA's web page at http://www.oehha.ca.gov/air/allrels.html to determine if any new or updated RELs have been adopted since the last guideline update. Chapter 8 discusses the methods used for determining potential noncancer health impacts and Appendix I presents example calculations used to determine a HQ and HI.

Table 6.4 Chronic Noninhalation 'Oral' Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service No. (CAS)	Chronic Oral REL (mg/kg-day)	Chronic Oral Hazard Index Target Organ System(s)
Arsenic & Inorganic Arsenic Compounds	7440-38-2	3.5×10^{-6}	Development; Nervous System; Respiratory System; Cardiovascular System; Skin
Beryllium and Beryllium Compounds	7440-41-7	2.0×10^{-3}	Alimentary System (Gastrointestinal Tract)
Cadmium and Cadmium Compounds	7440-43-9	5.0×10^{-4}	Kidney
Chlorinated Dibenzo-*p*-dioxins [a]			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin [a]	1746-01-6	1.0×10^{-8}	Alimentary System (Liver); Developmental; Endocrine System; Hematologic System; Reproductive System; Respiratory System
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin [a]	40321-76-4	1.0×10^{-8}	
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin [a]	39227-28-6	1.0×10^{-7}	
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin [a]	57653-85-7	1.0×10^{-7}	
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin [a]	19408-74-3	1.0×10^{-7}	
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin [a]	35822-46-9	1.0×10^{-6}	
1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin [a]	3268-87-9	3.3×10^{-5}	
Chlorinated Dibenzofurans [a]			
2,3,7,8-Tetrachlorodibenzofuran [a]	5120-73-19	1.0×10^{-7}	Alimentary System (Liver); Development; Endocrine System; Hematologic System; Reproductive System; Respiratory System
1,2,3,7,8-Pentachlorodibenzofuran [a]	57117-41-6	3.3×10^{-7}	
2,3,4,7,8-Pentachlorodibenzofuran [a]	57117-31-4	3.3×10^{-8}	
1,2,3,4,7,8-Hexachlorodibenzofuran [a]	70648-26-9	1.0×10^{-7}	
1,2,3,6,7,8-Hexachlorodibenzofuran [a]	57117-44-9	1.0×10^{-7}	
1,2,3,7,8,9-Hexachlorodibenzofuran [a]	72918-21-9	1.0×10^{-7}	
2,3,4,6,7,8-Hexachlorodibenzofuran [a]	60851-34-5	1.0×10^{-7}	
1,2,3,4,6,7,8-Heptachlorodibenzofuran [a]	67562-39-4	1.0×10^{-6}	
1,2,3,4,7,8,9-Heptachlorodibenzofuran [a]	55673-89-7	1.0×10^{-6}	
1,2,3,4,6,7,8,9-Octachlorodibenzofuran [a]	39001-02-0	3.3×10^{-5}	
Chromium VI & Soluble Chromium VI Compounds (including chromic trioxide)	18540-29-9	2.0×10^{-2}	Hematologic System
Fluorides (including hydrogen fluoride)	7664-39-3	4.0×10^{-2}	Bone and Teeth
Mercury & Mercury Inorganic Compounds	7439-97-6	1.6×10^{-4}	Kidney; Nervous System; Development
Nickel & Nickel Compounds (including nickel oxide)	7440-02-0	1.1×10^{-2}	Development
Polychlorinated biphenyls (PCBs) (speciated)[a]			
3,3',4,4'-Tetrachlorobiphenyl (77)[a]	35298-13-3	1.0×10^{-4}	Alimentary System (Liver); Developmental; Endocrine System; Hematologic System; Reproductive System; Respiratory System
3,4,4',5-Tetrachlorobiphenyl (81)[a]	70362-50-4	3.3×10^{-5}	
2,3,3',4,4'- Pentachlorobiphenyl (105)[a]	32598-14-4	3.3×10^{-4}	
2,3,4,4'5- Pentachlorobiphenyl (114)[a]	74472-37-0	3.3×10^{-4}	
2,3'4,4',5- Pentachlorobiphenyl (118)[a]	31508-00-6	3.3×10^{-4}	
2',3,4,4',5- Pentachlorobiphenyl (123)[a]	65510-44-3	3.3×10^{-4}	
3,3',4,4',5- Pentachlorobiphenyl (126)[a]	57465-28-8	1.0×10^{-7}	
2,3,3',4,4',5-Hexachlorobiphenyl (156)[a]	38380-08-4	3.3×10^{-4}	
2,3,3',4,4',5'-Hexachlorobiphenyl (157)[a]	69782-90-7	3.3×10^{-4}	
2,3',4,4',5,5'-Hexachlorobiphenyl (167)[a]	52663-72-6	3.3×10^{-4}	
3,3',4,4'5,5'- Hexachlorobiphenyl (169)[a]	32774-16-6	3.3×10^{-7}	
2,3,3'4,4',5,5'- Heptachlorobiphenyl (189)[a]	39635-31-9	3.3×10^{-4}	

Table 6.4 Chronic Noninhalation 'Oral' Reference Exposure Levels (RELs) and Chronic Hazard Index Target Organ System(s)

Substance	Chemical Abstract Service No. (CAS)	Chronic Oral REL (mg/kg-day)	Chronic Oral Hazard Index Target Organ System(s)
Selenium and Selenium Compounds (other than hydrogen selenide)	7782-49-2	5.0×10^{-3}	Alimentary System (Liver); Cardiovascular System; Nervous System

[a] The OEHHA has adopted the World Health Organization Toxicity Equivalency Factor (TEF) scheme for evaluating the cancer risk and noncancer risk due to exposure to samples containing mixtures of polychlorinated dibenzo-*p*-dioxins (PCDD) (also referred to as chlorinated dioxins and dibenzofurans), polychlorinated dibenzofurans (PCDF), and polychlorinated biphenyls (PCBs). The TEF values are revised from time to time to reflect new data and increased scientific knowledge. Currently OEHHA recommends use of the 2005 revision to the WHO TEF values (WHO_{05}-TEF). See Appendix E for more information about the scheme and for the methodology for calculating 2,3,7,8-equivalents for PCDD and PCDFs. For convenience, OEHHA has calculated chronic 'oral' REL values for speciated PCDDs, PCDFs, and PCBs based on the WHO_{05} TEF values and the chronic 'oral' REL for 2,3,7,8-tetrachlorodibenzo-*p*-dioxin using the procedure discussed in Appendix E. The chronic 'oral' REL values can be used to calculate a hazard index when the mixtures are speciated from individual congener ground level concentrations. In those cases where speciation of dioxins and furans has not been performed, then 2,3,7,8-TCDD serves as the surrogate for dioxin and furan emissions.

6.6 References

OEHHA, 2008. Air Toxics Hot Spots Risk Assessment Guidelines Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Available online at: http://www.oehha.ca.gov

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7 - Dose-Response Assessment for Carcinogens

7.1 Introduction

Dose-response assessment characterizes the quantitative relationship between the amount of exposure to a substance (the dose) and the incidence or occurrence of injury (the response). The process often involves establishing a toxicity value or criterion to use in assessing potential health risk. The toxicity criterion, or health guidance value, for carcinogens is the cancer potency slope (potency factor), which describes the potential risk of developing cancer per unit of average daily dose over a 70-year lifetime. Cancer inhalation and oral potency factors have been derived by the Office of Environmental Health Hazard Assessment (OEHHA) or by the United States Environmental Protection Agency (U.S. EPA) and approved by the State's Scientific Review Panel on Toxic Air Contaminants. They are available for many of the substances listed in Appendix A (List of Substances) as carcinogens. Table 7.1 and Appendix L list the inhalation and oral cancer potency factors that should be used in multipathway health risk assessments (HRAs) for the Hot Spots Program.

The details on the methodology of dose-response assessment for carcinogens and the approved cancer potency factors are provided in the Air Toxics Hot Spots Risk Assessment Guidelines. Part II. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. May, 2009. (OEHHA, 2009; see http://www.oehha.ca.gov/air/hot_spots/tsd052909.html).

7.2 Carcinogenic Potency

Cancer potency factors used for both the inhalation and oral routes in the Hot Spots program are generally the 95% upper confidence limits (UCL) on the modeled dose-response slope at the low dose range. The cancer slope factor assumes continuous lifetime exposure to a substance, and is expressed in units of inverse dose [i.e., $(mg/kg/day)^{-1}$]. Another common potency expression is in units of inverse concentration [$(\mu g/m^3)^{-1}$)] when the slope is based on exposure concentration rather than dose; this is termed the unit risk factor. To accommodate the use of age-specific exposure variates, the Hot Spots program has translated the unit risk factors based on concentration to units of inverse dose. This allows calculation of risk for age groupings, as exposure varies with age. It also allows for application of Age Sensitivity Factors for early life exposures.

It is assumed in cancer risk assessments that risk is directly proportional to dose and that, for most carcinogens, there is no threshold for carcinogenesis. The derivation of inhalation and oral cancer potency factors takes into account information on pharmacokinetics, when available, and on the mechanism of carcinogenic action.

Table 7.1 and Appendix L list inhalation and oral cancer potency factors that should be used in risk assessments for the Hot Spots Program. Chapter 8 describes procedures for use of potency factors in estimating potential cancer risk.

7.2.1 *Inhalation Cancer Potency Factors*

The risk assessment methodology and algorithms presented in Chapter 8 express the inhalation cancer slope factors in units of inverse dose (i.e., $(mg/kg/day)^{-1}$). Breathing rates, expressed in units of liters per kilogram of body weight-day (L/kg-day), are multiplied with the air concentrations, coupled with the appropriate unit conversion factor, to estimate dose in mg/kg-day. This allows estimation of average and high-end cancer risk point estimates. Estimation of a distribution of cancer risk based on variability in breathing rate can be obtained by Monte Carlo methods using the distributions of breathing rates in L/kg-day, which can then be converted to a dose distribution in mg/kg BW based on the intake rate. Unit risk factors [in the units of inverse concentration (i.e., $(\mu g/m^3)^{-1}$], which were used in previous guidelines for the Hot Spots program, are still listed in the TSD (OEHHA, 2009) and may prove useful in other risk assessment applications.

The average daily inhalation dose (mg/kg-day) multiplied by the cancer potency factor $(mg/kg-day)^{-1}$ will give the inhalation cancer risk (unitless), which is an expression of the chemical's cancer risk during a 70-year lifespan of exposure. For example, an inhalation cancer risk of 5×10^{-6} is the same as stating that an individual has an estimated probability of developing cancer from their exposure of 5 chances per million people exposed. A more complete description of how potential cancer risk is calculated from the exposure dose and cancer potency factors is provided in Chapter 8. Appendix I presents an example calculation for determining cancer risk.

A list of current inhalation potency factors is provided in Table 7.1. Periodically, new or revised cancer potency factors will be peer reviewed by the State's Scientific Review Panel on Toxic Air Contaminants (SRP) and adopted by the Director of OEHHA. For new or updated numbers, consult the OEHHA web site at (http://www.oehha.ca.gov/air/hot_spots/tsd052909.html) to determine if any new or updated cancer potency factors have been adopted since this guideline update. New cancer potency factors that have been approved by the SRP and adopted by the Director of OEHHA should be incorporated into Hot Spots risk assessment for facilities that emit those chemicals.

7.2.2 *Oral Cancer Potency Factors*

Under the Hot Spots Program, a few substances are evaluated for exposure and risk from non-inhalation pathways – these are referred to as multipathway substances. Multipathway substances have the potential to impact a receptor through inhalation and noninhalation (oral and dermal) exposure routes. These substances include heavy metals and semi-volatile organic substances such as dioxins, furans, and polycyclic aromatic hydrocarbons (PAHs). These substances commonly exist in the particle

phase or partially in the particle phase when emitted into the air. They can therefore be deposited onto soil, vegetation, and water. Noninhalation exposure pathways considered under the Hot Spots Program include the ingestion of soil, homegrown produce, meat, milk, surface water, breast milk, and fish as well as dermal exposure to contaminants deposited in the soil. See Table 5.1 for a list of the multipathway substances.

Table 7.1 and Appendix L list oral cancer potency factors in units of $(mg/kg\text{-}day)^{-1}$ that should be used for assessing the potential cancer risk for these substances through noninhalation exposure pathways. The cancer risk from these individual pathways is calculated by multiplying the dose (mg/kg-day) times the oral cancer potency factor $(mg/kg\text{-}day)^{-1}$ to yield the potential cancer risk (unitless) from non-inhalation exposures. Chapter 5 provides all of the algorithms to calculate exposure dose through all of the individual exposure pathways. Appendix I provides a sample calculation for dose and cancer risk using the inhalation exposure pathway.

Three carcinogens (cadmium, beryllium, and nickel), although subject to deposition, are only treated as carcinogenic by the inhalation route and not by the oral route. Therefore, there are no oral cancer potency factors for these substances. However, the oral doses of these substances need to be estimated because of their noncancer toxicity. See Chapters 6 and 8, and Appendices I and L for dose-response factors, and calculations to address these substances.

Table 7.1 Inhalation and Oral Cancer Potency Factors

Substance	Chemical Abstract Service Number (CAS)	Inhalation Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Slope Factor $(mg/kg\text{-}day)^{-1}$
Acetaldehyde	75-07-0	1.0×10^{-2}	
Acetamide	60-35-5	7.0×10^{-2}	
Acrylamide	79-06-1	$4.5 \times 10^{+0}$	
Acrylonitrile	107-13-1	$1.0 \times 10^{+0}$	
Allyl chloride	107-05-1	2.1×10^{-2}	
2-Aminoanthraquinone	117-79-3	3.3×10^{-2}	
Aniline	62-53-3	5.7×10^{-3}	
Arsenic (inorganic)	7440-38-2	$1.2 \times 10^{+1}$	$1.5 \times 10^{+0}$
Asbestos [#]	1332-21-4	$2.2 \times 10^{+2\,\#}$	
Benz[*a*]anthracene [BaP]	56-55-3	3.9×10^{-1}	$1.2 \times 10^{+0}$
Benzene	71-43-2	1.0×10^{-1}	
Benzidine	92-87-5	$5.0 \times 10^{+2}$	
Benzo[*a*]pyrene	50-32-8	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
Benzo[*b*]fluoranthrene [BaP]	205-99-2	3.9×10^{-1}	$1.2 \times 10^{+0}$
Benzo[*j*]fluoranthrene [BaP]	205-82-3	3.9×10^{-1}	$1.2 \times 10^{+0}$
Benzo[*k*]fluoranthrene [BaP]	207-08-9	3.9×10^{-1}	$1.2 \times 10^{+0}$
Benzyl chloride	100-44-7	1.7×10^{-1}	
Beryllium	7440-41-7	$8.4 \times 10^{+0}$	
Bis(2-chloroethyl) ether	111-44-4	$2.5 \times 10^{+0}$	
Bis(chloromethyl)ether	542-88-1	$4.6 \times 10^{+1}$	
1,3-Butadiene	106-99-0	6.0×10^{-1}	
Cadmium (and compounds)	7440-43-9	$1.5 \times 10^{+1}$	
Carbon tetrachloride	56-23-5	1.5×10^{-1}	
Chlorinated Dibenzo-p-dioxins [A]			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	1746-01-6	$1.3 \times 10^{+5}$	$1.3 \times 10^{+5}$
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	40321-76-4	$1.3 \times 10^{+5}$	$1.3 \times 10^{+5}$
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	39227-28-6	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	57653-85-7	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	19408-74-3	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	35822-46-9	$1.3 \times 10^{+3}$	$1.3 \times 10^{+3}$
1,2,3,4,,6,7,8,9-Octachlorodibenzo-*p*-dioxin	3268-87-9	$3.9 \times 10^{+1}$	$3.9 \times 10^{+1}$
Chlorinated Dibenzofurans [A]			
2,3,7,8-Tetrachlorodibenzofuran	5120-73-19	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	$3.9 \times 10^{+3}$	$3.9 \times 10^{+3}$
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	$3.9 \times 10^{+4}$	$3.9 \times 10^{+4}$
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$

Table 7.1 Inhalation and Oral Cancer Potency Factors

Substance	Chemical Abstract Service Number (CAS)	Inhalation Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Slope Factor $(mg/kg\text{-}day)^{-1}$
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	$1.3 \times 10^{+3}$	$1.3 \times 10^{+3}$
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7	$1.3 \times 10^{+3}$	$1.3 \times 10^{+3}$
1,2,3,4,,6,7,8,9-Octachlorodibenzofuran	39001-02-0	$3.9 \times 10^{+1}$	$3.9 \times 10^{+1}$
Chlorinated paraffins	108171-26-2	8.9×10^{-2}	
Chloroform	67-66-3	1.9×10^{-2}	
4-Chloro-*o*-phenylenediamine	95-83-0	1.6×10^{-2}	
p-Chloro-*o*-toluidine	95-69-2	2.7×10^{-1}	
Chromium (hexavalent)	18540-29-9	$5.1 \times 10^{+2}$	5×10^{-1}
Chrysene [BaP]	218-01-9	3.9×10^{-2}	1.2×10^{-1}
Creosote	8001-58-9	*	
p-Cresidine	120-71-8	1.5×10^{-1}	
Cupferron	135-20-6	2.2×10^{-1}	
2,4-Diaminoanisole	615-05-4	2.3×10^{-2}	
2,4-Diaminotoluene	95-80-7	$4.0 \times 10^{+0}$	
Dibenz[*a,h*]acridine [BaP]	226-36-8	3.9×10^{-1}	$1.2 \times 10^{+0}$
Dibenz[*a,j*]acridine [BaP]	224-42-0	3.9×10^{-1}	$1.2 \times 10^{+0}$
Dibenz[*a,h*]anthracene [BaP]	53-70-3	$4.1 \times 10^{+0}$	$4.1 \times 10^{+0}$
Dibenzo[*a,e*]pyrene [BaP]	192-65-4	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
Dibenzo[*a,h*]pyrene [BaP]	189-64-0	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
Dibenzo[*a,i*]pyrene [BaP]	189-55-9	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
Dibenzo[*a,l*]pyrene [BaP]	191-30-0	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
7H-Dibenzo[*c,g*]carbazole [BaP]	194-59-2	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
1,2-Dibromo-3-chloropropane	96-12-8	$7.0 \times 10^{+0}$	
1,4-Dichlorobenzene	106-46-7	4.0×10^{-2}	
3,3'-Dichlorobenzidine	91-94-1	$1.2 \times 10^{+0}$	
1,1-Dichloroethane	75-34-3	5.7×10^{-3}	
Diesel exhaust [B]	NA	$1.1 \times 10^{+0}$	
Diethylhexylphthalate	117-81-7	8.4×10^{-3}	8.4×10^{-3}
p-Dimethylaminoazobenzene	60-11-7	$4.6 \times 10^{+0}$	
7,12-Dimethylbenz[*a*]anthracene [BaP]	57-97-6	$2.5 \times 10^{+2}$	$2.5 \times 10^{+2}$
1,6-Dinitropyrene [BaP]	42397-64-8	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
1,8-Dinitropyrene [BaP]	42397-65-9	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
2,4-Dinitrotoluene	121-14-2	3.1×10^{-1}	
1,4-Dioxane	123-91-1	2.7×10^{-2}	
Epichlorohydrin	106-89-8	8.0×10^{-2}	
Ethyl benzene	100-41-4	8.7×10^{-3}	1.1×10^{-2}
Ethylene dibromide	106-93-4	2.5×10^{-1}	
Ethylene dichloride	107-06-2	7.2×10^{-2}	
Ethylene oxide	75-21-8	3.1×10^{-1}	

Table 7.1 Inhalation and Oral Cancer Potency Factors

Substance	Chemical Abstract Service Number (CAS)	Inhalation Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Slope Factor $(mg/kg\text{-}day)^{-1}$
Ethylene thiourea	96-45-7	4.5×10^{-2}	
Formaldehyde	50-00-0	2.1×10^{-2}	
Hexachlorobenzene	118-74-1	$1.8 \times 10^{+0}$	
Hexachlorocyclohexanes (technical grade)	608-73-1	$4.0 \times 10^{+0}$	$4.0 \times 10^{+0}$
Hydrazine	302-01-2	$1.7 \times 10^{+1}$	$3.0 \times 10^{+0}$
Indeno[1,2,3-*cd*]pyrene [BaP]	193-39-5	3.9×10^{-1}	$1.2 \times 10^{+0}$
Lead and lead compounds	7439-92-1	4.2×10^{-2}	8.5×10^{-3}
Lindane	58-89-9	$1.1 \times 10^{+0}$	$1.1 \times 10^{+0}$
Methyl tertiary-butyl ether	1634-04-4	1.8×10^{-3}	
3-Methylcholanthrene [BaP]	56-49-5	$2.2 \times 10^{+1}$	$2.2 \times 10^{+1}$
5-Methylchrysene [BaP]	3697-24-3	$3.9 \times 10^{+0}$	$1.2 \times 10^{+1}$
4, 4'-Methylene bis(2-chloroaniline) (MOCA)	101-14-4	$1.5 \times 10^{+0}$	
Methylene chloride	75-09-2	3.5×10^{-3}	
4,4'-Methylenedianiline	101-77-9	$1.6 \times 10^{+0}$	$1.6 \times 10^{+0}$
Michler's ketone	90-94-8	8.6×10^{-1}	
Naphthalene	91-20-3	1.2×10^{-1}	
Nickel (and compounds)	7440-02-0	9.1×10^{-1}	
5-Nitroacenaphthene [BaP]	602-87-9	1.3×10^{-1}	1.3×10^{-1}
6-Nitrochrysene [BaP]	7496-02-8	$3.9 \times 10^{+1}$	$1.2 \times 10^{+2}$
2-Nitrofluorene [BaP]	607-57-8	3.9×10^{-2}	1.2×10^{-1}
1-Nitropyrene [BaP]	5522-43-0	3.9×10^{-1}	$1.2 \times 10^{+0}$
4-Nitropyrene [BaP]	57835-92-4	3.9×10^{-1}	$1.2 \times 10^{+0}$
N-Nitroso-n-butylamine	924-16-3	$1.1 \times 10^{+1}$	
N-Nitroso-N-methylethylamine	10595-95-6	$2.2 \times 10^{+1}$	
N-Nitrosodi-*n*-propylamine	621-64-7	$7.0 \times 10^{+0}$	
N-Nitrosodiethylamine	55-18-5	$3.6 \times 10^{+1}$	
N-Nitrosodimethylamine	62-75-9	$1.6 \times 10^{+1}$	
N-Nitrosodiphenylamine	86-30-6	9.0×10^{-3}	
p-Nitrosodiphenylamine	156-10-5	2.2×10^{-2}	
N-Nitrosomorpholine	59-89-2	$6.7 \times 10^{+0}$	
N-Nitrosopiperidine	100-75-4	$9.4 \times 10^{+0}$	
N-Nitrosopyrrolidine	930-55-2	$2.1 \times 10^{+0}$	
Pentachlorophenol	87-86-5	1.8×10^{-2}	
Perchloroethylene	127-18-4	2.1×10^{-2}	5.1×10^{-2}
Polychlorinated biphenyls (PCBs) (unspeciated mixture)	1336-36-3		
(high risk) [P1]		$2.0 \times 10^{+0}$	$2.0 \times 10^{+0}$
(low risk) [P2]		4.0×10^{-1}	4.0×10^{-1}
(lowest risk) [P3]		7.0×10^{-2}	7.0×10^{-2}

Table 7.1 Inhalation and Oral Cancer Potency Factors

Substance	Chemical Abstract Service Number (CAS)	Inhalation Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Slope Factor $(mg/kg\text{-}day)^{-1}$
Polychlorinated biphenyls[P4] (PCBs) (speciated)			
3,3',4,4'-Tetrachlorobiphenyl (77)	35298-13-3	$1.3 \times 10^{+1}$	$1.3 \times 10^{+1}$
3,4,4',5-Tetrachlorobiphenyl (81)	70362-50-4	$3.9 \times 10^{+1}$	$3.9 \times 10^{+1}$
2,3,3',4,4'- Pentachlorobiphenyl (105)	32598-14-4	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
2,3,4,4'5- Pentachlorobiphenyl (114)	74472-37-0	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
2,3'4,4',5- Pentachlorobiphenyl (118)	31508-00-6	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
2',3,4,4',5- Pentachlorobiphenyl (123)	65510-44-3	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
3,3',4,4',5- Pentachlorobiphenyl (126)	57465-28-8	$1.3 \times 10^{+4}$	$1.3 \times 10^{+4}$
2,3,3',4,4',5-Hexachlorobiphenyl (156)	38380-08-4	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
2,3,3',4,4',5'-Hexachlorobiphenyl (157)	69782-90-7	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
2,3',4,4',5,5'-Hexachlorobiphenyl (167)	52663-72-6	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
3,3',4,4'5,5'- Hexachlorobiphenyl (169)	32774-16-6	$3.9 \times 10^{+3}$	$3.9 \times 10^{+3}$
2,3,3'4,4',5,5'- Heptachlorobiphenyl (189)	39635-31-9	$3.9 \times 10^{+0}$	$3.9 \times 10^{+0}$
Potassium bromate	7758-01-2	4.9×10^{-1}	
1,3-Propane sultone	1120-71-4	$2.4 \times 10^{+0}$	
Propylene oxide	75-56-9	1.3×10^{-2}	2.4×10^{-1}
1,1,2,2-Tetrachloroethane	79-34-5	2.0×10^{-1}	
Thioacetamide	62-55-5	$6.1 \times 10^{+0}$	
2,4-Toluene diisocyanate	584-84-9	3.9×10^{-2}	
2,6-Toluene diisocyanate	91-08-7	3.9×10^{-2}	
1,1,2-Trichloroethane (vinyl trichloride)	79-00-5	5.7×10^{-2}	
Trichloroethylene	79-01-6	7.0×10^{-3}	1.5×10^{-2}
2,4,6-Trichlorophenol	88-06-2	7.0×10^{-2}	
Urethane	51-79-6	$1.0 \times 10^{+0}$	
Vinyl chloride	75-01-4	2.7×10^{-1}	

Notes for Table 7.1

#	Asbestos: [100 PCM fibers/m^3]$^{-1}$ A unit risk factor of 2.7 x 10^{-6} ($\mu g/m^3$)$^{-1}$ and an inhalation cancer potency factor of 2.2 x 10^{+2} (mg/kg BW*day)$^{-1}$ are available (see Appendix C for explanation).
BaP	PAHs and PAH Derivatives: Many have potency equivalency factors relative to benzo[*a*]pyrene (see Appendix G). For multipathway chemicals, including PAHs, the oral slope factor is considered the same as the inhalation potency factor unless otherwise noted in the Table.
A	Polychlorinated Dibenzo-*p*-dioxins, Polychlorinated Dibenzofurans and speciated poly chlorinated biphenyls: (see Appendix E). For convenience, OEHHA has calculated cancer potency factors for speciated polychlorinated dibenzo-*p*-dioxin, polychlorinated dibenzofuran and polychlorinated biphenyl congeners using the procedure in Appendix E.
B	Diesel Exhaust is listed as a Toxic Air Contaminant by the Air Resources Board as "Particulate Matter from Diesel-Fueled Engines". (See Appendix D)
*	Creosote: Can be calculated using Potency Equivalency Factors contained in the benzo[*a*]pyrene Toxic Air Contaminant document and in Appendix G of these guidelines.
P1	Polychlorinated Biphenyls (PCBs): High Risk is for use in cases where congeners with more than four chlorines do not comprise less (are greater) than one-half percent of total PCBs. The high risk number is the default for unspeciated PCB mixtures.
P2	The low risk number is generally not applicable to the Hot Spots program. The Hot Spots program addresses PCBs emitted by stationary facilities. It cannot be assumed that such emissions would occur by simple evaporation. There is a dermal absorption factor applied in evaluation of the dermal pathway for PCBs so the medium risk would not apply to dermal exposure (OEHHA, 2009). The water pathway does not include an assumption that PCB isomers are water soluble, so the medium number would not apply to the water pathway.
P3	Polychlorinated Biphenyls (PCBs): Lowest Risk is for use in cases where congeners with more than four chlorines comprise less than one-half percent of total PCBs. In order for the low number to be used, scientific justification needs to be presented.
P4	Number in parentheses is the IUPAC #, the PCB nomenclature is IUPAC. For multipathway chemicals, including PCBs, the oral slope factor is considered the same as the inhalation potency factor unless otherwise noted in the Table.

7.3 References

OEHHA, 2009. Air Toxics Hot Spots Risk Assessment Guidelines. Part II. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. May, 2009. Available online at: http://www.oehha.ca.gov/air/hot_spots/tsd052909.html

8 - Risk Characterization for Carcinogens and Noncarcinogens and the Requirements for Hot Spots Risk Assessments

8.1 Introduction

Risk characterization is the final step of the health risk assessment (HRA). In this step, information developed through the exposure assessment is combined with information from the dose-response assessment to characterize risks to the general public from emissions. In the Hot Spots program, OEHHA conducts the dose-response assessment during the development of cancer potency factors and Reference Exposure Levels. These are used in conjunction with the exposure estimates to estimate cancer risk and evaluate hazard from noncancer toxicity of emitted chemicals. Under the Air Toxics Hot Spots (Hot Spots) Act, risk characterizations should present both individual and population-wide health risks (Health and Safety Code Section (HSC) 44306). Persons preparing HRAs for the Hot Spots Program should consult the local Air Pollution Control or Air Quality Management District (District) to determine if the District has special guidelines to assist with HRA format or other requirements of the Hot Spots Program.

OEHHA is recommending that a 30-year exposure duration be used as the basis for estimating cancer risk at the maximum exposed individual resident (MEIR) in the Hot Spots Program. This exposure duration represents the time of residency for 90 to 95% of Californians at a single location and should provide adequate public health protection against individual risk. We also recommend including the 9 and 70-year cancer risk at the MEIR as supplemental information. Note that a 70-year exposure duration is required to estimate cancer burden or provide an estimate of population-wide risk.

This chapter provides guidance on how to evaluate the risk characterization component of risk assessments required by the Hot Spots Program. A general summary of the risk characterization components includes the following items and information.

- The locations of the point of maximum impact (PMI), the MEIR, and the maximum exposed individual worker (MEIW) are to be identified. The PMI, MEIW, and MEIR for cancer risk and for noncancer hazard indices (averaging times for acute 1-hour, repeated 8-hour, and chronic hazard indices) may not be the same location; all should be identified.

- The location of any specified sensitive receptors (e.g., schools, hospitals, daycare, or eldercare facilities - contact the District or reviewing authority for more information) should be identified

- Estimates of population-wide cancer risk and noncancer hazard

This information must be clearly presented in cross-referenced text, tables, figures, and maps. Chapter 9 provides an outline that specifies the content and recommended format of HRA results. The HARP software is the recommended model for calculating HRA results for the Hot Spots Program. Information on obtaining the HARP software can be found under the Air Toxics Program on the ARB's web site at *www.arb.ca.gov*.

8.1.1 *Tiered Approach to Risk Assessment*

The tiered approach for risk assessment that is presented in detail in the TSD (OEHHA, 2012) and summarized here should be reviewed prior to conducting the health risk assessment. The tiered approach to risk assessment and the health impacts evaluation described here are included in the HARP software.

The tiered approach provides a risk assessor with flexibility and allows consideration of site-specific differences (Table 8.1). The four-tiered approach to risk assessment is intended to primarily apply to residential cancer risk assessment, both for inhalation and noninhalation pathways. Risk assessors can tailor the level of effort and refinement of an HRA by using either the point estimate exposure assumptions as the basis of the exposure and risk assessment, or both the point estimate and a stochastic treatment of exposure factor distributions.

Table 8.1 The Tiered Approach to Risk Assessment

Tier	Description	When Applied
Tier 1	Utilizes OEHHA default point estimates of exposure variates	All risk assessments must include a Tier 1 assessment
Tier 2	Utilizes site-specific point estimates for exposure variates (justified, and approved by OEHHA)	A Tier 2 approach may be presented in addition to Tier 1
Tier 3	Utilizes OEHHA distributions of exposure variates	A Tier 3 approach may be presented in addition to Tier 1
Tier 4	Utilizes site-specific distributions of exposure variates (justified, and approved by OEHHA)	A Tier 4 approach may be presented in addition to Tier 1

Tier 1 is a standard point estimate approach that uses the recommended exposure variate (e.g., breathing or water ingestion rate) point estimates presented in this document. Derivations of these values are described in detail in OEHHA (2012). The results of the Tier 1 evaluations are required to be presented in the risk characterization section for all HRAs prepared for the Hot Spots Program. Thus, persons preparing an HRA using Tier 2 through Tier 4 evaluations must also include the risk characterization results of a Tier 1 evaluation in the HRA.

As discussed in OEHHA (2012), if the risk characterization results from a Tier 1 assessment are above a regulatory level of concern, the risk assessor may want to proceed with more site-specific analysis as described in Tier 2, or use a more resource-intensive stochastic modeling effort described in Tier 3 and Tier 4 (for cancer risk). While further evaluation may provide more information to the risk manager on which to base decisions, the Tier 1 evaluation is useful in comparing risks among a large number of facilities and must be included in all HRAs.

Tier 2 analysis allows the use of available and justifiable site-specific exposure variates (e.g., fish consumption), when presenting the potential health impacts. The site-specific information applied in a Tier 2 assessment must be adequately justified and approved by OEHHA and the District. In Tier 3, a stochastic approach to exposure assessment is taken using the distributions for the exposure pathways presented in the TSD (OEHHA, 2012) and in Chapter 5 of this Guidance Manual. The exposure distributions apply only to a residential receptor and are used only for the determination of cancer risk. OEHHA has not developed exposure intake distributions for workers to use in the offsite worker exposure scenario. Tier 4 is also a stochastic approach for the residential exposure scenario but allows for utilization of site-specific exposure variate distributions if they are justifiable and more appropriate for the site under evaluation than those derived in OEHHA (2012). Alternative site-specific distributions must be approved by OEHHA and the District. For an off-site worker cancer risk evaluation, Tiers 3 and 4 do not apply. Tier 3 and Tier 4 analyses show what a distribution of potential cancer risk may be to an individual or population based on a distribution of exposure inputs (e.g., water ingestion rate) rather than specific point estimates of exposure.

Table 8.2 summarizes OEHHA's recommendations for use of the four Tiers in cancer and noncancer risk assessment.

Table 8.2 Tiers for Residential and Offsite Worker Cancer and Noncancer Hot Spots Risk Assessments

Tier	Cancer		Non Cancer Chronic and 8-Hour	
	Inhalation	Noninhalation	Inhalation	Noninhalation
Tier-1	X	X	X	X
Tier-2	X	X		X[b]
Tier-3	X[a]	X[a]		
Tier-4	X[a]	X[a]		

[a] Applies to residential exposure scenario only
[b] Applies to chronic noncancer exposure only

OEHHA has not developed a stochastic approach (Tier 3 or 4) for estimating noncancer health impacts using acute, 8-hour, and chronic Reference Exposure Levels (RELs). Tier 1 is the only option for determining noncancer health impacts from inhalation exposure since calculating the hazard quotient involves dividing the ground level air concentrations for the specified exposure duration by the appropriate RELs. However, chronic noninhalation noncancer risks involve a calculation of dose from oral or dermal pathways to which site-specific evaluations could be considered under a Tier 2 approach.

Small foot-print facilities – Tier 2 or Tier 4

Some facilities subject to the Air Toxics Hot Spots Act (e.g., some in the industry-wide categories such as gas stations or dry cleaners) have very small zones of impact. In some of these instances, there will be very few receptors within the zone of impact. It isn't possible to develop special recommendations for exposure variates for all possible exposure scenarios. Alternative breathing rates (point estimates or distributions) may be used as part of Tier 2 or Tier 4 risk assessments with appropriate supporting justification in the case of a very small zone of impact. OEHHA is willing to work with risk managers at ARB and the Districts on this issue.

8.2 Risk Characterization for Carcinogens

Cancer risk is calculated by multiplying the daily inhalation or oral dose (calculated in Chapter 5), by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home (for residents only), and the exposure duration divided by averaging time, to yield the excess cancer risk (see section 8.2.4). As described below, the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk at the receptor location. A brief description of the age sensitivity factors, exposure duration, and frequency of time spent at home are included in Sections 8.2.1 to 8.2.3 below. These factors are discussed in detail in OEHHA (2009) and OEHHA (2012).

8.2.1 *Adjustment for Early Life Stage Exposures to Carcinogens*

Studies have shown that young animals are more sensitive than adult animals to exposure to many carcinogens (OEHHA, 2009). Therefore, OEHHA developed age sensitivity factors (ASFs) to take into account the increased sensitivity to carcinogens during early-in-life exposure (Table 8.3). These factors were developed and described in detail in OEHHA (2009). In the absence of chemical-specific data, OEHHA recommends a default ASF of 10 for the third trimester to age 2 years, and an ASF of 3 for ages 2 through 15 years to account for potential increased sensitivity to carcinogens during childhood.

Table 8.3 Age Sensitivity Factors by Age Group for Cancer Risk Assessment

Age Group	Age Sensitivity Factor (unitless)
3rd Trimester	10
0<2 years	10
2<9 years	3
2<16 years	3
16<30 years	1
16-70 years	1

For specific carcinogens where data indicate enhanced sensitivity during life stages other than the immediate postnatal and juvenile periods, or for which data demonstrate ASFs different from the default ASFs, the chemical-specific data should be used in order to adequately protect public health.

The risk assessments generated under the Air Toxics Hot Spots Act are reviewed by OEHHA. If a risk assessor had data indicating there are no windows of susceptibility early in life or that a different ASF should be used for a specific carcinogen and wanted to use these data, OEHHA would review the material as part of the review of the risk assessment.

8.2.2 *Fraction of Time Spent at Home for Cancer Risk Assessment*

OEHHA and ARB evaluated information from activity patterns databases to estimate the fraction of time at home (FAH) during the day (OEHHA, 2012). This information can be used to adjust exposure duration and cancer risk from a specific facility's emissions, based on the assumption that exposure to the facility's emissions are not occurring away from home. From the third trimester to age <2 years, 85% of time is spent at home (Table 8.4). From age 2 through <16 years, 72% of time is spent at home. From age 16 years and greater, 73% of time is spent at home. Facilities with any school within the 1×10^{-6} (or greater) isopleth should use FAH = 1 for the child age groups (3rd Trimester, 0<2 years, and 2<16 years). See Appendix I for an example calculation using the FAH.

Table 8.4 Recommendations for Fraction of Time at Home (FAH) for Evaluating Residential Cancer Risk

Age Range	Fraction of Time at Residence
3rd Trimester, and 0<2 years	0.85[1]
2<16 years[2]	0.72[1]
16-70 years[3]	0.73

[1] Use FAH = 1 if a school is within the 1×10^{-6} (or greater) cancer risk isopleth

[2] Also use FAH = 0.72 for 2<9 yr age group.
[3] Also use FAH = 0.73 for 16<30 yr age group.

The FAH is calculated based on a diary of trips taken over a 24-hour period on the survey day. Ninety-five percent of the diary days were on weekdays. Participants can select "vacation" as one of their trips. However, vacation time represented only a fraction (0.68%) of the over 175,000 trips recorded in the survey. Because much of these vacation trips were presumed to be within-day trips and were only a small fraction of total trips, there is likely little overlap with the Exposure Frequency (EF) variate used in the dose equations in Chapter 5.

8.2.3 *Exposure Duration for Estimating Cancer Risk to Residents and Off-Site Workers*

OEHHA recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR) (Table 8.5). OEHHA also recommends that the 30-year exposure duration be used as the basis for public notification and risk reduction audits and plans. The Districts, however, may opt to use the 70 year cancer risk for notification and risk reduction audits and plans.

Note that the 30-year exposure duration starts in the third trimester to accommodate the increased susceptibility of exposures in early life (OEHHA, 2009), and would apply to both the point estimate and stochastic approaches.

Table 8.5 Summary of Recommendations for Exposure Duration for Individual Cancer Risk at the MEIR and MEIW

Receptor	***Recommendation***
Resident (MEIR)	30 years
Resident (supplemental Information)	9 years for central tendency; 70 years for maximum (lifetime)
Worker (MEIW)	25 years

Exposure durations of 9-years and 70-years are also recommended to be evaluated for the MEIR to show the range of cancer risk based on residency periods. If a facility is notifying the public regarding cancer risk, the 9- and 70-year cancer risk estimates are useful for people who have resided in their current residence for periods shorter and longer than 30 years.

The 9-, 30-, and 70-year exposures are chosen to coincide with U.S. EPA's estimates of the average (9 years), high-end estimates (30-years) of residence time, and a lifetime residency (70 years). These estimates are also consistent with what is known about residence time in California. Together, the 9-, 30-, and 70-year cancer risk calculations provide a useful presentation of cancer risk and the relationship to duration of residency and, thus, exposure to a facility's emissions.

For the maximally exposed individual worker (MEIW), OEHHA recommends using an exposure duration of 25 years to estimate individual cancer risk for the off-site worker scenario (Table 8.5). This duration represents approximately the 95th percentile of job tenure with the same employer in the U.S.

8.2.4 *Calculating Residential and Offsite Worker Inhalation Cancer Risk*

Residential Receptors

For residential inhalation exposure, cancer risk must be separately calculated for specified age groups (Eq. 8.2.4A, see Section 8.2.1), because of age differences in sensitivity to carcinogens and age differences in intake rates (per kg body weight). Separate risk estimates for these age groups provide a health-protective estimate of cancer risk by accounting for greater susceptibility in early life, including both age-related sensitivity and amount of exposure. The following equation illustrates the formula for calculating residential inhalation cancer risk. See Appendix I for a detailed example calculation.

A. Equation 8.2.4 A: $$RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$$

7. $RISK_{inh\text{-}res}$ = Residential inhalation cancer risk
8. $DOSE_{air}$ = Daily inhalation dose (mg/kg-day)
9. CPF = Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
10. ASF = Age sensitivity factor for a specified age group (unitless)
11. ED = Exposure duration (in years) for a specified age group
12. AT = Averaging time for lifetime cancer risk (years)
13. FAH = Fraction of time spent at home (unitless)

a: Recommended default values for EQ 8.2.4 A:

5. $DOSE_{air}$ = Calculated for each age group from Eq. 5.4.1
6. CPF = Substance-specific (see Table 7.1)
7. ASF = See Section 8.2.1
8. ED = 0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70
9. AT = 70 years*
10. FAH = See Table 8.4

*Although AT actually sums to 70.25 years when the 3rd trimester (0.25 years) is included, OEHHA recommends rounding AT = 70 years (and rounding residential exposure durations at 9- and 30-years rather than 9.25- and 30.25-years) to simplify the calculation without causing a significant adjustment. Note that the dose for the 3rd trimester is based on the breathing rate of pregnant women using the assumption that the dose to the fetus during the 3rd trimester is the same as that to the mother.

Cancer risks calculated above for individual age groups are summed to estimate cancer risk for 9-, 30- and 70-year exposures as shown below. Note that this example includes the Fraction of Time Spent at Home (FAH) for each age grouping.

Calculation of Inhalation Cancer Risk from the Third Trimester to Age Nine:

$$RISK_{inh\text{-}res} = (DOSE_{air}\ third\ trimester \times CPF \times 10 \times 0.25/70\ years \times FAH_{3rd\ tri\ <2}) + (DOSE_{air}\ age\ 0<2 \times CPF \times 10 \times 2/70 \times FAH_{3rd\ tri\ <2}) + (DOSE_{air}\ age\ 2<9 \times CPF \times 3 \times 7/70\ years \times FAH_{2<9})$$

Calculation of Inhalation Cancer Risk from Third Trimester to Age 30:

$$RISK_{inh\text{-}res} = (DOSE_{air}\ third\ trimester \times CPF \times 10 \times 0.25/70\ years \times FAH_{3rd\ tri\ <2}) + (DOSE_{air}\ age\ 0<2 \times CPF \times 10 \times 2/70 \times FAH_{3rd\ tri\ <2}) + (DOSE_{air}\ age\ 2<16 \times CPF \times 3 \times 14/70 \times FAH_{2<16}) + (DOSE_{air}\ age\ 16<30 \times CPF \times 1 \times 14/70\ years \times FAH_{16\text{-}30})$$

Calculation of Inhalation Cancer Risk from Third Trimester to Age 70:

$$RISK_{inh\text{-}res} = (DOSE_{air}\ third\ trimester \times CPF \times 10 \times 0.25/70\ years \times FAH_{3rd\ tri\ <2}) + (DOSE_{air}\ age\ 0<2 \times CPF \times 10 \times 2/70 \times FAH_{3rd\ tri\ <2}) + (DOSE_{air}\ age\ 2<16 \times CPF \times 3 \times 14/70 \times FAH_{2<16}) + (DOSE_{air}\ age\ 16<70 \times CPF \times 1 \times 54/70\ years \times FAH_{16\text{-}70})$$

Expressing cancer risk in "chances per million" is useful as a risk communication tool for the public, but cancer risk can also be expressed in other ways, such as "chances per 100,000" (cancer risk × 10^5) or "chances per 10 million" (cancer risk × 10^7). To convert the resulting cancer risk estimate to chances of developing cancer per million individuals exposed, multiply the cancer risk by 10^6:

$$Cancer\ risk \times 10^6 = chances\ per\ million$$

For exposure to multiple carcinogenic substances, Table 8.7 and Table I.5 in Appendix I are examples of how cancer risks of individual substances are summed to determine the total cancer risk.

Worker Receptors

For assessment of off-site worker cancer risk at the MEIW, the default assumes working age begins at 16 years. Note that the residential FAH factor in Eq. 8.2.4.A above does not apply for workers. The daily inhalation dose ($DOSE_{air}$) (as calculated in Chapter 5, EQ 5.4.1.2) is based on the adjusted 8-hour concentration at the MEIW (for non-continuous sources) and amount of time the offsite worker's schedule overlaps with the facility's emission schedule. The duration of exposure at the MEIW receptor is 25 years, as discussed in the TSD (OEHHA, 2012).

B. Equation 8.2.4 B: $RISK_{inh\text{-}work} = DOSE_{air} \times CPF \times ASF \times ED/AT$

1. $RISK_{inh\text{-}work}$ = Worker inhalation cancer risk

a: Recommended default values for EQ 8.2.4 B:

1. $DOSE_{air}$ = Calculated for workers in Eq. 5.4.1.2
2. CPF = Substance specific (see Table 7.1)
3. ASF = 1 for working age 16-70 yrs (See Section 8.2.1)
4. ED = 25 years
5. AT = 70 yrs for lifetime cancer risk

Work Locations with Daycare Facilities:

An additional risk management consideration for offsite worker cancer risk assessment of a Hot Spots facility is whether there are women of child bearing age at the MEIW location and whether the MEIW has a daycare center. In the case of women of child-bearing age at the MEIW, the Districts may wish to treat the off-site MEIW in the same way as the residential scenario to account for the higher susceptibility during the third trimester of pregnancy (i.e., use of an ASF=10 for third trimester exposure). If there is onsite daycare at the MEIW, then the risks to the children will be underestimated using the offsite adult worker scenario. In this case, the Districts may wish to include a cancer risk assessment for the children in the onsite daycare, assuming they could be there from 0 to age 6 years (ED = 6 years) and using the appropriate exposure factors to calculate $DOSE_{air}$, fraction of time at worksite (e.g., hrs at daycare per 24 hrs), and ASFs in EQ 8.2.4 B to account for the higher susceptibility of infants and children to carcinogens.

Children at a MEIW daycare may also be assessed for noninhalation exposures. Typically, soil ingestion and dermal exposure will be the most common noninhalation pathways. However, all pathways that are present at the daycare should be included. See section 8.2.6 for more discussion of multipathway risk assessment methods.

8.2.5 *Calculation of Noninhalation Cancer Risk*

A small subset of Hot Spots substances is subject to deposition onto the soil, plants, and water bodies (see Table 5.1). These substances need to be evaluated by the appropriate noninhalation pathways, as well as by the inhalation pathway, and the risk characterization results must be presented in all HRAs. These substances include semi-volatile organic chemicals and heavy metals.

For all multipathway substances, the exposure pathways that must be evaluated at every residential and worker site (in addition to inhalation) are soil ingestion and dermal exposure. If PAHs (and creosotes), lead, dioxins, furans, or PCBs are emitted, then the breast-milk consumption pathway becomes mandatory for residential receptors. OEHHA has developed transfer coefficients for these chemicals from the mother to breast milk (see OEHHA, 2012 for details). The other exposure pathways (e.g.,

ingestion of homegrown produce or fish) are only evaluated for residential receptors if the facility impacts that exposure medium and the receptor under evaluation can be exposed to that medium or pathway. For example, if the facility does not impact a fishable body of water within the isopleth of the facility, or the impacted water body does not sustain fish that are consumed by fishers, then the fish pathway will not be considered for that facility or receptor.

Table 8.6 identifies the residential receptor exposure pathways that are mandatory and those that are dependent on the available routes of exposure. Table 8.6 also identifies the three exposure pathways that are relevant for a worker receptor. The cancer risk estimates should be presented in the risk characterization section of the risk assessment for all the appropriate pathways.

Table 8.6 Mandatory and Site/Route Dependent Exposure Pathways

Mandatory Exposure Pathways	Site/Route Dependent Exposure Pathways
• Inhalation[w] • Soil Ingestion[w] • Dermal Exposure to Contaminated Soil[w] • Breast Milk Consumption[*]	• Homegrown Produce Ingestion • Angler-Caught Fish Ingestion • Drinking Water Ingestion • Home-Raised Animal Product Ingestion (Dairy (Cow's) Milk, Meat (Beef, Pork, Chicken) and Egg).

(w) Identifies the appropriate exposure pathways that should be evaluated for a worker. These pathways are inhalation, dermal exposure, and the soil ingestion pathway.

(*) If PAHs (including creosotes), lead, dioxins, furans, or PCBs are emitted, then the breast-milk consumption pathway becomes mandatory.

The noninhalation residential cancer risk is calculated using the same steps as inhalation cancer risk described in Section 8.2.4. A dose (see Chapters 4 and 5) from the pathway under evaluation (e.g., soil ingestion) is multiplied by the substance-specific oral slope factor, expressed in units of inverse dose (i.e., $(mg/kg/day)^{-1}$) (Table 7.1), the appropriate age sensitivity factor (ASF), and exposure duration divided by averaging time to yield the cancer risk for a specified age grouping. Cancer risk for each age group is summed as appropriate for the exposure duration. The FAH factor is relevant only to the inhalation pathway and is not appropriate to use in the noninhalation pathways.

Equation 8.2.5 illustrates the formula for calculating noninhalation cancer risk. Details (data, algorithms, and guidance) for each exposure pathway are presented in Chapter 5 and in OEHHA (2012).

A. Equation 8.2.5: $\mathbf{RISK_{noninh} = DOSE_{noninh} \times CPF_{oral} \times ASF \times ED/AT}$

1. $RISK_{noninh}$ = Noninhalation pathway cancer risk
2. $DOSE_{noninh}$ = Daily dose (mg/kg-day) for a specified non-inhalation pathway for each age group
3. CPF_{oral} = Oral cancer potency (slope) factor $(mg/kg\text{-}day^{-1})$
4. ASF = Age sensitivity factor for a specified age group (unitless)
5. ED = Exposure duration (in years) for a specified age group
6. AT = Averaging time for lifetime cancer risk

a: Recommended default values for EQ 8.2.5:

1. $DOSE_{noninh}$ = Calculated in Chapter 5 dose algorithms for each age group and for each noninhalation route in Table 8.6 the receptor is exposed to
2. CPF_{oral} = Substance-specific (see Table 7.1)
3. ASF = See Section 8.2.1
4. ED = Residents: 0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70
   = Offsite worker: 25 yrs
5. AT = 70 years

Estimating cancer risk for 9-, 30- and 70-years by summing the individual age-group cancer risks is the same as that shown for the inhalation route in Section 8.2.4. The exception is that the FAH variate is only appropriate for the residential inhalation pathway and is not a factor for oral and dermal exposure pathways.

Calculation of Noninhalation Cancer Risk from Third Trimester to Age 30:

$RISK_{noninh\text{-}res}$ = ($DOSE_{noninh}$ third trimester × CPF × 10 × 0.25/70 years) + ($DOSE_{noninh}$ age 0<2 × CPF × 10 × 2/70) + ($DOSE_{noninh}$ age 2<16 × CPF × 3 × 14/70) + ($DOSE_{noninh}$ age 16<30 × CPF × 1 × 14/70 years)

To convert this estimated probability of risk to chances per million of developing cancer, multiply the estimated cancer risk for each noninhalation exposure route by 10^6. This result is useful communication tool to compare risks for each pathway of exposure.

$$\text{Cancer risk} \times 10^6 = \text{cancer risk expressed as chances per million}$$

For assessment of the offsite worker the typical noninhalation pathways that apply for worker cancer risk are the dermal exposure pathway and the soil ingestion pathway.

Children at a MEIW daycare may also be assessed for noninhalation exposures. Typically, soil ingestion and dermal exposure will be the most common noninhalation pathways. However, all pathways that are present at the daycare should be included.

8.2.6 *Multipathway Cancer Risk Methodology*

Under a Tier 1 assessment, it is necessary to calculate the total cancer risk from both inhalation and noninhalation exposures if multipathway substances are emitted from the facility. The calculation of cancer risk that includes exposure to a multipathway substance or substances has three steps:

1) Calculate cancer risk for the inhalation pathway (EQ 8.2.4 A for residents, EQ 8.2.4 B for off-site workers) for all substances, and the noninhalation pathways that apply (EQ 8.2.5) for all multipathway substances, using high-end point estimates of intake rates.
2) For each multipathway substance, identify the two exposure pathways with the highest risk. These are the dominant pathways that are to be assessed using high-end point estimates of intake rates for the total cancer risk. For all other pathways, the average point estimate of intake rates may be used to calculate the pathway cancer risk (See OEHHA (2012) for more information).
3) To calculate total cancer risk, all inhalation and noninhalation pathways are summed together for all substances.

The final cancer risk calculation using a combination of high-end and average exposure parameters is referred to as the derived risk in the HARP software. This is described in Chapter 1, Section 1.4.1 of OEHHA (2012). The inhalation route is almost always one of the two dominant pathways in a multipathway cancer risk assessment. Therefore, in most cases only one noninhalation pathway would be calculated using a high-end dose point estimate. For all other pathways, the average point estimate may be used to calculate the pathway cancer risk.

For example, if dermal exposure and soil ingestion risks are calculated, then the cancer risks from these pathways would be summed along with the inhalation cancer risks to give the total cancer risk for the single multipathway substance:

Cancer Risk (inhalation) + Cancer Risk (dermal) + Cancer Risk (soil) = Total Risk

The mother's milk pathway also becomes a mandatory pathway to assess risk in nursing infants if the mother is exposed to specific substances (see Table 5.1).

Many facilities will emit multiple carcinogenic substances. If multiple substances are emitted, the substance-specific cancer risks for all exposure pathways are summed to give the (total) multipathway cancer risk at the receptor location. The HARP software will display not only the multipathway risk for each carcinogenic substance, but also show a breakdown of the cancer risk from each exposure pathway. Table 8.7 shows the results of a multipathway risk assessment for a hypothetical facility. While not presented in the following table, it is critical to identify the driving exposure pathways and the driving substances in a multipathway cancer risk assessment when summarizing and presenting the HRA results. See Chapter 9 for more information.

Table 8.7 Multipathway Assessment of a Hypothetical Facility 30-Year Cancer Risk

Substance	Cancer Risk[a]	Cancer risk[b] (chances per million)
Arsenic	1.1×10^{-5} (i) 3×10^{-7} (ni)	11 (i) 0.3 (ni)
Benzene	2.92×10^{-4} (i)	292 (i)
2,3,7,8-TCDD (dioxin)	1.06×10^{-4} (i) 5.7×10^{-5} (ni)	106 (i) 57 (ni)
1,3-Butadiene	6.0×10^{-6} (i)	6 (i)
Total Facility Cancer Risk	**4.723×10^{-4}**	**472**

[a] As calculated in EQ 8.2.4 A or EQ 8.2.5
[b] Calculated as: cancer risk × 10^6 = chances per million
i = inhalation pathway contribution
ni = noninhalation pathway contribution

Cancer risk in Table 8.7 for the multipathway substances, arsenic and 2,3,7,8-TCDD, is arranged by the inhalation pathway risk and the sum of all noninhalation pathway risks. The total facility multipathway cancer risk is the sum of all inhalation and noninhalation pathways.

Cancer risks from different substances are treated additively in risk assessment generally, and in the Hot Spots Program in part because many carcinogens act through the common mechanism of DNA damage. The additive assumption is reasonable from a public health point of view. Other possible interactions of multiple carcinogens include synergism (effects are greater than additive) or antagonism (effects are less than additive). The type of interaction is both chemical and dose dependent and in most cases the data are not available to adequately characterize these interactions.

8.2.7 *Multipathway Cancer Risk for Infant Exposure to Mother's Milk*

The mother' milk pathway becomes mandatory if the nursing mother is exposed to one or more of the following multipathway substances: dioxins and furans, PCBs, PAHs including creosotes, and lead. The default assumption inherent in the intake rate is that the infant's only source of food is breast for the first year (e.g., is fully breastfed, see OEHHA, 2012, for details), which is one-half of the 0<2 year age group used in the Hot Spots program. Thus, the cancer risk by the mother's milk pathway will need to be calculated with a modified cancer risk equation using a different exposure duration:

A. Equation 8.2.7: $\mathbf{RISK_{mm}} = \text{Dose-Im} \times \mathbf{CPF_{oral}} \times \mathbf{ASF} \times \mathbf{ED/AT}$

1. $RISK_{mm}$ = Infant cancer risk via mother's milk pathway
2. Dose-Im = Daily dose (mg/kg-day) to infant from mother's milk
3. CPF_{oral} = Oral cancer slope factor $(mg/kg\text{-}day^{-1})$
4. ASF = Age sensitivity factor for infant (unitless)
5. ED = Exposure duration (in years) for infant
6. AT = Averaging time for lifetime cancer risk

a: Recommended default values for EQ 8.2.7:

6. Dose-Im = Calculated from EQ 5.4.3.5.2, dose to infant via mother's milk
7. CPF_{oral} = Substance-specific (see Table 7.1)
8. ASF = 10 (See Section 8.2.1)
9. ED = 1 yr (1st yr of 0<2 yr age group)
10. AT = 70 years

Once the cancer risk is determined for the mother's milk pathway for each applicable substance, the pathway risk is summed with other pathway risks.

For Tier 1, the derived approach for cancer risk assessment should be used if the mother's milk pathway applies. As outlined in Section 8.2.6, the two dominant pathways will be calculated using high-end point estimates of intake rates; all additional pathways may be calculated using average point estimates of intake rates. There will be four mandatory pathways to assess (inhalation, mother's milk, soil ingestion and dermal exposure) for cancer risk when exposure to dioxins/furans, PCBs, PAHs including creosotes, and/or lead occurs. Therefore, if the infant is exposed to no other additional site-specific noninhalation pathway(s), only the two dominant pathways among the four will be assessed for cancer risk using high-end point estimates of intake rates; and the others would be assessed using the average point estimate of intake rate.

In short, multipathway cancer risk for a substance is estimated by summing the potential inhalation and noninhalation cancer risks for the receptor location of interest. See the discussion of Tier 1 in Section 8.2.6 or the TSD for more information on the method used to determine the multipathway cancer risk.

8.2.8 *Cancer Risk Characterization for Stochastic Risk Assessment*

Risk characterization for a stochastic risk assessment is similar to that described for the point-estimate approach. However, the stochastic risk assessment produces a distribution of risk that accounts for some of the natural variability in exposure-related factors, such as breathing rates or water intake. The cancer risk distribution for inhalation cancer risk, for example, is generated by multiplying randomly selected values from the breathing rate distribution by the ground level air concentration, and the cancer potency factor. A variation of the Monte Carlo method called Latin hypercube sampling is the method by which the values from the breathing rate distribution are

selected. If noninhalation pathways need to be evaluated, the same process is followed for each pathway and the risk is summed to give an overall inhalation and noninhalation cancer risk distribution. Further, the specification of Age Sensitivity Factors and the need to separately calculate risks require that a Monte Carlo sampling be conducted for each age group and the cancer risk distributions are then summed across age groups.

The HARP software will perform an HRA using a Monte Carlo analysis with either OEHHA-provided or user-provided data distributions and will include the statistics for the distributions. In risk assessments that have chosen to use the distribution of exposure variates, the cancer risk distribution for a 30-year residential exposure duration (MEIR) should be presented in the risk characterization section We also recommend including the 9 and 70-year cancer risk at the MEIR as supplemental information. Note that a 70-year exposure duration is required to estimate cancer burden or provide an estimate of population-wide risk. A stochastic approach has not been developed for acute, 8-hour, and chronic noncancer health impacts or worker (MEIW) exposures.

8.2.9 *Use of Individual Cancer Risk and Population-wide Cancer Risk*

Cancer risk for an individual receptor and a representation of population-wide cancer risk are both important components of a risk assessment. The individual receptor approach reflects the exposures that may occur to an individual receptor over a period of time at a specific location. The individual cancer risk approach has some inherent limitations in terms of illustrating and potentially protecting population-based public health. For example, a facility with a small emissions footprint may impact a few individuals with a high individual potential cancer risk; whereas, a facility with a larger emission footprint may have a lower potential cancer risk for an individual receptor but expose many more people to those levels. Since this larger emitting facility can impact many more people, the population-wide health impacts are magnified due to the larger number of people exposed to the facility's emissions. This potential for higher population impacts is not captured by the individual receptor risk methodology. Therefore, the individual and population-wide heath impacts should be presented for all facilities to provide a more complete illustration of the facility's health impacts.

8.2.9.1 Population Risk

For facilities with large emission footprints (e.g., refineries, ports, or rail yards, etc.), population-based health impacts are critical to provide a better illustration of the potential impacts of emissions since large numbers of people may be exposed to the emissions. The individual cancer risk approach has some inherent limitations in terms of protecting public health. A small facility with a single stack can impact a few individuals with an individual cancer risk that is unacceptable, whereas a large facility may have an individual cancer risk that is below the acceptable limit for individual risk but exposes many more people. Thus, the population-wide impacts are larger for the large facility. Population-wide risk is independent of individual risk, and assumes that a population (not necessarily the same individuals) will live in the impacted zone over a

70-year period. Thus, a 70-year exposure duration is required for estimates of population-wide risks.

To evaluate population risk, one method that regulatory agencies have used is the cancer burden method to account for the number of excess cancer cases that could occur in a population.

Cancer Burden

The cancer burden can be calculated by multiplying the cancer risk at a census block centroid by the number of people who live in the census block, and adding up the estimated number of potential cancer cases across the zone of impact. The result of this calculation is a single number that is intended to estimate of the number of potential cancer cases within the population that was exposed to the emissions for a lifetime (70 years).

The cancer burden is calculated on the basis of lifetime (70-year) risks (whereas individual cancer risk at the MEIR is based on 30-year residential exposure). Cancer burden is independent of how many people move in or out of the vicinity of an individual facility. For example, if 10,000 people are exposed to a carcinogen at a concentration with a 1×10^{-5} cancer risk for a lifetime the cancer burden is 0.1, and if 100,000 people are exposed to a 1×10^{-5} risk the cancer burden is 1.

Estimate of Population Wide Risk

An estimate of the number of people exposed at various cancer risk levels can provide perspective on the magnitude of the potential public health threat posed by a facility. This approach is intended as a replacement for or addition to the cancer burden calculation used by some Districts in the past. The new approach provides a much easier way for the general public to interpret results when compared to cancer burden estimates. A facility in a sparsely populated area can have a public health impact different from the same facility in a highly populated area; however, under the cancer burden method, those differences may not be seen. Some suggested approaches and methods for performance of a screening or refined population exposure analyses are provided in Section 4.6.

The District or reviewing authority should be consulted before beginning the population exposure estimates and, as results are generated, further consultation may be necessary. Note that a 70-year exposure duration is required to estimate cancer burden or provide an estimate of population-wide risk.

The zone of impact for estimating the number of persons exposed to a cancer risk from facility emissions should be set at a minimum of a 10^{-6} cancer risk level (see Section 4.6.1). Some Districts may prefer to use a cancer risk of 10^{-7} to define the carcinogenic zone of impact. The total number of persons exposed to a series of potential risk levels can be presented to aid risk managers in understanding the magnitude of the potential public health impacts.

The HARP software can provide population-level risk estimates as cancer burden or as the number of persons exposed to a selected (user-identified) cancer risk level at block level centroids.

8.2.9.2 Population Estimates for Noncancer Health Impacts

A noncancer chronic, 8-hour, and acute population estimate of the number of people exposed to acute, 8-hour, and chronic HQs or HIs exceeding 0.5 or 1.0, in increments of 1.0, should also be presented. For example, a facility with a maximum chronic HI of 4.0 would present the number of people exposed to a chronic HI of 0.5, 1.0, 2.0, 3.0, and 4.0. The isopleths used in this determination should be drawn using the smallest feasible grid size. The same methods that are described in Chapter 4 and Section 8.2.9 (for the population exposure estimate for cancer risk) should be used in the chronic, 8-hour and acute population estimates. Population estimates for acute, 8-hour, and chronic health impacts should be presented separately.

8.2.9.3 Factors That Can Impact Population Risk – Cumulative Impacts

Although the Hot Spots program is designed to address the impacts of single facilities and not aggregate or cumulative impacts, there are a number of known factors that influence the susceptibility of the exposed population and thus may influence population risk. Socioeconomic status influences access to health care, nutrition, and outcome after cancer diagnosis. Community unemployment can affect exposure and residency time near a facility. Factors that affect the vulnerability of the population are discussed in the report *Cumulative Impacts: Building a Scientific Foundation* (OEHHA, 2010). Information on many of these factors is relatively easy to obtain at the census tract level. The OEHHA recommends that these types of factors be considered by the risk manager, along with the quantitative measures of population risk. OEHHA is in the process of developing guidance on quantification of the impact of these factors.

8.2.10 *Cancer Risk Evaluation of Short Term Projects*

The local air pollution control districts sometimes use the risk assessment guidelines for the Hot Spots program in permitting decisions for short-term projects such as construction or waste site remediation. Frequently, the issue of how to address cancer risks from short-term projects arises.

Cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime. There are some studies indicating that dose rate changes the potency of a given dose of a carcinogenic chemical. In others words, a dose delivered over a short time period may have a different potency than the same dose delivered over a lifetime.

The OEHHA's evaluation of the impact of early-in-life exposure has reduced some of the uncertainty in evaluating the cancer risk to the general population for shorter-term exposures, as it helps account for susceptibility to carcinogens by age at exposure (OEHHA, 2009).

Due to the uncertainty in assessing cancer risk from very short-term exposures, we do not recommend assessing cancer risk for projects lasting less than two months at the MEIR. We recommend that exposure from projects longer than 2 months but less than 6 months be assumed to last 6 months (e.g., a 2-month project would be evaluated as if it lasted 6 months). Exposure from projects lasting more than 6 months should be evaluated for the duration of the project. In all cases, for assessing risk to residential receptors, the exposure should be assumed to start in the third trimester to allow for the use of the ASFs (OEHHA, 2009). Thus, for example, if the District is evaluating a proposed 5-year mitigation project at a hazardous waste site, the cancer risks for the residents would be calculated based on exposures starting in the third trimester through the first five years of life.

For the MEIW, we recommend using the same minimum exposure requirements used for the residential receptor (i.e., no evaluation for projects less than 2 months; projects longer than 2 months but less than 6 months are assumed to last 6 months; projects longer than 6 months would be evaluated for the duration of the project). Although the off-site worker scenario assumes that the workers are 16 years of age or older with an Age-Sensitivity Factor of 1, another risk management consideration for short-term project cancer assessment is whether there are women of child bearing age at the worksite and whether the MEIW receptor has a daycare center. In this case, the Districts may wish to treat the off-site MEIW in the same way as the residential scenario to account for the higher susceptibility during the third trimester of pregnancy, and for higher susceptibility of infants and children.

Finally, the risk manager may want to consider a lower cancer risk threshold for risk management for very short-term projects. Typical District guidelines for evaluating risk management of Hot Spots facilities range around a cancer risk of 1 per 100,000 exposed persons as a trigger for risk management. Permitting thresholds also vary for each District. There is valid scientific concern that the rate of exposure may influence the risk – in other words, a higher exposure to a carcinogen over a short period of time may be a greater risk than the same total exposure spread over a much longer time period. In addition, it is inappropriate from a public health perspective to allow a lifetime acceptable risk to accrue in a short period of time (e.g., a very high exposure to a carcinogen over a short period of time resulting in a 1×10^{-5} cancer risk). Thus, consideration should be given for very short term projects to using a lower cancer risk trigger for permitting decisions.

8.3 Noncancer Acute, 8-Hour, and Chronic Inhalation Health Impacts – the Hazard Index Approach

All substances in the Hot Spots Program that have noncancer health impacts at a receptor must be evaluated through the inhalation pathway. Estimates of noncancer inhalation health impacts are determined by dividing an airborne concentration at the receptor by the appropriate Reference Exposure Level (REL). This is termed the Hazard Index Approach. A REL is used as an indicator of potential noncancer health impacts and is defined as the concentration at which no adverse noncancer health effects are anticipated. When a health impact calculation is performed for a single substance, then it is called the hazard quotient (HQ). Each REL for a substance will have one or more target organ systems (e.g., respiratory system, nervous system, etc.) where the substance can have a noncancer health impact. Thus, all HQs have specified target organ systems associated with them. The sum of the Hazard Quotients of all chemicals emitted that impact the same target organ is termed the Hazard Index. Inhalation RELs for noncancer health impacts have been developed for acute, 8-hour, and chronic exposures to a number of Hot Spots substances. Acute RELs are designed to protect against the maximum 1-hour ground level concentration at the receptor. Eight-hour RELs are designed to protect people with daily 8-hour schedules, such as offsite workers, in an impacted zone. The 8-hour RELs should be used for typical daily work shifts of 8-9 hours. For further questions, assessors should contact OEHHA, the District, or reviewing authority to determine if the 8-hour RELs should be used in your HRA. Any discussions or directions to exclude the 8-hour REL evaluation should be documented in the HRA. Chronic RELs protect against long-term exposure to the annual average air concentration spread over 24 hours/day, 7 days/week.

OEHHA has added 8-hour RELs to the set of noncancer RELs that were previously comprised of acute and chronic RELs (OEHHA, 2008). Specifically, 8-hour RELs are air concentrations at or below which health impacts would not be expected even for sensitive subpopulations in the general population with repeated daily 8-hour exposures over a significant fraction of a lifetime. The 8-hour RELs can be used to evaluate the potential for health impacts (including effects of repeated exposures) in offsite workers, and to children and teachers exposed during school hours. Although not required in the HRA, they could also be applied by the Districts to a residential scenario where a facility operates only a portion of the day and exposure to residences is not adequately reflected by averaging concentrations over a 24 hour day. The number of chemicals with 8-hour RELs will increase as OEHHA re-evaluates RELs for chemicals under SB-25 to ensure that they are protective of children's health.

Acute, 8-hour, and chronic RELs are needed because the dose metrics and even the health impact endpoints may be different with the different exposure durations of acute, daily 8-hour, and chronic exposures. Also, although chronic REL values are lower or set the same as 8-hour RELs, there are some cases such as special meteorological situations (e.g., significant diurnal-nocturnal meteorological differences) or intermittent exposures where the 8-hour REL may be more protective than the chronic REL.

Chapter 4 describes air dispersion modeling and both Chapter 6 and Appendix L list the needed dose-response information to evaluate non-cancer hazards. Appendix I presents sample calculations for determining acute HQs and HIs, 8-hour HQs and HIs, and chronic multipathway HQs and HIs. Chapter 9 provides an outline of information required for risk characterization. The HARP software will calculate the HQ and HI for Hot Spots risk assessments.

8.3.1 *Calculation of Noncancer Inhalation Hazard Quotient and Hazard Index*

To calculate the acute HQ, the maximum 1-hour ground level concentration (in $\mu g/m^3$) of a substance at a receptor is divided by the acute 1-hour REL (in $\mu g/m^3$) for the substance:

$$\text{Acute Hazard Quotient} = \frac{\text{1-Hour Max Concentration } (\mu g/m^3)}{\text{Acute REL } (\mu g/m^3)}$$

To calculate the chronic HQ, the annual average ground level concentration of a substance is divided by the chronic REL for the substance:

$$\text{Chronic Hazard Quotient} = \frac{\text{Annual Average Concentration } (\mu g/m^3)}{\text{Chronic REL } (\mu g/m^3)}$$

To calculate the 8-hour HQ, the adjusted annual average ground level concentration of a substance (represented as "Adjusted C_{air}" in EQ 5.4.1.4 A) is divided by the 8-hour REL for the substance:

$$\text{8-hour Hazard Quotient} = \frac{\text{Adjusted Annual Average Concentration } (\mu g/m^3)}{\text{8-hour REL } (\mu g/m^3)}$$

The daily 8-hour average ground level concentrations used for calculating the 8-hour HQs are derived as described in Chapter 4.

An HQ of 1.0 or less indicates that adverse health effects are not expected to result from exposure to emissions of that substance. As the HQ increases above one, the probability of human health effects increases by an undefined amount. However, it should be noted that a HQ above one is not necessarily indicative of health impacts due to the application of uncertainty factors in deriving the RELs.

If a receptor is exposed to multiple substances that target the same organ system, then the HQs for the individual substances are summed to obtain a Hazard Index (HI) for that target organ.

Table 8.8 is an example of an HRA spreadsheet showing acute inhalation HQs arranged by target organ system for several substances. The bottom row shows the summed HQs by target organ system to derive the HIs.

Table 8.8 Individual Hazard Quotients and Total Hazard Index for Acute Inhalation Exposure

Substance	Reproductive/ Developmental	Nervous System	Cardiovascular System	Respiratory System	Eye
Ammonia				0.6	0.6
Arsenic	0.2	0.2	0.2		
Benzene	0.02				
Chlorine				0.7	0.7
Total Hazard Index	**0.22**	**0.2**	**0.2**	**1.3**	**1.3**

A more detailed example of calculating HQs and HIs and of determining noncancer health impacts is shown in Appendix I.

Hazard quotients or HIs for different target organs are not summed together (e.g., do not add the impacts for the eye to the cardiovascular system). Chapter 6 and Appendix L have lists of the organ systems affected by each substance. Unlike the cancer risk algorithms, no exposure duration adjustment (e.g., 9 yrs / 70 yrs) should be made for noncancer assessments.

There are limitations to this method of assessing cumulative noncancer health impacts. The impact on organ systems may not be additive if health effects occur by different mechanisms. However, the impact on organ systems could also be synergistic. An analysis by a trained health professional familiar with the substance's toxicological literature is usually needed to determine the public health significance of an HQ or HI above one. It is recommended that the Air District contact OEHHA if this situation presents itself. For assessing the noncancer health impacts of lead, different procedures are used; please see Appendix F.

8.3.2 *Calculating Noninhalation (oral) Noncancer Hazard Quotient and Hazard Index*

Similar to the situation with multipathway carcinogenic substances, multipathway substances that present a noncancer hazard are assessed by noninhalation routes of exposure (see Table 8.6). Noninhalation routes of exposure are assessed only for chronic exposure. There are no oral acute RELs since it is generally anticipated that health effects from a single exposure via the oral route at typical environmental levels resulting from deposition of facility emissions would be insignificant relative to the inhalation route. The multipathway substances with noninhalation RELs, called chronic oral RELs, are shown in Table 6.4. Similar to inhalation exposure, the hazard quotient

for a noninhalation pathway is obtained by dividing the dose in milligrams per kilogram-day (mg/kg-day) by the oral REL also expressed in units of mg/kg-day:

$$\text{Chronic Non-inhalation HQ} = \frac{\text{Chronic Noninhalation Dose (mg/kg-day)}}{\text{Chronic Oral REL (mg/kg-day)}}$$

The calculated chronic oral HQs are combined with the chronic inhalation HQs for determining the chronic HIs for each affected target organ (see Section 8.3.4). The point estimates and algorithms for calculating the oral dose for all applicable exposure pathways and receptors (e.g., workers or residents) are explained in Chapter 5.

The chronic oral dose calculated in mg/kg-day is based on a time-weighted average 70-year residential exposure combining the 0<2, 2<16 and 16-70 year age groups. Unlike the assessment of cancer risk, no exposure duration adjustment should be made when estimating HQs. In other words, the variates ED and AT in the cancer risk EQ 8.2.5 in Section 8.2.5 are not used for estimating the noncancer HQs. See Appendix I for an example calculation.

8.3.3 *Multipathway Noncancer Risk Methodology*

To determine multipathway chronic noncancer health impacts, it is necessary to calculate the total hazard index from both inhalation and noninhalation exposures. The calculation of HIs has several steps:

1) First, the inhalation HQ is calculated for each substance emitted (Section 8.3.1).
2) Second, if the substance has an oral REL, then the non-inhalation HQ is calculated as shown above using high-end point-estimates for intake rates for each noninhalation pathway that applies.
3) Third, if there are more than two noninhalation pathways to consider for a multipathway substance, then the oral HQ is calculated using high-end point estimates in the dose equation for the two dominant pathways. For any additional noninhalation pathways, the HQs are calculated using average point estimates in the dose equation. This step applies only to residential receptors.
4) Fourth, all noninhalation pathway HQs for a multipathway substance are then summed together by target organ to obtain the total noninhalation HQ for a multipathway substance.
5) The final step is to sum the inhalation and noninhalation HQs together by target organ to determine the HIs. This step is displayed in Table 8.9. If there is only one substance, then the multipathway HQ is the same as the HI.

Table 8.9 Substance-Specific Chronic Inhalation and Noninhalation Hazard Quotients and the Hazard Index by Target Organ System

Substance	Respiratory System	Hematologic System	Alimentary System	Endocrine System	Development	Reproductive System	Nervous System	Cardiovascular System	Skin
Ammonia	0.8								
Arsenic					0.04(i) 0.1(ni)		0.04(i) 0.1(ni)	0.04(i) 0.1(ni)	0.04(i) 0.1(ni)
Benzene		0.08			0.08		0.08		
2,3,7,8-TCDD (dioxin)	0.1(i) 0.2(ni)	0.1(i) 0.2(ni)	0.1(i) 0.2(ni)	0.1(i) 0.2(ni)	0.1(i) 0.2(ni)	0.1(i) 0.2(ni)			
Nickel	0.4(i)	0.4(i)	0.1(ni)						
Hazard Index	**1.50**	**0.78**	**0.40**	**0.3**	**0.52**	**0.30**	**0.22**	**0.14**	**0.14**

i = inhalation pathway contribution

ni = noninhalation pathway contribution

Table 8.9 shows the calculated chronic HIs by combining the chronic inhalation HQs and chronic oral HQs. The HQs or HIs for different target organs are not added together (e.g., do not add the impacts for the respiratory system to the nervous system). The noninhalation pathways for TCDD and arsenic in Table 8.9 have all the noninhalation pathways that apply incorporated into their HQ values. For example, the noninhalation value for arsenic (HQs = 0.1) includes at least the soil ingestion and dermal soil pathways in the HQs because these are the mandatory noninhalation pathways to take into account with exposure to a multipathway substance. For TCDD, the mother's milk pathway is an additional mandatory noninhalation pathway to take into account (See Table 5.1). If there are exposures to any of the site-specific pathways, then these would be included too. A more detailed example calculation of HIs is shown in Appendix I.

When exposure to more than two noninhalation pathways occur, using the high-end point estimates of intake rates for only the two dominant noninhalation pathways will lessen the issue of compounding high-end exposure estimates, while retaining a health-protective approach for the more important exposure pathways. It is unlikely that an individual receptor would be on the high-end of exposure for all the non-inhalation intake parameters (exposure pathways).

8.3.4 *Summary - Acute, 8-Hour and Chronic Hazard Index Calculation at the MEIR and MEIW*

Eight-hour RELs were developed principally for exposure of individuals during 8-hour work schedules. The 8-hour RELs should be used for typical daily work shifts of 8-9 hours. For further questions, assessors should contact OEHHA, the District, or reviewing authority to determine if the 8-hour RELs should be used in your HRA. Any discussions or directions to exclude the 8-hour REL evaluation should be documented in the HRA. There are currently only a limited number of substances with an 8-hour inhalation REL. Over time as the science supporting REL values for individual substances is reviewed and the RELs are revised by OEHHA, more 8-hour RELs will be developed.

Therefore, for the MEIR, we recommend:

- Estimating the acute Hazard Index based on the maximum 1-hour air concentration and 1-hour RELs
- Estimating the chronic Hazard Index based on the annual average air concentration and the chronic RELs, and the oral RELs for multipathway substances

An 8-hour hazard index based on the daily average 8-hour exposure is not required for the MEIR, but can be performed at the discretion of the District for exposure to non-continuously operating facilities using the adjusted annual average air concentration (See EQ 5.4.1.4 A and B or method in App. M). Eight-hour hazard assessments are not recommended for exposure to continuously operating facilities.

For the MEIW, we recommend:

- Estimating the acute Hazard Index based on the maximum 1-hour air concentration and 1-hour RELs
- Estimating the 8-hour Hazard Index based on daily average 8-hour exposure for those chemicals with 8-hour RELs
- Estimating the chronic Hazard Index based on the annual average air concentration and chronic RELs, and oral RELs for multipathway substances

Until there are 8-hour RELs for many of the Hot Spots substances that have a chronic REL value, we recommend determining the chronic HI for the MEIW to adequately protect the offsite worker.

8.3.5 *Evaluation of Background Criteria Pollutants*

The District should be contacted to determine if the contribution of background criteria pollutants to respiratory health effects is required to be included in an HRA for the Hot Spots Program. If inclusion is required, the methods for calculating the health impact from acute and chronic exposure (respiratory endpoint) is the standard HI approach (see Sections 8.3.1 and 8.3.4). There are currently no 8-hour RELs for criteria

pollutants, so 8-hour health impacts from criteria pollutants are not assessed in HRAs. The background criteria pollutant contribution should be calculated if the HI from the facility's emissions exceeds 0.5 in either the acute or chronic assessment for the respiratory endpoint.

The most recent criteria pollutant concentration data should be obtained from the ARB's ambient air monitoring network and can be found in the *California Almanac of Emissions and Air Quality* on their web site at www.arb.ca.gov. For determining the criteria pollutant contribution in HI calculations, the annual average concentration data should be taken from a monitoring site near the facility. If background contributions are unavailable, the District may direct the risk assessor to make an alternative assumption. The criteria pollutants that should be included in acute and chronic assessments for the respiratory endpoint are ozone, nitrogen dioxide, sulfur dioxide, sulfates, and hydrogen sulfide.

8.4 Uses of Exposure Duration Adjustments for Onsite Receptors

Onsite workers are protected by CAL OSHA and typically are not evaluated under the Hot Spots program. Exceptions may include a worker who also lives on the facility property such as at prisons, military bases, and universities that have worker housing within the facility. Another scenario where the District may require assessment of on-site worker exposure and risk is when a facility (e.g., airport) has multiple businesses owned by different entities within the facility/property (e.g., rental car agencies, restaurants, etc.). In these situations the evaluation of onsite cancer risks, and/or acute, 8-hour, and chronic noncancer hazard indices is appropriate under the Hot Spots program. If the onsite receptor under evaluation can be exposed through a noninhalation exposure pathway, then that exposure pathway must also be included. When a receptor lives and works on the facility, site, or property, then these receptors should be evaluated and reported under both residential and worker scenarios and the one that is most health-protective should be used for risk management decisions.

The cancer risk estimates for the on-site residents may use a 30-year exposure duration while the 25-year exposure duration is used for a worker. Under a Tier 2 analysis, alternate exposure durations may be evaluated and presented with all assumptions supported. See section 8.2.10 for more discussion of short-term exposures.

Other situations that may require on-site receptor assessment include the presence of locations where the public may have regular access for the appropriate exposure period (e.g., a lunchtime café, store, or museum for acute exposures). The District or reviewing authority should be consulted on the appropriate evaluations for the risk for all onsite receptors.

8.5 References

ERG, 2008. Summary Report of the Peer Review Meeting: EPA's Draft Framework for Determining a Mutagenic Mode of Action for Carcinogenicity. Final Report. Submitted to Risk Assessment Forum, Office of the Science Advisor, U.S. Environmental Protection Agency, Washington, DC., by Eastern Research Group. May 23, 2008.

OEHHA, 2010. *Cumulative Impacts: Building a Scientific Foundation*. Available online at: http://www.oehha.ca.gov

OEHHA, 2008. *Air Toxics Hot Spots Program Risk Assessment Guidelines*. Technical Support Document for Deriving Noncancer Refernce Exposure Levels. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. Available online at: http://www.oehha.ca.gov

OEHHA, 2009. *Air Toxics Hot Spots Program Risk Assessment Guidelines. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures*. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. May 2009. Available online at: http://www.oehha.ca.gov

OEHHA, 2012. *Air Toxics Hot Spots Program Risk Assessment Guidelines; Technical Support Document for Exposure Assessment and Stochastic Analysis*. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. Available online at http://www.oehha.ca.gov

U.S. EPA, 2005a. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens EPA/630/R-03/003F March 2005.

U.S.EPA, 2005b. Guidelines for Carcinogen Risk Assessment. Risk Assessment Forum, Washington, DC. EPA/630/P-03/001F.

9 - Summary of the Requirements for a Modeling Protocol and a Health Risk Assessment Report

The AB 2588 program is a community right-to-know act. Although risk assessment is a technical field, AB 2588 risk assessments need to be clear and understandable to the educated lay person. An Executive Summary that explains the process and the results of the risk assessment in lay terms is necessary. Clear risk communication is imperative in situations where the facility is required to notify the surrounding community. In addition, the risk assessment is by law reviewed by the local Air Pollution Control or Air Quality Management District (District) and OEHHA in order to ensure that AB 2588 risk assessment procedures have been followed. This chapter clarifies the type of information that is needed for District and OEHHA review of modeling protocols and health risk assessments (HRAs).

The material presented here is intended to promote transparent, consistent presentation and efficient review of the modeling protocol and the health risk assessment report (products). We recommend that persons preparing these products consult with the local District to determine if the District has modeling or HRA guidelines that supersede these products. If the District does not have guidelines for these products, then we recommend Section 9.1 be used for modeling protocols and Section 9.2 be used for the presentation of HRAs. Persons preparing modeling protocols and HRAs should specify the guidelines that were used to prepare their products.

9.1 Submittal of a Modeling Protocol

It is strongly recommended that a modeling protocol be submitted to the District for review and approval prior to extensive analysis with an air dispersion model. The modeling protocol is a plan of the steps to be taken during the air dispersion modeling and risk assessment process. We encourage people who are preparing protocols to take advantage of the protocol step and fully discuss anticipated methodologies for any portion of your project that may need special consideration. Below, we have provided an example of the format that may be followed in the preparation of the modeling protocol. **Consult with the District to confirm format and content requirements or to determine the availability of District modeling guidelines before submitting the protocol.**

9.1.1 *Outline for a Modeling Protocol*

I. Introduction

Include the facility name, address, and a brief overview describing the facility's operations.

- Provide a description of the terrain and topography surrounding the facility and potential receptors.
- Indicate the format in which data will be provided. Ideally, the report and summary of data will be on paper and all data and model input and output files will be provided electronically (e.g., compact disk or CD).
- Identify the guidelines used to prepare the protocol (e.g., District Guidelines).

II. Emissions

For each pollutant and process whose emissions are required to be quantified in the HRA, list the annual average emissions (pounds/year and grams/second) and the maximum one-hour emissions (pounds/hour and grams/second)[1]. Maximum 1-hour emissions are used for acute noncancer health impacts while annual emissions are used for chronic exposures (i.e., chronic and 8-hour noncancer health impacts or cancer risk assessment).

- Identify the reference and method(s) used to determine emissions (e.g., source tests, emission factors, etc.). Clearly indicate any emission data that are not reflected in the previously submitted emission inventory report. In this event, a revised emission inventory report will need to be submitted to the District.
- Identify if this will be a multipathway assessment based on emitted substances.

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[1] Except radionuclides, for which annual and hourly emissions are reported in Curies/year and millicuries/hour, respectively.

III. Models / Modeling Assumptions

Specify the model and modeling assumptions

- Identify the model(s) to be used, including the version number.
- Identify the model options that will be used in the analysis.
- Identify the modeling domain(s) and the spacing of receptor grid(s). Grid spacing should be sufficient in number and detail to capture the concentration at all of the receptors of interest.
- Indicate complex terrain options that may be used, if applicable.
- Identify the source type(s) that will be used to represent the facility's operations (e.g., point, area, or volume sources, flare options or other).
- Indicate the preliminary source characteristics (e.g., stack height, gas temperature, exit velocity, dimensions of volume source, etc.).
- Identify and support the use of urban or rural dispersion coefficients for those models that require dispersion coefficients. For other models, identify and support the parameters required to characterize the atmospheric dispersion due to land characteristics (e.g., surface roughness, Monin-Obukhov length).

IV. Meteorological Data

Specify the type, source, and year(s) of hourly meteorological data (e.g., hourly surface data, upper air mixing height information).

- State how the data are representative for the facility site.
- Describe QA/QC procedures.
- Identify any gaps in the data; if gaps exist, describe how the data gaps are filled.

V. Deposition

- Specify the method to calculate deposition (if applicable).

VI. Receptors

Specify the type and location of receptors. Include all relevant information describing how the individual and population-related receptors will be evaluated.

- Identify and describe the location(s) of known or anticipated potential sensitive receptors, the point of maximum impact (PMI), the maximum exposed individual residential (MEIR), and worker (MEIW) receptors. Identify any special considerations or grids that will be used to model these receptors. This information should correspond with information provided in Section III (e.g., fine receptor spacing of 20 meters at the fence line and centered on the maximum impacts; coarse receptor spacing of 100 meters out to 2,000 meters; extra coarse spacing of 1,000 meters out to 20,000 meters).

- Identify if spatial averaging will be used. Include necessary background information on each receptor including how the domain and spacing will be determined for each receptor or exposure pathway.

- Describe how the cancer burden or population impact estimates are calculated. Clarify the same information for the presentation of noncancer population impacts (e.g., centroids of the census tracts in the area within the zone of impact).

- Specify that actual UTM coordinates and the block/street locations (i.e., north side of 3,000 block of Smith Street), where possible, will be provided for specified receptor locations.

- Identify and support the use of any exposure adjustments (e.g., time at location, diurnal).

- Include the list of anticipated exposure pathways that will be included and indicate which substance will be evaluated in the multipathway assessment. Identify if sensitive receptors are present and which receptors will be evaluated in the HRA.

VII. Maps

Identify how the information will be graphically presented.

- Indicate which cancer risk isopleths will be plotted for the cancer zone of impact (e.g., 10^{-7}, 10^{-6} see Section 4.6.1).

- Indicate the hazard quotients or hazard indices to be plotted for the noncancer acute, 8 hour, and chronic zones of impact (e.g., 0.5, 1.0, etc.).

9.2 Health Risk Assessment Report

The purpose of this section is to provide an outline to assist with the preparation and review of HRAs. This outline specifies the key components that should be included in HRAs. All information used for the report must be presented in the HRA. Ideally, the HRA report and a summary of data used in the HRA will be on paper and all data and model input and output files will be provided electronically (e.g., CD). Persons preparing HRAs for the Hot Spots Program should consult the District to determine if HRA guidelines or special formats are to be followed when preparing and presenting the HRA's results.

If District guidelines or formats do not exist that supersede this outline, then the HRA should follow the format presented here. If the HRA is prepared for other programs, the reviewing authority should be consulted for clarification of format and content. We recommend that those persons preparing HRAs specify the guidelines that were used to prepare their product. **The HRA may be considered deficient by the reviewing authority if components that are listed here are not included**.

9.2.1 *Outline for the Health Risk Assessment Report*

I. Table of Contents

- Section headings with page numbers indicated.
- Tables of tables and Table of figures with page numbers indicated.
- Appendices with page numbers indicated.

II. Executive Summary

Overview of all relevant information regarding the project or facility.

- Facility identifier number (consult the District).
- Description of facility operations and a list identifying emitted substances including table of maximum 1-hour emissions, and annual average emissions.
- Provide a brief description of acute, 8-hour, chronic, and cancer health impacts of the emitted substances, based on OEHHA's descriptions in the appropriate Technical Support Documents.
- Text presenting overview of dispersion modeling and exposure assessment.
- Text describing estimated cancer risk for carcinogens, noncancer Hazard Quotients and Hazard Indices and a table showing target organ systems by substance for noncancer impacts.

- Summarize the individual and population-wide health impacts including the driving substance(s) and the driving exposure pathways:

  - Location (block/street location; e.g., north side of 3,000 block of Smith Street) and description of the off-site point of maximum impact (PMI), maximum exposed individual resident (MEIR), and maximum exposed individual worker (MEIW).

  - Location (block/street location; e.g., north side of 3,000 block of Smith Street) and description of any on-site receptors that were evaluated at the facility (consult District or agency).

  - Location (block/street location; e.g., north side of 3,000 block of Smith Street) and description of any sensitive receptors that are required by the district or reviewing authorities (consult District or agency).

    NOTE: When presenting information described in the following bullets, cancer risk should be presented separately for a residential 30-year, Tier–1 analysis. Results of other exposure assumptions (e.g., 9 or 70-year) or other tier evaluations should also be presented, and must be clearly labeled. For the Hot Spots Program, while the 30-year exposure duration is recommended as the basis for public notification and risk reduction audits and plans, the District has discretion to use the 70 year exposure scenario for its decisions. In addition, the 70 year cancer risk must be calculated to estimate population-wide impacts.

  - Text presenting an overview of the total cancer risk (including multipathway substances, if present) at the PMI, MEIR, MEIW, and sensitive receptors. Provide a table of cancer risk by substance for the MEIR and MEIW (if applicable). Include a statement indicating which of the substances appear to contribute most to (drive) the potential health impacts. In addition, identify the exposure pathways evaluated in the HRA.

  - Provide a map of the facility and surroundings and identify the location of the MEIR, MEIW, PMI, and other locations or receptors of interest.

  - Provide a map of 30-year and 70-year cancer risk zone of impact(s), if applicable.

  - Text presenting an overview of the acute and chronic noncancer hazard quotients and the (total) hazard indices for the PMI, MEIR, MEIW, and sensitive receptors. Additionally, include 8-hour hazard quotients and hazard indices for the MEIW. Include separate statements (for acute, 8-hour, and chronic exposures) indicating which

of the substances appear to drive the potential health impacts. In addition, clearly identify the primary target organ(s) that are impacted from acute, 8-hour, and chronic exposures.

- Identify any sensitive subpopulations (e.g., child daycare facilities, schools, nursing homes) of concern.

- Table and text presenting an overview of estimates of population exposure (e.g., cancer burden or population estimates from HARP) (consult District or agency) (see Section 8.4).

- Version of the Risk Assessment Guidelines and computer program(s) used to prepare the risk assessment (e.g., HARP).

III. Risk Assessment Procedures

A. Hazard identification

- Table and text identifying all substances emitted from the facility, plus any other substances required by the District or reviewing authority. Include the CAS number of the substance and the physical form of the substance if possible. [The Hot Spots substances are listed in Appendix A, and also in the ARB's Emission Inventory Criteria and Guidelines Regulations (Title 17, California Code of Regulations, Sections 93300-93300.5), and the Emission Inventory Criteria and Guidelines Report (EICG Report), which is incorporated by reference therein (ARB, 1997)].

- Table and text identifying all substances that are evaluated for cancer risk and/or noncancer acute, 8-hour, and chronic health impacts. In addition, identify any multipathway substances that present a cancer risk or chronic noncancer hazard via noninhalation routes of exposure.

- Describe the types and amounts of continuous or intermittent predictable emissions from the facility that occurred during the reporting year. As required by statute, releases from a facility include spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping (fugitive), leaching, dumping, or disposing of a substance into ambient air. Include the substance(s) released and a description of the processes that resulted in long-term and continuous releases.

B. Exposure Assessment

This section describes the information related to the air dispersion modeling process that needs to be reported in the risk assessment; the information is also presented in Chapter 4 (see Section 4.15). The District may have specific requirements regarding format and content (see Section 4.14). Sample calculations should be provided at each step to indicate how reported emissions

data were used. Reviewing agencies must receive input, output, and supporting files of various model analyses on computer-readable media (e.g., CD).

1. Information on the Facility and its Surroundings

Report the following information regarding the facility and its surroundings:

- Facility Name
- Location (UTM coordinates and street address)
- Land use type (see Section 2.4)
- Local topography
- Facility plot plan identifying:
  - source locations
  - property line
  - horizontal scale
  - building heights
  - emission sources

2. Source and Emission Inventory Information

a. Release Parameters

Report the following information for each release location in table format:

- Release location identification number
- Release name
- Release type (e.g., point, volume, area, line, pit, etc.)
- Source identification number(s) used by the facility for sources that emit out of this release location
- Release location using UTM coordinates
- Release parameters by release type (e.g., shown for point source):
- Stack height (m), stack diameter (building dimensions for downwash, exhaust gas exit velocity (m/s), exhaust gas volumetric flow rate (ACFM), exhaust gas exit temperature (K), etc.

b. Source Description and Operating Schedule

The description and operating schedule for each source should be reported in table form including the following information:

- Source identification number used by the facility
- Source name
- Number of operating hours per day and per year (e.g., 0800-1700, 2700 hr/yr)
- Number of operating days per week (e.g., Mon-Sat)

- Number of operating days or weeks per year (e.g., 52 wk/yr excluding major holidays)
- Release point identification number(s) for where source emissions are released
- Fraction of source emissions emitted at each release point by release point ID number

c. *Emission Control Equipment and Efficiency*

- Report emission control equipment and efficiency by source and by substance

d. *Emissions Data Grouped By Source*

Report emission rates for each toxic substance, grouped by source (i.e., emitting device or process identified in Inventory Report), in table form including the following information:

- Source name
- Source identification number
- Substance name and CAS number (from Inventory Guidelines)
- Annual average emissions for each substance (lb/yr)
- Hourly maximum emissions for each substance (lb/hr)

e. *Emissions Data Grouped by Substance*

Report facility total emission rate by substance for all emitted substances listed in the Air Toxics "Hot Spots" Program including the following information:

- Substance name and CAS number (from Inventory Guidelines)
- Annual average emissions for each substance (lb/yr)
- Hourly maximum emissions for each substance (lb/hr)

f. *Emission Estimation Methods*

Report the methods used in obtaining the emissions data indicating whether emissions were measured or estimated. Clearly indicate any emission data that are not reflected in the previously submitted emission inventory report and submit a revised emission inventory report to the district. A reader should be able to reproduce the risk assessment without the need for clarification.

g. List of Substances

Include tables listing all "Hot Spots" Program substances which are emitted, plus any other substances required by the District. Indicate substances to be evaluated for cancer risks and noncancer effects.

h. Exposed Population and Receptor Location

Report the following information regarding exposed population and receptor locations:

- Description of zone of impact including map showing the location of the facility, boundaries of zone of impact, census tracts, emission sources, sites of maximum exposure, and the location of all appropriate receptors. This should be a true map (one that shows roads, structures, etc.), drawn to scale, and not just a schematic drawing. USGS 7.5 minute maps or GIS based maps are usually the most appropriate choices. (If significant development has occurred since the user's survey, this should be indicated.)

- Separate maps for the cancer risk zone of impact and the hazard index (noncancer) zone of impact(s). The cancer zone of impact should include isopleths down to at least the 1/1,000,000 risk level. Because some districts use a level below 1/1,000,000 to define the zone of impact, the District should be consulted. For the noncancer zone of impact, three separate isopleths (to represent chronic, 8-hour, and acute HI) should be created to define the zone of impact for the hazard index from both inhalation and noninhalation pathways greater than or equal to 0.5. The point of maximum impact (PMI), maximum exposed individual at a residential receptor (MEIR), and maximum exposed individual worker (MEIW) for both cancer and noncancer risks should be located on the maps.

- Tables identifying population units and sensitive receptors (UTM coordinates, receptor IDs or index from the modeling, and street addresses of specified receptors)

- Heights or elevations of the receptor points.

- **Spatial averaging**: For each receptor type (e.g., PMI, MEIR, and MEIW, or other location of interest) that will utilize spatial averaging, the domain size and grid resolution must be clearly identified. If another domain or grid resolution other than 20 meters by 20 meters with 5-meter grid spacing will be used for a receptor, then care should be taken to determine the proper domain size and grid resolution that should be used. For a worker, the HRA shall support all assumptions used, including, but not limited to, documentation for all workers

showing the area where each worker routinely performs their duties. The final domain size should not be greater than the smallest area of worker movement. Other considerations for determining domain size and grid spacing resolution may include an evaluation of the concentration gradients across the worker area. The grid spacing used within the domain should be sufficient in number and detail to obtain a representative concentration across the area of interest. When spatial averaging over the deposition area of a pasture, garden, or water body, care should be taken to determine the proper domain size to make sure it includes all reasonable areas of potential deposition. The size and shape of the pasture, garden, or water body of interest should be identified and used for the modeling domain. The grid spacing or resolution used within the domain should be sufficient in detail to obtain a representative deposition concentration across the area of interest. One way to determine the grid resolution is to include an evaluation of the concentration gradients across the deposition area. The HRA shall support all assumptions used, including, but not limited to, documentation of the deposition area (e.g., size and shape of the pasture or water body, maps, representative coordinates, grid resolution, concentration gradients, etc.). The use or spatial averaging is subject to approval by the reviewing authority. This includes the size of the domain and grid resolution that is used for spatial averaging of a worksite or multipathway deposition area.

3. Meteorological Data

If meteorological data were not obtained directly from the District, then the report must clearly indicate the data source and time period used. Meteorological data not obtained from the District must be submitted in electronic form along with justification for their use including information regarding representativeness and quality assurance.

The risk assessment should indicate if the District required the use of a specified meteorological data set. All memos indicating the District's approval of meteorological data should be attached in an appendix.

4. Model Selection and Modeling Rationale

The report should include an explanation of the model chosen to perform the analysis and any other decisions made during the modeling process. The report should clearly indicate the name of the models that were used, the level of detail (screening or refined analysis) and the rationale behind the selection.

Also report the following information for each air dispersion model used:

- Version number
- Selected options and parameters in table form

- Identify the modeling domain(s) and the spacing of receptor grid(s). Grid spacing should be sufficient in number and detail to capture the concentration at all receptors of interest.

5. Air Dispersion Modeling Results

The report should include tables, text, and appendices that clearly present all of the following information

- Maximum hourly and annual average concentrations of chemicals at appropriate receptors such as the residential and worker MEI receptors

- Annual average and maximum one-hour (and 30-day average for lead only) concentrations of chemicals at appropriate receptors listed and referenced to computer printouts of model outputs

- Model printouts (numbered), annual concentrations, maximum hourly concentrations

- Disk with input/output files for air dispersion program (e.g., the AERMOD input file containing the regulatory options and emission parameters, receptor locations, meteorology, etc.)

- Include tables that summarize the annual average concentrations that are calculated for all the substances at each site. The use of tables that present the relative contribution of each emission point to the receptor concentration is recommended. (These tables should have clear reference to the computer model which generated the data. It should be made clear to any reader how data from the computer output were transferred to these tables.) [As an alternative, the above two tables could contain just the values for sites of maximum impact (i.e., PMI, MEIR and MEIW), and sensitive receptors, if required. All the values would be found in the Appendices.]

C. Health Values Used in Dose-Response and Dose Estimates

- Provide tables of the acute, 8-hour and chronic inhalation RELs, chronic oral RELs (if applicable), and cancer potency factors for each substance that is quantified in the HRA.

- Identify the guidelines (title and date) that were used to obtain these factors, or indicate whether newly approved values obtained from the OEHHA website were used.

- Provide a table of target organ systems for each noncancer substance, including acute (1 hour), 8-hour, and chronic inhalation, and chronic oral (if applicable).

- Include tables of the estimated dose for each substance by each exposure pathway at the PMI, MEIR, MEIW, and at any sensitive receptor locations (required by the District).

D. ***Risk Characterization***

The Hot Spots Analysis and Reporting Program (HARP) will generate the risk characterization data needed for the outline below. Any data needed to support the risk characterization findings should be clearly presented and referenced in the text and appendices. A listing of HARP output files that meet these HRA requirements is provided in this outline under the section entitled "Appendices". All HARP files should be included in the HRA. Ideally, the HRA report and a summary of data used in the HRA will be on paper and all data and model input and output files will be provided electronically (e.g., CD). Information on obtaining copies of HARP is available on the California Air Resources Board's Internet web site under the Air Toxics Program at www.arb.ca.gov.

NOTE: The cancer risk for the PMI, MEIR, and sensitive receptors of interest must be presented in the HRA's text, tables, and maps. OEHHA recommends that cancer risk for a 30-year exposure duration be presented for the MEIR, and that cancer risk for 9-year and 70-year exposure durations for the MEIR be presented to provide the risk managers with supplemental information. Note that the assessment of population impacts must be based on a 70-year exposure duration; thus all risk assessments need to estimate cancer risk for a 70-year exposure duration in order to report the number of individuals residing in the risk isopleths, or to calculate cancer burden if the District so requires. In addition, some Districts may opt to make risk management decisions based on a 70-year exposure duration. The MEIW location should use a 25-year exposure period.

All HRAs must include the results of a Tier-1 exposure assessment (see Chapter 2 and 8, or the 2012 TSD). If the reviewing authority specifies that additional exposure periods should be presented, or if persons preparing the HRA would like to present additional information (i.e., exposure duration adjustments or the inclusions of risk characterizations using Tier-2 through Tier-4 exposure data), then this information should be presented in separate, clearly titled, sections, tables, and text.

The following information should be presented in this section of the HRA. If not fully presented here, then by topic, clearly identify the section(s) and pages within the HRA where this information is presented.

- Description of receptors to be quantified.

- Table and text providing the location [UTM coordinates, receptor ID number or index from the modeling, and the block/street address

(e.g., north side of 3,000 block of Smith Street)] and description of the PMI, MEIR, and MEIW for both cancer and noncancer risks.

- Separate tables and text providing description of the PMI and MEIR for 30-year cancer risk, and 9- or 70-year cancer risk.

- Tables and text describing MEIW 25-year cancer risk.

- Table and text providing the location [UTM coordinates, receptor ID number or index from the modeling, and the block/street address (e.g., north side of 3,000 block of Smith Street)] and description of any sensitive receptor that is of interest to the District or reviewing authorities (consult District or agency).

- Provide any exposure information that is used for risk characterization (e.g., concentrations at receptors, emissions information, census information, figures, zone of impact maps, etc.). If multipathway substances are emitted, identify the site/route dependent exposure pathways (e.g., water ingestion) for the receptor(s), where appropriate (e.g., MEIR).

- Provide a summary of the site-specific inputs used for each exposure pathway (e.g., water or grazing intake assumptions). This information may be presented in an appendix with the information clearly presented and cross-referenced to the text. In addition, provide reference to the appendix (section and page number) that contains the modeling (i.e., HARP/dispersion modeling) files that show the same information.

- If any exposure parameters were used other than those provided in the Air Toxics Risk Assessment Guidelines: Technical Support Document for Exposure Assessment and Stochastic Analysis (2012), they must be presented in detail. The derivation and data used must be presented so that it is clear to the reviewer. The justification for using site-specific exposure parameters must be clearly presented.

- Table and text presenting the potential multipathway cancer risk by substance, by pathway, and total, at the PMI, MEIR, MEIW, and sensitive receptor locations (required by the District).

- Table and text presenting the acute (inhalation only) and chronic noncancer (inhalation and oral) hazard quotients (by substance, exposure pathways, and target organs) and the (total) hazard indices by substance and target organs for the PMI, MEIR, MEIW, and sensitive receptors. For 8-hour exposure at the MEIW (inhalation only), table and text presenting hazard quotients (by substance, exposure pathways, and target organs) and the (total) hazard indices by substance and target organs. Note:

Chronic noncancer results should be shown with inhalation and oral contributions (shown separately) and for the combined (multipathway) impact.

- Identify any sensitive subpopulations (e.g., child daycare facilities, schools, nursing homes) of concern.

- Table and text presenting estimates of population exposure (e.g., population exposure estimates or cancer burden from HARP) (consult District or agency). Tables should indicate the number of persons exposed to a (total) cancer risk greater than 10^{-7}, 10^{-6}, 10^{-5}, 10^{-4}, etc., and total hazard quotient or hazard index greater than 0.5, 1.0, 2.0, and 3.0, etc. Provide a table that shows excess cancer burden for each population unit and the total excess cancer burden, if cancer burden calculation is required.

- Provide maps that illustrate the HRA results for the three sub-bullet points below. These maps should be an actual street map of the area impacted by the facility with elevation contours and actual UTM coordinates, and the facility boundaries clearly labeled. In some cases the elevation contours will make the map too crowded and should therefore not appear. This should be a true map (one that shows roads, structures, etc.), drawn to scale, and not just a schematic drawing. USGS 7.5-minute maps are usually the most appropriate choice (see Section 4.6).

    - The facility (emission points and boundaries), the locations of the PMI, MEIR, MEIW, and sensitive receptors.

    - Maps of the cancer zone of impacts (e.g., 10^{-6} or 10^{-7} levels - consult District or Agency). The map should clearly identify the zone of impact for the inhalation pathway, the minimum exposure pathways (soil ingestion, dermal exposure, and breast-milk consumption) if multipathway substances are emitted, and the zone of impact for all the applicable exposure pathways (minimum exposure pathways plus any additional site/route specific pathways) for multipathway analyses. Two maps may be needed to accomplish this. The legend of these maps should state the level(s) used for the zone of impact and identify the exposure pathways that were included in the assessment.

    - Maps of the noncancer hazard index (HI) zone of impacts (e.g., 0.5 or 1.0 - consult District or Agency). The noncancer maps should clearly identify the noncancer zones of impact. These include the acute (inhalation), 8-hour (inhalation), chronic (inhalation), and chronic (multipathway) zones of impact. For clarity, presentation of the noncancer zones of impact may require two or more maps. The

legend of these maps should state the level(s) used for the zone of impact and identify the exposure pathways.

- The risk assessor may want to include a discussion of the strengths and weaknesses of the risk analyses and associated uncertainty directly related to the facility HRA.

- If appropriate, comment on the possible alternatives for control or remedial measures. How do the risks compare?

- If possible, identify any community concerns that influence public perception of risk.

- Sample calculations may be needed for all analyses in the HRA if proprietary software other than HARP was used. The District should be consulted. These calculations should be clearly presented and referenced to the findings they are supporting in the HRA text.

- Version of the Risk Assessment Guidelines and computer program used to prepare the risk assessment.

- If software other than HARP is used for the health assessment modeling, all supporting material must be included with the HRA (e.g., all algorithms and parameters used in a clear, easy to review format).

*E. **References***

Include any references used for the HRA in this section.

*F. **Appendices***

The appendices should contain all data, sample calculations, assumptions, and all modeling and risk assessment files that are needed to reproduce the HRA results. Ideally, a summary of data used in the HRA will be on paper and all data and model input and output files will be provided electronically (e.g., CD), unless otherwise specified by the district or reviewing authority. All appendices and the information they contain should be referenced, clearly titled, and paginated.

Potential Appendix Topics (if not presented elsewhere in the HRA report):

- List of all receptors locations (UTM coordinates, receptor ID number or index from the modeling, and the block/street address (e.g., north side of 3,000 block of Smith Street)) for the PMI, MEIR, MEIW, and sensitive receptors.
- List of all emitted substances.
- All emissions files.

- List of dose-response factors (Reference Exposure Levels and cancer potency factors).
- All air dispersion modeling input and output files. Detailed discussions of meteorological data, regulatory options, emission parameters, receptor locations, etc.
- Census data.
- Maps.
- Identify the site/route dependent exposure pathways for the receptor(s), where appropriate (e.g., MEIR). Provide a summary of the site-specific inputs used for each pathway (e.g., water or grazing intake assumptions) and the data to support them.
- All calculations used to determine emissions, concentrations, and potential health impacts at the PMI, MEIR, MEIW, and sensitive receptors.
- All HRA model input and output (HARP) files for receptors of concern.
- (Total) cancer and noncancer impacts by receptor, substance, and exposure pathway (by endpoint for noncancer) at all receptors.
- Presentation of alternate risk assessment methods (e.g., alternate exposure durations, or Tier-2 to Tier-4 evaluations with supporting information).

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List of Abbreviations

A - Area
AB2588 - Air Toxics "Hot Spots" Information and Assessment Act, 1987
ACFM - Actual Cubic Feet per Minute
ADL - Annual Dermal Load
AQMD - Air Quality Management District (District)
ARB - Air Resources Board
ASF - Age Sensitivity Factor
AT - Average Time for Lifetime Cancer Risk
BAF - Bioaccumulation Factor
BG - Urban Block Groups
BLP - Buoyant Line and Point Source Dispersion Model
BMI - Breast Milk Intake
BPIP - Building Profile Input Program
BPIPPRM - Building Profile Input Program for PRIME
BSA - Body Surface Area
BW - Bodyweight
C_{air} - annual average air concentration
CALMPRO - Calms processor program
CAPCOA - California Air Pollution Control Officer's Association
CAS - Chemical Abstracts Service
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
C_f - Average concentration of a substance in fish
C_m - Average concentration of a substance in mother's milk (mislabeled on 114 as Cf)
C_{fa} - Average concentration of a substance in animal products
CONST2 - Constant in the Briggs' stable plume rise equation using BLP
CONST3 - Constant in the Briggs' neutral plume rise equation using BLP
CPF - Cancer Potency Factor
CRIT - Convergence criterion for the line source calculations using BLP
Cs - Concentration of Substance in the Soil
CTDMPLUS - Complex Terrain Dispersion Model
CTSCREEN - Complex Terrain Screening Model
Cv - Average concentration of a substance in and on vegetation
Cw - Concentration of a Substance in the Water
DECFAC - Pollutant decay factor for use with BLP
DF - Discount Factor
$DOSE_{air}$ - Daily inhaled dose
$DOSE_{fa}$ - Exposure through ingesting home-raised or farm animal products
$DOSE_{fish}$ - Exposure through ingestion of angler-caught fish
Dose-Im - Exposure through mother's milk ingestion
$DOSE_p$ - Exposure through ingesting home-grown produce
$DOSE_{water}$ - Exposure through ingesting water

DTHTA - Vertical potential temperature gradient
DTSC - Department of Toxic Substance Control
EASA - Exposure Assessment and Stochastic Analysis
ED - Rural Enumeration Districts or Exposure Duration (in years)
EF - Exposure Frequency
EICG - Emission Inventory Criteria and Guidelines
EPA - Environmental Protection Agency
EQ - Equation
F - Fahrenheit
FAH - Fraction of Time at Home
FG - Fraction of diet provided by grazing
GIS - Geographic Information Systems
GLC - Ground-Level Concentrations
GRAF - Gastrointestinal Relative Absorption Factor
HARP - Hot Spots Analysis and Reporting Program
HESIS - Hazard Evaluation System and Information Service
HI - Hazard Index
HQ - Hazard Quotient
HRA - Health Risk Assessment
HSC - Health and Safety Code
IARC - International Agency for Research on Cancer
IDELS - Maximum variation in number of stability classes per hour (BLP option)
ISCST3 - Industrial Source Complex Short Term
IUPAC - International Union of Pure and Applied Chemistry
K - Kelvin
L - Fraction of locally-grown (source-impacted) feed that is not pasture (site-specific)
LOAEL - Lowest Observed Adverse Effects Level
LOD - Level of Detection
LSHEAR - Plume rise wind shear (BLP option)
LTRANS - Transitional point source plume rise (BLP option)
MAXIT - Maximum iterations allowed for line source calculations (BLP option)
MEIR - Maximally Exposed Individual Resident
MEIW - Maximally Exposed Individual Worker
METDB - Meteorological Database
METS - Metabolic Equivalents
MPRM - Meteorological Processor for Regulatory Models
MWAF - Molecular Weight Adjustment Factor
NAS - National Academy of Sciences
NCDC - National Climatic Data Center
NOAEL-No Observed Adverse Effects Level
NTP - National Toxicology Program
NWS - National Weather Station
OCD - Offshore and Coastal Dispersion Model
OEHHA - Office of Environmental Health Hazard Assessment
p - Population density
PAH - Polycyclic Aromatic Hydrocarbons

PCB - Polychlorinated Biphenyl
PCDD - Polychlorinated dibenzo-p-dioxins
PCDF - Polychlorinated dibenzofurans
PEXP - Vertical wind speed power law profile exponents
PM2.5 - Particulate Matter less than 2.5 microns in diameter
PM10 - Particulate Matter less than 10 microns in diameter
PMI - Point of Maximum Impact
QA - Quality Assurance
QC - Quality Control
RCRA - Resource Conservation and Recovery Act
REL - Reference Exposure Level
RfC - Reference Concentration
RfD - Reference Dose
SCRAM - Support Center for Regulatory Air Models
SDM - Shoreline Dispersion Model
SIR - Soil Ingestion Rate
SMAQMD - Sacramento Metropolitan Air Quality Management District
SRP - Scientific Review Panel
TAC - Toxic Air Contaminant
Tco – Biotransfer coefficient
TEF - Toxic Equivalency Factor
TERAN – Terrain option in BLP
TSD - Technical Support Document
TSP - Total Suspended Particulates
UCL - Upper Confidence Limits
USGS - U.S. Geological Survey
UTM - Universal Transvers Mercator
WAF - Worker Adjustment Factor
WHO - World Health Organization

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Index of Selected Terms and Acronyms

8

8-hour RELs, **1-1**, **4-48**, **4-49**, **5-33**, **5-36**, **6-1**, **6-2**, **6-5**, **8-19**, **8-20**, **8-24**, **8-25**

A

Acute RELs, **1-1**, **6-1**, **6-2**, **6-3**, **8-22**
Age sensitivity factors, **5-24**, **5-37**, **5-44**, **5-48**, **5-49**, **5-56**, **5-60**, **8-4**, **8-5**

C

Cancer burden, **1-4**, **4-15**, **4-18**, **4-58**, **8-1**, **8-15**, **8-16**, **8-17**, **9-30**, **9-34**, **9-40**, **9-42**
Cancer potency factors, **2-2**, **2-3**, **7-1**, **8-18**
Cancer risk characterization, **vii**, **8-14**
Chronic RELs, **v**, **4-49**, **5-36**, **5-43**, **8-19**

F

Fraction of time at home, **8-5**

H

HARP, **iii**, **2**, **1-4**, **2-2**, **2-4**, **4-1**, **4-7**, **4-15**, **4-19**, **4-22**, **4-24**, **4-26**, **4-43**, **4-46**, **4-48**, **4-49**, **4-50**, **5-3**, **5-27**, **6-6**, **6-7**, **6-12**, **8-2**, **8-12**, **8-15**, **8-17**, **8-20**, **9-34**, **9-40**, **9-41**, **9-42**, **9-43**, **9-44**, **9-47**
Hazard index approach, **vii**, **8-19**
HI, **1-5**, **4-16**, **4-49**, **4-62**, **6-3**, **6-6**, **6-7**, **6-12**, **8-17**, **8-20**, **8-21**, **8-23**, **8-24**, **8-25**, **9-37**, **9-43**
HQ, **6-3**, **6-6**, **6-7**, **6-12**, **8-19**, **8-20**, **8-21**, **8-22**, **8-23**

I

Individual cancer risk, **vii**, **xi**, **8-6**, **8-15**
Inhalation RELs, **6-1**, **8-19**

M

MEIR, **vii**, **xi**, **1-4**, **2-5**, **4-21**, **4-22**, **4-23**, **4-24**, **4-25**, **4-27**, **4-43**, **4-58**, **4-62**, **4-63**, **5-1**, **5-2**, **5-35**, **5-36**, **5-43**, **5-63**, **8-1**, **8-6**, **8-15**, **8-16**, **8-18**, **8-24**, **9-30**, **9-33**, **9-34**, **9-37**, **9-38**, **9-39**, **9-40**, **9-41**, **9-42**, **9-44**

MEIW, **vii**, **xi**, **1-4**, **4-21**, **4-22**, **4-23**, **4-24**, **4-25**, **4-26**, **4-27**, **4-49**, **4-58**, **4-62**, **4-63**, **5-1**, **5-2**, **5-26**, **5-30**, **5-33**, **5-34**, **5-36**, **5-37**, **5-42**, **5-43**, **5-44**, **5-46**, **6-5**, **8-1**, **8-6**, **8-7**, **8-9**, **8-12**, **8-15**, **8-18**, **8-24**, **9-30**, **9-33**, **9-34**, **9-37**, **9-38**, **9-39**, **9-40**, **9-41**, **9-42**, **9-44**
Multipathway cancer risk, **vii**, **8-12**, **8-13**
Multipathway substances, **5-3**, **5-4**, **5-23**, **5-24**, **5-34**, **5-36**, **7-2**, **8-10**, **8-12**, **8-13**, **8-22**, **8-24**, **9-33**, **9-34**, **9-41**, **9-43**

N

Noninhalation pathways, **4-16**, **4-49**, **4-62**, **5-3**, **5-34**, **6-12**, **8-2**, **8-9**, **8-10**, **8-11**, **8-12**, **8-13**, **8-15**, **8-22**, **8-23**, **8-24**, **9-37**

O

Oral cancer potency factors, **1-1**, **7-1**, **7-2**, **7-3**
Oral chronic RELs, **1-1**, **5-36**, **6-1**

P

PMI, **1-4**, **4-21**, **4-22**, **4-23**, **4-24**, **4-25**, **4-27**, **4-58**, **4-62**, **4-63**, **5-1**, **8-1**, **9-30**, **9-33**, **9-34**, **9-37**, **9-38**, **9-39**, **9-40**, **9-41**, **9-42**, **9-44**
Population-wide cancer risk, **vii**, **8-15**

R

Reference Exposure Levels, **vi**, **x**, **xi**, **1**, **3**, **1-1**, **1-8**, **2-3**, **2-6**, **5-33**, **6-1**, **6-2**, **6-3**, **6-4**, **6-5**, **6-6**, **6-8**, **6-12**, **6-13**, **6-14**, **8-1**, **8-4**, **9-44**

S

Short term projects, **vii**, **8-17**
Spatial averaging, **4-23**, **4-24**, **4-25**, **4-26**, **4-27**, **4-58**, **4-62**, **9-30**, **9-38**
Stochastic, **iii**, **vii**, **ix**, **x**, **1**, **3**, **1-1**, **1-7**, **1-8**, **2-4**, **2-5**, **2-6**, **2-7**, **4-1**, **4-23**, **4-49**, **4-64**, **5-2**, **5-25**, **5-37**, **5-39**, **5-42**, **5-53**, **5-59**, **5-64**, **5-65**, **8-14**, **8-26**, **9-42**
Stochastic approach, **1-7**, **2-5**, **2-6**, **5-23**, **8-3**, **8-4**, **8-15**

T

Tier 1, **1-7**, **2-4**, **2-6**, **4-23**, **5-6**, **5-7**, **5-13**, **5-24**, **5-26**, **5-27**, **5-30**, **5-33**, **8-2**, **8-3**, **8-3**, **8-4**, **8-12**, **8-14**
Tier 2, **1-7**, **2-6**, **4-21**, **5-6**, **5-8**, **5-29**, **5-30**, **8-2**, **8-3**, **8-4**, **8-25**
Tier 3, **1-7**, **2-6**, **5-23**, **5-63**, **8-2**, **8-3**, **8-4**
Tier 4, **1-7**, **2-6**, **8-2**, **8-3**, **8-4**
Tiered approach, **2**, **1-1**, **1-2**, **1-7**, **2-1**, **2-4**, **2-6**, **4-18**, **8-2**

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Air Quality Management District
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South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants [b]		
NO_2 1-hour average annual arithmetic mean	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour average annual average	10.4 µg/m^3 (construction)[c] & 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	10.4 µg/m^3 (construction)[c] & 2.5 µg/m^3 (operation)	
SO_2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m^3 (state)	
CO 1-hour average 8-hour average	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	1.5 µg/m^3 (state) 0.15 µg/m^3 (federal)	

[a] Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)
[b] Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
[c] Ambient air quality threshold based on South Coast AQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million µg/m^3 = microgram per cubic meter ≥ = greater than or equal to
MT/yr CO_2eq = metric tons per year of CO_2 equivalents > = greater than

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Analyzing Cumulative Impacts from Air Toxics in CEQA Documents

CEQA requires an analysis of direct, indirect, and cumulative impacts from proposed projects, including air toxic emissions. In 2022, South Coast AQMD initiated a public process to update existing South Coast AQMD cumulative analysis guidance that was developed in 2003 by forming a working group. The following meetings have been held with the goal of developing additional guidance that will focus on recommended approaches for analyzing cumulative air quality impacts from increased concentrations of air toxics during a project's operation.

Working Group Meeting #6 - November 6, 2024 (https://www.aqmd.gov/home/news-events/calendar_v2?month=11&day=6&year=2024&id=e4a7eaef-c2b6-6f27-bf6f-ff00004a91a9)

- (/docs/default-source/ceqa/documents/wgm-5-20240320-final.pdf?sfvrsn=ea1c8d61_20)Presentation (/docs/default-

source/ceqa/documents/wgm-6-20241106.pdf?sfvrsn=405a8561_13) (PDF, 3MB)

As requested by attendees of Working Group Meeting #6, these files provide the raw data and assumptions relied upon for Revised Criterion #1.

- Readme file (/docs/default-source/ceqa/documents/readme.txt?sfvrsn=d73b8361_8) (TXT, 1KB)
- Revised Criterion #1 Calculations (/docs/default-source/ceqa/documents/proposed-revised-cr-1-calculations.pdf?sfvrsn=62398361_8) (PDF, 263KB)
- Modeling Files for Revised Criterion #1 (/docs/default-source/ceqa/documents/modeling-files---all-met-stations.zip?sfvrsn=41388361_8) (Zipped, 98MB)

Working Group Meeting #5 - March 20, 2024 (https://www.aqmd.gov/home/news-events/calendar_v2?month=3&day=20&year=2024&id=2412e2ef-c2b6-6f27-bf6f-ff00004a91a9)

- Presentation (/docs/default-source/ceqa/documents/wgm-5-20240320-final.pdf?sfvrsn=ea1c8d61_20) (PDF, 2MB)

As requested by attendees of Working Group Meeting #5, these files provide the raw data and assumptions relied upon to craft the original Criterion #1 (*has since been rescinded*).

- Criterion #1 Calculations (/docs/default-source/ceqa/documents/criterion-1-cals_2023.pdf?sfvrsn=c5b78a61_8) (PDF, 270KB)
- Modeling Files for Criterion #1 (/docs/default-source/ceqa/documents/aermod-files.zip?sfvrsn=eeb28a61_8) (Zipped, 59MB)

Working Group Meeting #4 - June 6, 2023 (http://www.aqmd.gov/home/news-events/calendar_v2?month=6&day=6&year=2023&id=8299d7ef-c2b6-6f27-bf6f-ff00004a91a9)

- Presentation (/docs/default-source/ceqa/documents/wgm-4_20230602_final.pdf?sfvrsn=c68cb761_16) (PDF, 1MB)

Working Group Meeting #3 - January 24, 2023 (http://www.aqmd.gov/home/news-events/calendar_v2?month=1&day=24&year=2023)

- Presentation (/docs/default-source/ceqa/documents/wgm-3_20230124.pdf?sfvrsn=2f7bbc61_6) (PDF, 1MB)

Working Group Meeting #2 - May 26, 2022 (http://www.aqmd.gov/home/news-events/calendar_v2?month=5&day=26&year=2022&id=585ecbef-c2b6-6f27-bf6f-ff00004a91a9)

- Presentation (/docs/default-source/ceqa/documents/wgm-2-presentation_05262022_final.pdf?sfvrsn=9469a461_14) (PDF, 1MB)

Working Group Meeting #1 – February 17, 2022 (http://www.aqmd.gov/home/news-events/calendar_v2?month=2&day=17&year=2022)

- Presentation (/docs/default-source/ceqa/documents/wgm-1-presentation_02172022_final.pdf?sfvrsn=554ea861_6) (PDF, 732KB)

Historical Information

White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution, South Coast AQMD, 2003 (http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf?sfvrsn=2) (PDF, 2.6MB), and the

Appendices (http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4) for the White Paper (PDF, 140KB)

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final
Localized Significance Threshold Methodology

June 2003
Revised July 2008

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PREFACE

In accordance with Governing Board direction, SCAQMD staff has developed this methodology to assist lead agencies in analyzing localized air quality impacts from proposed project. This methodology is guidance and is **VOLUNTARY**. Localized significance threshold (LST) look-up tables for one, two and five acre proposed projects emitting carbon monoxide (CO), oxides of nitrogen (NOx), particulate matter less than 2.5 microns in aerodynamic diameter (PM2.5) or particulate matter less than 10 microns in aerodynamic diameter (PM10) were prepared for easy reference according to source receptor area. SCAQMD recommends that lead agencies perform project-specific modeling for larger projects in determining localized air quality impacts.

The LST methodology was developed to be used as a tool to assist lead agencies to analyze localized impacts associated with project-specific level proposed projects. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. Further, LSTs are applicable to projects at the project-specific level and are not applicable regional projects such as General Plans. The LST methodology and associated mass rate look-up tables will be included as an update to the SCAQMD CEQA Air Quality Handbook upon Governing Board's approval.

Subsequent to the adoption of the Final Significance Threshold Methodology, SCAQMD Governing Board adopted significant thresholds for PM2.5; the California Air Resources Board (ARB) revised the 1-hour nitrogen dioxide (NO2) Ambient Air Quality Standard (AAQS) from 0.25 ppm to 0.18 ppm, and established a new annual average standard of 0.03 ppm. The Final Significance Threshold Methodology was revised in July of 2008 to include the PM2.5 significant threshold methodology and update the LST Mass Rate Look-up Tables for the 1-hour NO2 AAQS.

TABLE OF CONTENTS

Chapter 1 – Introduction **1-1**
Legal Authority **1-2**
Background **1-3**
Basic Approach **1-4**

Chapter 2 – Methodology **2-1**
Model **2-1**
Source Treatment **2-2**
Receptor Grid **2-2**
Meteorology **2-2**
Background CO and NO_2 Air Quality **2-5**
PM2.5 and PM10 Air Quality **2-7**
NO2-to-NOx Ratio **2-8**
Deriving Localized Significance Thresholds **2-9**

Chapter 3 –Screening Tables and Their Use **3-1**
Estimate Emissions **3-2**
Determine the Source/Receptor Area of the Proposed Construction/ Operational Activity **3-2**
Estimate the Receptor Distance **3-2**
Mitigation Measures **3-3**
Limitations of the Screening Tables **3-3**
Example Project **3-4**
Sample Calculations **3-5**

Chapter 4 – Conclusion **4-1**

Chapter 5 – References **5-1**

APPENDIX A – PEAK BACKGROUND CONCENTRATIONS FOR THE 1999-2001 PERIOD
APPENDIX B – DIFFERENCES BETWEEN THE MOST STRINGENT AMBIENT AIR QUALITY STANDARD AND AMBIENT CONCENTRATIONS FOR EACH SRA FOR THE 1999-2001 PERIOD
APPENDIX C – LOCALIZED SIGNIFICANCE THRESHOLD SCREENING TABLES

LIST OF TABLES

Table 2-1: Number and Dimensions of Volume Sources **2-3**
Table 2-2: 1981 Meteorological Data for Dispersion Modeling **2-6**
Table 2-3: SCAQMD Stations Measuring CO or NO_2 ..... **2-7**
Table 2-4: NO2-to-NOX Ratio as a Function of Downwind Distance **2-9**
Table 3-1: Typical Projects **3-3**
Table 3-2: Typical Projects Where Screening Tables May Not Apply **3-43**

LIST OF FIGURES

Figure 2-1: Volume and Area Sources **2-3**
Figure 2-2: Comparison of Vertical Concentration Profiles..... **2-4**
Figure 2-3: 1981 District Meteorological Sites **2-4**
Figure 2-4: Source/Receptor Areas in the District..... **2-5**
Figure 2-5: NO_2-to-NO_x Ratio as a Function of Downwind Distance **2-8**

LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Description
AAQS	Ambient Air Quality Standard
AQMD	South Coast Air Quality Management district
Avg	Average
Basin	South Coast Air Basin
C_{AAQS}	Ambient Air Quality Standard Concentration
C_{AIL}	Acceptable Impact Level Concentration
C_b	Background Concentration
C_u	Peak Predicted Concentration Estimated by ISC3
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
DRI	Desert Research Institute
DRYDPLT	Dry Plume Depletion
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
FY	Financial Year
Handbook	*SCAQMD Air Quality CEQA Handbook*
hr	Hour
ID	Identification
ISC3	Industrial Source Complex, version 3
lb	Pound
m	Meter
MET	Meteorological Correction Factors
mg	Milligram
NO	Nitric Oxide
NOCALM	No Calm Wind Processing
NO2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
OEHHA	Office of Environmental Health Hazard Assessment
PM	Particulate Matter
PM10	Particulate of Less Than 10 Microns in Aerodynamic Diameter
pphm	Parts per Hundred Million
ppm	Parts per Million
SIP	State Implementation Plan
SRA	Source Receptor Area
U	Unit Emission Rate
URBAN	Urban Dispersion Parameters
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
µg	Microgram

CHAPTER 1
INTRODUCTION

In 1993, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the *CEQA Air Quality Handbook* (*Handbook*). This Handbook contains guidance for other public agencies when preparing an air quality analysis for California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) analyses. In addition to providing guidance for analyzing air quality impacts, the Handbook also contains indicators of significance recommended for use by other public agencies. The most widely used of the significance thresholds in the Handbook are the mass daily significance thresholds for construction and operation, which indicate that a project has significant adverse regional effects on air quality.

More recently as part of the SCAQMD's environmental justice program, attention has focused on localized effects of air quality. In accordance with Governing Board direction, staff has developed localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area.

Use of LSTs by local government is **VOLUNTARY**. The staff proposal recommends using the LST mass rate look-up tables only for projects that are less than or equal to five acres. It should be noted that lead agencies are not precluded from performing project-specific modeling if they prefer more precise results. It is recommended that lead agencies perform project-specific air quality modeling for larger projects. LSTs are applicable at the project-specific level and generally are not applicable to regional projects such as local General Plans unless specific projects are identified in the General Plans.

The use of LSTs is VOLUNTARY, to be implemented at the discretion of local agencies. LSTs would only apply to projects that trigger a CEQA review. Therefore, projects that are statutorily or categorically exempt under CEQA would not be subject to LST analyses. Exemptions include infill projects that meet the H&S Code provisions or projects identified by lead agencies as ministerial. The methodology and screening tables are included as an appendix to this Handbook.

Staff has developed implementation tools to assist in evaluation of projects. Guidance information, such as typical scenarios and sample calculations are included as an appendix to this Handbook. The sample calculations and scenarios include estimations of both regional and localized impacts for ease of use. If the lead agencies decide to follow the LST methodology and determine that the proposed projects might exceed LSTs, please consult Chapter 11 of the CEQA Handbook (1993) for applicable mitigation

measures. SCAQMD staff is available to assist lead agencies or project proponents in addressing implementation issues.

The LST mass rate look-up tables provided in Appendix C allow a user to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts. If the calculated emissions for the proposed construction or operational activities are below the LST emission levels found on the LST mass rate look-up tables and no potentially significant impacts are found to be associated with other environmental issues, then the proposed construction or operation activity is not significant for air quality. Proposed projects whose calculated emission budgets for the proposed construction or operational activities are above the LST emission levels found in the LST mass rate look-up tables should not assume that the project would necessarily generate adverse impacts. Detailed air dispersion modeling may demonstrate that pollutant concentrations are below localized significant levels. The lead agency may choose to describe project emissions above those presented in the LST mass rate look-up tables as significant or perform detailed air dispersion modeling or perform localized air quality impact analysis according to their own significance criteria.

The LST mass rate look-up tables are applicable to the following pollutants only: oxides of nitrogen (NO_X), carbon monoxide (CO), particulate matter less than 2.5 microns in aerodynamic diameter (PM2.5) and particulate matter less than 10 microns in aerodynamic diameter (PM10). LSTs are derived based on the location of the activity (i.e., the source/receptor area); the emission rates of NO_X, CO, PM2.5 and PM10; and the distance to the nearest exposed individual. The location of the activity and the distance to the nearest exposed individual can be determined by maps, aerial and site photos, or site visits. The NOx, CO, PM2.5 and PM10 emission factors and/or rates are the same emission factors/rates identified in the Handbook, AP-42, EMFAC, Offroad, etc.

This document explains the methodology, specifically pollutant dispersion modeling used to develop the LST mass rate look-up tables and how one uses the procedures to determine the significance or insignificance of project activities for air quality. This document will become part of the revised Handbook.

LEGAL AUTHORITY

CEQA Guidelines §15022(a) states that a public agency shall adopt objectives, criteria, and specific procedures consistent with CEQA and these [State] Guidelines for administering its responsibilities under CEQA. CEQA Guidelines §15022(d) states further, "In adopting procedures to implement CEQA, a public agency may adopt the State CEQA Guidelines through incorporation by reference. The agency may then adopt only those specific procedures or provisions described in subsection [15022] (a) which are necessary to tailor the general provisions of the guidelines to the specific operations of the agency." At the December 11, 1998 Public Hearing the SCAQMD's Governing Board formally incorporated by reference the State CEQA Guidelines as the implementing guidelines for the SCAQMD's CEQA program. Adopting LSTs would be consistent with CEQA Guidelines §15022 provision to tailor a public agency's

implementing guidelines by adopting criteria relative to the specific operations of the SCAQMD.

Specifically with regard to thresholds of significance, CEQA Guidelines §15064.7(a) states, "Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects." Subsection (b) of the same section states further, "Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule or regulation, and developed through a public review process and be supported by substantial evidence." The methodology for developing LSTs and the resulting LST mass rate look-up tables developed by the SCAQMD have undergone a public review process as part of stakeholder working group meetings that are open to the public. This methodology document provides the substantial evidence relative to the methodology for developing LSTs. After completion of the public process, the LST methodologies will be heard by the SCAQMD's Governing Board at a public meeting, where they will be considered for adoption by resolution, consistent with CEQA Guidelines §15064.7(b). This methodology and associated LSTs are recommendations only and not mandatory requirements. The methodology and LSTs may be used at the discretion of the local lead agency.

BACKGROUND

At the October 10, 1997 Board Meeting, the SCAQMD Governing Board adopted the Guiding Principles and Workplan to Implement Environmental Justice Initiatives. Environmental Justice (EJ) Initiative #4 – CEQA Commenting, directed the SCAQMD to reconstruct its CEQA commenting function, called intergovernmental review. As specified in the Workplan, EJ Initiative #4 included updating the CEQA Handbook by creating and working with a stakeholders' review group.

Consistent with EJ Initiative #4 staff began the formal Handbook revision process by creating a Handbook revision working group of stakeholders comprised of local government planners; representatives of local councils of government; environmental groups; the building and construction industries; and other interested individuals. In 1998, the SCAQMD started a series of Handbook revision working group meetings. One of the issues identified by the stakeholders was a request to address localized air quality impacts. With respect to criteria pollutants, the existing Handbook only discussed localized impacts as part of focused CO "hotspots" analyses prepared for mobile sources.

Assessing localized air quality impacts requires using complex dispersion models. Therefore, to address the issue of localized significance, yet be sensitive to the fact that other public agencies might not have the expertise or adequate financial resources to perform complex dispersion modeling, in addition to the methodology itself, SCAQMD staff began developing a proposal to establish localized significance thresholds in a form similar to the regional significance thresholds, that is, based on the amount of pounds of emission per day generated by a proposed project that would cause or contribute to localized air quality impacts.

After developing the methodology for deriving LSTs, staff presented the concept, methodologies, and a retrospective study on the use of LSTs at Governing Board Mobile Source Committee meetings. In the fourth quarter of 2001, staff presented the LST proposal to the Mobile Source Committee. Because of concerns and issues raised by committee members, the Mobile Source Committee recommended that staff seek approval from the Governing Board before proceeding with further development of the LSTs. On February 1, 2002, the Governing Board directed staff to continue developing LSTs and report back to the Board for consideration and possible incorporation into a revised Handbook.

On September 13, 2002, the Governing Board approved the implementation of the Environmental Justice Program Enhancements for FY 2002-03. In connection with approving the Environmental Justice Program Enhancement for FY 2002-03, the Board directed staff to implement 23 enhancements to the original Environmental Justice Program divided into three categories. Category I: Further-Reduced Health Risk, Enhancement I-4 included a proposal to "continue to develop localized significance thresholds for subregions of the air district, as another indicator of CEQA significance." Enhancement I-4 also directed staff to continue developing localized significance thresholds through a stakeholder working group. Staff has since met with the stakeholder working group two times and, with input from the stakeholder working group, developed a proposal to implement Enhancement I-4.

BASIC APPROACH

An air quality analysis typically separates a project's emissions into construction and operational activity emissions because these two activities are typically sequential. Relative to the staff proposal, the emissions of concern from construction activities are NO_x, CO and PM2.5 combustion emissions from construction equipment[1] and fugitive PM 2.5 and PM10 dust from construction site preparation activities. The primary emissions from operational activities include, but are not limited to NOx and CO combustion emissions from stationary sources and/or on-site mobile equipment. Some operational activities may also include fugitive PM2.5 and PM10 dust generating activities such as aggregate operations or earthmoving activities at landfills. Off-site mobile emissions from the project should NOT be included in the emissions compared to the LSTs.

LSTs are derived using one of three methodologies depending upon the attainment status of the pollutant. For attainment type pollutants, nitrogen dioxide (NO_2) and CO[2], the

[1] Construction equipment also emits PM10, but for simplicity these emissions should be combined with the fugitive PM10 dust when using the LST procedures provided below.

[2] Although the district was not designated as in attainment with the CO ambient air quality standards when the LSTs were developed, it was treated as an attainment pollutant since CO concentrations hadnot exceeded any CO ambient air quality standards for the two years prior to the adoption of the LSTs. ~~Therefore, for developing LSTs, the attainment pollutant approach is applicable.~~ The district was redesignated as in attainment for CO in 2002. The district was designated in NO_2 attainment by the State in 2003, and NO_2 concentration had been below the State AAQS for three years prior. The district has been designated as in NO_2 attainment for the federal standard since 1995. In 2007, the State AAQS standards

mass rate LSTs are derived using an air quality dispersion model to back-calculate the emissions per day that would cause or contribute to a violation of any short-term AAQS for a particular SRA. The most stringent of the federal and state standards for NO_2 is the 1-hour state standard of 18 parts per hundred million (pphm); and for CO it is the 1-hour and 8-hour state standards of nine parts per million (ppm) and 20 ppm, respectively.

LSTs are developed based upon the size or total area of the emissions source, the ambient air quality[3] in each source receptor area (SRA) in which the emission source is located, and the distance to the sensitive receptor. LSTs for NO_2 and CO are derived by adding the incremental emission impacts from the project activity to the peak background NO_2 and CO concentrations and comparing the total concentration to the most stringent ambient air quality standards. Background criteria pollutant concentrations are represented by the highest measured pollutant concentration in the last three years at the air quality monitoring station nearest to the proposed project site.

Construction PM 2.5 and PM10 LSTs are developed using a dispersion model to back-calculate the emissions necessary to exceed a concentration equivalent to 50 micrograms per cubic meter ($\mu g/m^3$) averaged over five hours, which is the control requirement in Rule 403. The equivalent concentration for developing PM 2.5 and PM10 LSTs is 10.4 $\mu g/m^3$, which is a 24-hour average.

Operational PM 2.5 and PM10 LSTs are derived using an air quality dispersion model to back-calculate the emissions necessary to make an existing violation in the specific SRA worse, using the allowable change in concentration thresholds in Table A-2 in Rule 1303. For PM 2.5 and PM10 the allowable change in concentration thresholds is 2.5 $\mu g/m^3$. These levels represent measurable impacts taking into account modeling sensitivity.

The staff proposal recommends using the LST mass rate look-up tables only for projects that are less than or equal to five acres. It should be noted that lead agencies are not precluded from performing project-specific modeling if they prefer more precise results. It is recommended that lead agencies perform project-specific air quality modeling for larger projects. Lead agencies have the discretion to identify appropriate thresholds and analysis methodologies.

If mitigation measures are needed, please refer to Chapter 11 of the *Handbook*. Lead agencies may use mitigation measures beyond those identified in the *Handbook* and District staff is available for technical consultation.

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were lowered to 0.18 ppm for the NO_2 1-hour standard and 0.030 ppm was established as the NO_2 annual average standard. Since the standards have become affective, the NO_2 concentrations have been below the new 1-hour standard. However, there was a single location (SRA 10 – Pomona/Walnut Valley) that exceeded the NO_2 annual average standard in 2007 (0.0318 ppm). The LSTs were developed based on short-term standards (less than 24 hour concentration standards). Since all NO_2 concentrations in the district are less than the new one-hour standard, NOx is still treated as an attainment pollutant.

[3] Ambient air quality information is based on the pollutant concentrations measured at the SCAQMD's monitoring stations in or near the specified SRA.

The concepts inherent in the above staff recommendations are generally consistent with the modeling requirement in SCAQMD Rule 1303(b)(1), which states that the Executive Officer shall deny a Permit to Construct for any new or modified source with an emission increase unless, "The applicant substantiates with modeling that the new facility or modification will not cause a violation, or make significantly worse an existing violation… of any AAQS at any receptor in the district." It should be noted that there are some modeling assumptions used to derive mass rate LSTs that are unique for this purpose and not intended for Regulation XIII permitting applications. Therefore, the modeling methodology described in this document should not be used to comply with Rule 1303 modeling requirements. The actual methodology used to derive the mass rate LSTs is described in more detail in Chapter 2.

CHAPTER 2
METHODOLOGY

This chapter describes the technical approach used to derive the mass rate LSTs. The models used to derive the mass rate LSTs are briefly described, including adjustments to the outputs, which attempt to incorporate more realistic parameters into the modeling results.

MODEL

Two distinct modeling approaches were used to develop the mass rate LSTs for the gaseous pollutants (i.e., NO_2 and CO) and particulate matter (i.e., PM10). A U.S. Environmental Protection Agency (EPA)-approved dispersion model was used for NO_2, CO, and PM 2.5. For PM10, a combination of a U.S. EPA-approved dispersion model and an empirical equation, developed by Desert Research Institute (DRI)[4] were used to describe concentration changes as a function of downwind distance.

NO_2, CO and PM2.5

Version 3 of the U.S. EPA approved air quality model called Industrial Source Complex (i.e., ISC3) was used to develop the mass rate LSTs discussed here for NO_2, CO, and PM2.5. The short-term version of the model was applied using hourly meteorological data from numerous sites in the district. Important model options employed include: urban dispersion parameters (i.e., URBAN) and no calm wind processing (i.e., NOCALM). All other model options assumed the model default values.

PM10

For PM10, the short-term version of ISC3 was used to estimate PM10 concentrations at 25 meters from the boundary of the construction area, 1,000 meters from the boundary of the construction area, and beyond. Since fugitive dust consists of a significant fraction of large particles greater than 10 microns, plume depletion due to dry removal mechanisms was assumed (i.e., DRYDPLT). The fugitive PM10 emissions are separated into the three particle sizes of less than one micron (μm), 1.0 to 2.5 μm, and 2.5 to 10 μm in aerodynamic diameter, which have the assumed weight fractions of 7.87, 12.92, and 79.22 percent, respectively. The particle density for all three size bins is 2.3 grams per cubic centimeter.

For downwind distances from the boundary of the construction area to 100 meters, the following equation was used to describe the change in PM10 concentration versus downwind distance:

$$C_x = 0.9403\ C_o\ e^{-0.0462\ x} \qquad \textbf{Eq. 1}$$

Where: C_x is the predicted PM10 concentration at x meters from the fence line;
C_o is the PM10 concentration at the fence line as estimated by ISC3;
e is the natural logarithm; and
x is the distance in meters from the fence line.

[4] Desert Research Institute, 1996.

Equation 1 was developed from the 1996 DRI study of fugitive dust control measures for unpaved roads. Concentrations are linearly interpolated between the two approaches for downwind distances from 100 to 500 meters.

SOURCE TREATMENT

Mass rate LSTs for construction and operational activities for one-, two-, and five-acre sites have been developed. Exhaust emissions from construction equipment are treated as a set of side-by-side elevated volume sources. These volume sources are illustrated in Figure 2-1. The number and dimensions of the volume sources for each analyzed acreage are shown in Table 2-1. The release height is assumed to be five meters. This represents the mid-range of the expected plume rise from frequently used construction equipment during daytime atmospheric conditions. All construction exhaust emissions are assumed to take place over the eight-hour period between 8 a.m. to 4 p.m. Mass rate LSTs may be used for operational sources with parameters similar to the construction parameters presented above.

Fugitive dust emissions are treated as a ground-based square area source with the dimension of the acreage analyzed. For example, the one-acre construction site is 63.6 meters on a side and the five-acre construction site is 142.2 meters on a side. An initial vertical dimension of one meter is assumed to represent the initial vertical spread of the emissions. Based on this assumption, the initial vertical dimension resulted in a vertical concentration profile that closely matched the vertical profile observed by DRI (1996), as shown in Figure 2-2. As with the construction equipment, all the fugitive dust emissions are assumed to be emitted over the eight-hour period, 8 a.m. to 4 p.m. Area sources are illustrated in Figure 2-1.

RECEPTOR GRID

A radial receptor grid is used to determine impacts. The grid is centered on the source and is built in ten degree increments at the following downwind distances from the hypothetical proposed project boundary: 25, 50, 100, 200, and 500 meters. Flat terrain is assumed, since emissions sources from construction activities are primarily ground-based. All receptors are placed within the breathing zone at two meters above ground level. Figure 2-1 illustrates the relationship between the source and receptors.

METEOROLOGY

For modeling purposes, the SCAQMD uses 1981 meteorological data (i.e., hourly winds, temperature, atmospheric stability, and mixing heights) from 35 sites in the district, as shown in Figure 2-3 and listed in Table 2-2. The 1981 meteorological data are used because this data set represents the most complete and comprehensive data set currently compiled. These data are available at the SCAQMD's web site (www.aqmd.gov/metdata) and is in a format that can be directly read by ISC3. Using this meteorological data set, LSTs are developed for each of the 37 source receptor areas (SRAs) within the SCAQMD's jurisdiction (see Figure 2-4). LSTs were not developed for SRA 14, because it is outside of the SCAQMD's jurisdiction. Site-specific meteorological data may also be used the concurrence from the District staff. A projects located close to the boundaries of another SRA may use the LSTs for that SRA if the monitored concentrations better represent the ambient air quality surrounding that project..

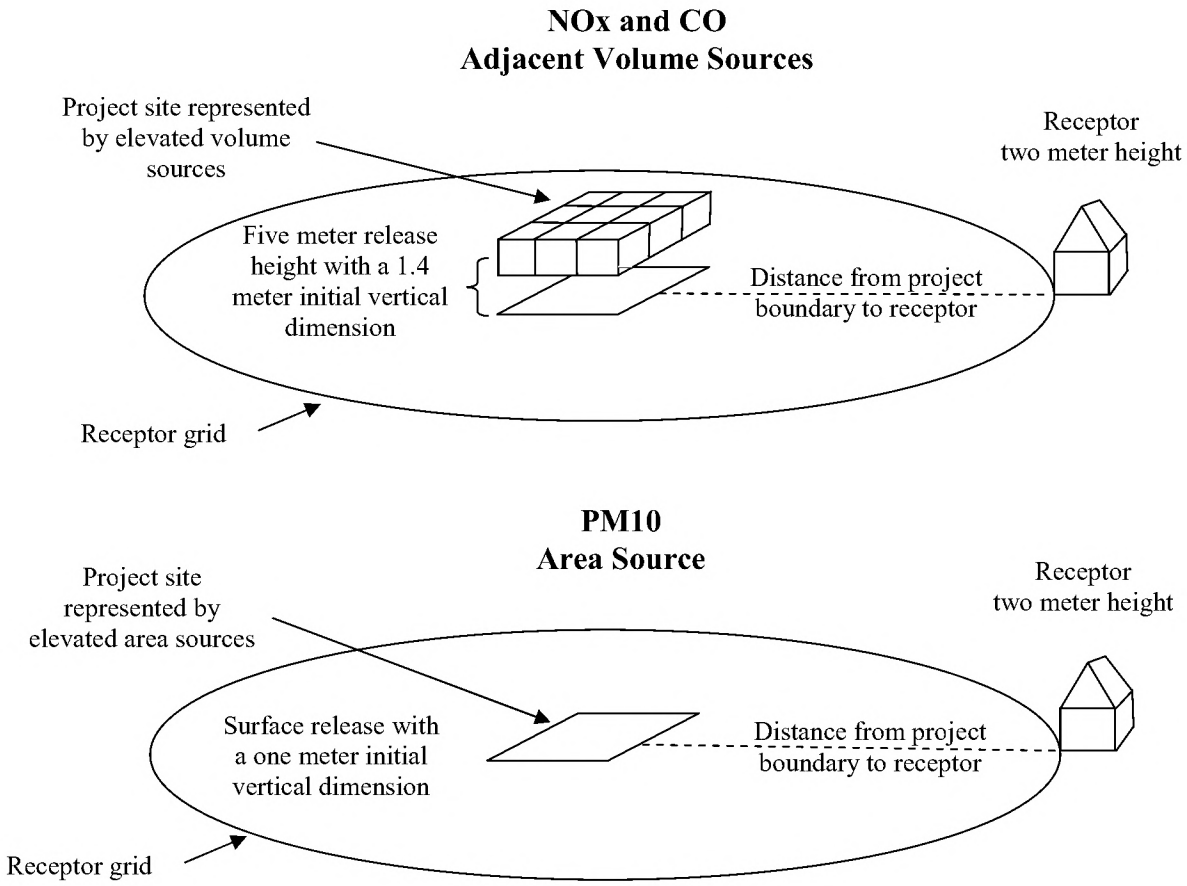


Figure 2-1. Volume and Area Sources

Table 2-1. Number and Dimensions of Volume Sources

Area	*Number of volume sources*	*Dimensions of volume source*
1 acre	36	10 by 10 meters
2 acres	81	10 by 10 meters
5 acres	49	20 by 20 meters

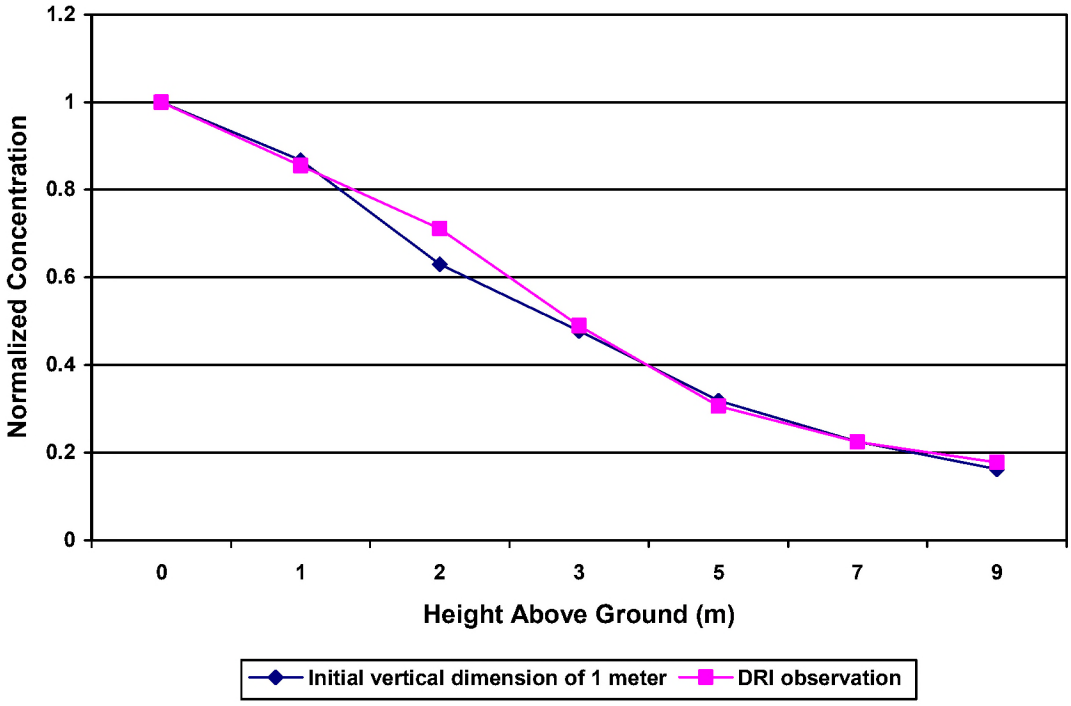


Figure 2-2. Comparison of Vertical Concentration Profiles

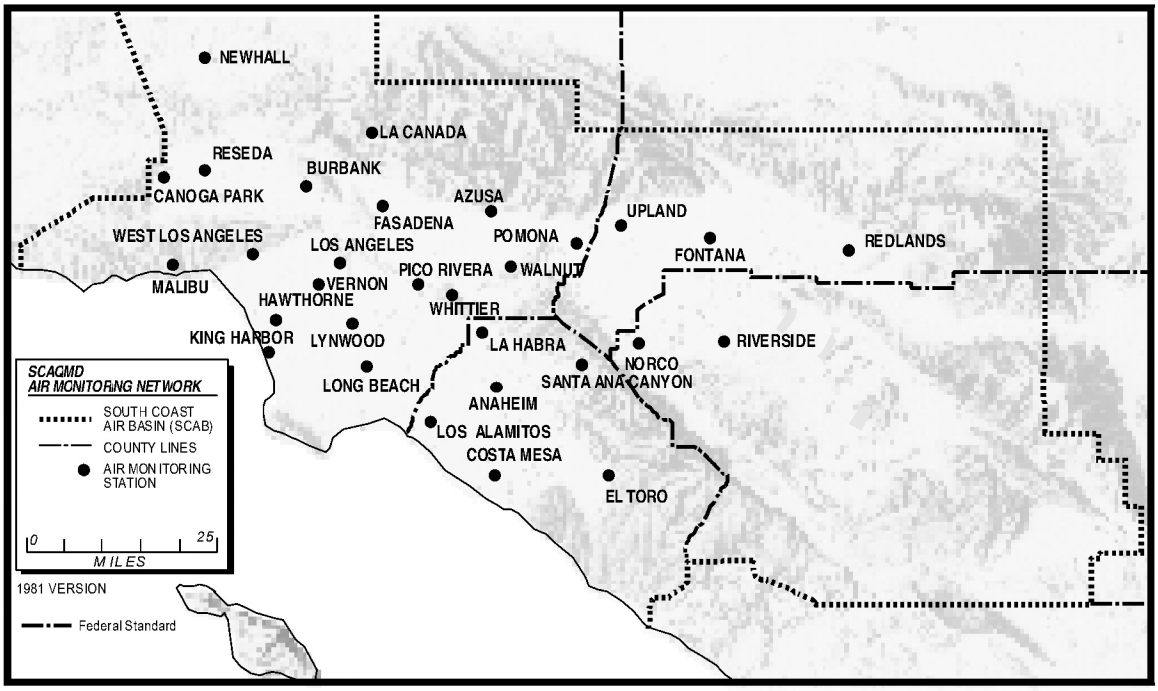


Figure 2-3. 1981 District Meteorological Sites

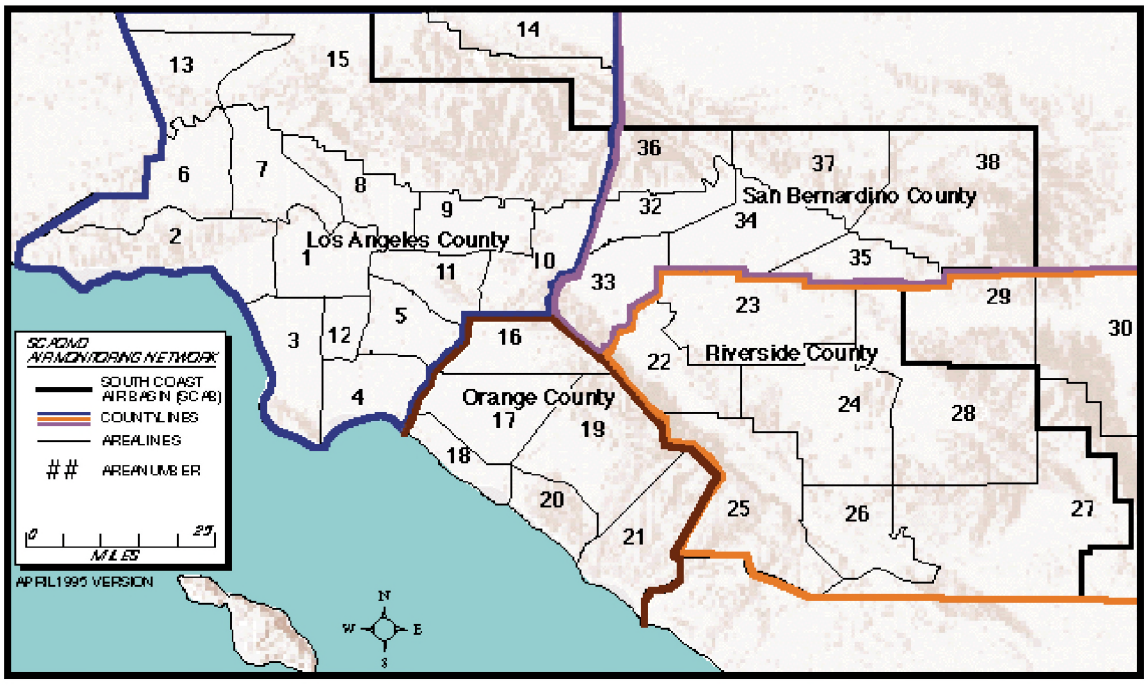


Figure 2-4. Source/Receptor Areas in the District

BACKGROUND CO AND NO_2 AIR QUALITY

To determine whether or not construction activities create significant adverse localized air quality impacts, the emissions contribution from the project is added to ambient concentrations and the total is then compared to the most stringent applicable state and/or federal ambient air quality standards for CO and NO_2. In order to be able to make this determination, it is necessary to know the background concentrations in the vicinity of the proposed project site. The modeled incremental impacts from project activities are added to the background values to estimate the peak impacts downwind of the activities. The LST concentrations are derived by ensuring that the total concentrations (i.e., background plus project contribution) are just less than the most stringent applicable state and federal ambient air quality standards. The methodology for identifying the background concentrations is outlined in the following paragraphs.

Table 2-3 lists the SCAQMD air quality monitoring stations that measure CO or NO_2 in the district. At the time of LST adoption, a database of annual concentrations was assembled for the period 1999 to 2001. Peak one-hour CO and NO_2, and peak eight-hour CO concentrations for the three-year period were identified.

The observed peak one-hour CO, one-hour NO_2, and eight-hour CO concentrations for the three-year period are given in Appendix A for each available station. The peak concentrations for each year and for the three-year period as a whole are provided. The difference between the peak concentrations and the relevant state and federal standards determines the allowable mass emissions for the construction activities that would not result in significant adverse localized air quality impacts.

Table 2-2. 1981 Meteorological Data for Dispersion Modeling

Station ID			UTM (kilometer)	
Surface	**Upper air**	**Site Name**	**Easting**	**Northing**
53071	91919	Anaheim	415.0	3742.5
54097	99999	Azusa	414.9	3777.4
54144	99999	Banning	510.5	3754.5
51100	99999	Burbank	379.5	3783.0
51067	99999	Canoga Park	352.9	3786.0
53112	91919	Compton	385.5	3750.3
53126	91919	Costa Mesa	413.8	3724.2
52075	91919	Downtown Los Angeles	386.9	3770.1
53128	91919	El Toro	436.0	3720.9
54149	99999	Fontana	455.4	3773.9
54146	99999	Indio	572.3	3731.0
53012	91919	King Harbor	371.2	3744.4
51108	99999	La Canada	388.2	3786.1
53099	91919	La Habra	412.0	3754.0
51117	99999	Lancaster	396.0	3839.5
52118	91919	Lennox	373.0	3755.0
53101	91919	Long Beach	390.0	3743.0
53127	91919	Los Alamitos	404.5	3739.8
52130	91919	Lynwood	388.0	3754.0
52104	91919	Malibu	344.0	3766.9
51115	99999	Newhall	355.5	3805.5
54167	99999	Norco	446.8	3749.0
54145	99999	Palm Springs	542.5	3742.5
51122	99999	Pasadena	396.0	3778.5
53134	91919	Pico Rivera	402.3	3764.1
54109	99999	Pomona	430.8	3769.6
54161	99999	Redlands	486.2	3769.4
51107	99999	Reseda	359.0	3785.0
54139	99999	Riverside	464.8	3758.6
53137	91919	Santa Ana Canyon	431.0	3748.4
54147	99999	Upland	440.0	3773.1
52132	91919	Vernon	387.4	3762.5
54106	99999	Walnut	420.0	3761.7
52158	91919	West Los Angeles	372.3	3768.6
53114	91919	Whittier	405.3	3754.0

UTM = Universal Transverse Mercator

Table 2-3. SCAQMD Stations Measuring CO or NO_2

Station	Pollutant measured	
	CO	**NO_2**
Central LA	X	X
Northwest Coastal LA County	X	X
Southwest Coastal LA County	X	X
South Coastal LA County	X	X
West San Fernando Valley	X	X
East San Fernando Valley	X	X
West San Gabriel Valley	X	X
East San Gabriel Valley 1	X	X
East San Gabriel Valley 2	X	X
Pomona/Walnut Valley	X	X
South San Gabriel Valley	X	X
South Central LA County 1	X	X
South Central LA County 2	X	X
Santa Clarita Valley	X	X
North Orange County	X	X
Central Orange County	X	X
North Coastal Orange County	X	X
Saddleback Valley 1	X	
Saddleback Valley 2	X	X
Norco/Corona		
Metropolitan Riverside County 1	X	X
Metropolitan Riverside County 2	X	X
Perris Valley		
Lake Elsinore	X	X
Banning Airport		X
Coachella Valley 1	X	X
Coachella Valley 2	X	X
Northwest San Bernardino Valley	X	X
Southwest San Bernardino Valley		
Central San Bernardino Valley 1		X
Central San Bernardino Valley 2	X	X
East San Bernardino Valley		
Central San Bernardino Mountains		
East San Bernardino Mountains		

PM2.5 AND PM10 AIR QUALITY

PM2.5 and PM10 impacts are treated differently than CO and NO_2, since, as mentioned earlier, nearly the entire district exceeds the state or federal PM2.5 and PM10 standards. Therefore, the incremental PM2.5 and PM10 impacts from construction are derived based on the change in concentration threshold of 10.4 $\mu g/m^3$ (24-hour average), which is comparable to the

requirement in paragraph (d)(4) in SCAQMD Rule 403, which prohibits fugitive dust concentrations beyond a project's boundary that exceed 50 µg/m^3 (averaged over five hours) (see footnote #3). PM2.5 and PM10 impacts from operational activities are derived based on the allowable change in concentration threshold of 2.5 µg/m^3 in Table A-2 of Rule 1303 (see footnote #4). Because the entire district is nonattainment for PM2.5 and PM10, determining background PM2.5 and PM10 concentrations is unnecessary. However, meteorological conditions in the source receptor areas will ultimately affect the PM2.5 and PM10 LSTs.

NO_2-TO-NO_X RATIO

Combustion processes occurring from equipment yield NO_X emissions. The two principal NO_X species are nitric oxide (NO) and nitrogen dioxide (NO_2), with the vast majority (95 percent) of the NO_X emissions being comprised of NO. Adverse health effects are associated with NO_2, not NO. NO is converted to NO_2 by several processes, the two most important of these are (1) the reaction of NO with ozone and (2) the photochemical reaction of NO with hydrocarbon radical species. Destruction of NO_2 occurs with its photodissociation into NO and molecular oxygen.

NO_X emissions are simulated in the air quality dispersion model and the NO_2 conversion rate is treated by an NO_2-to-NO_X ratio, which is a function of downwind distance. Initially, it is assumed that only five percent of the emitted NO_X is NO_2. At 500 meters downwind, 100 percent conversion of NO-to-NO_2 is assumed. The assumed NO_2-to-NO_X ratios between those distances are presented in Figure 2-5. The NO_2 conversion rates are adapted from work by Arellano et al.[5].

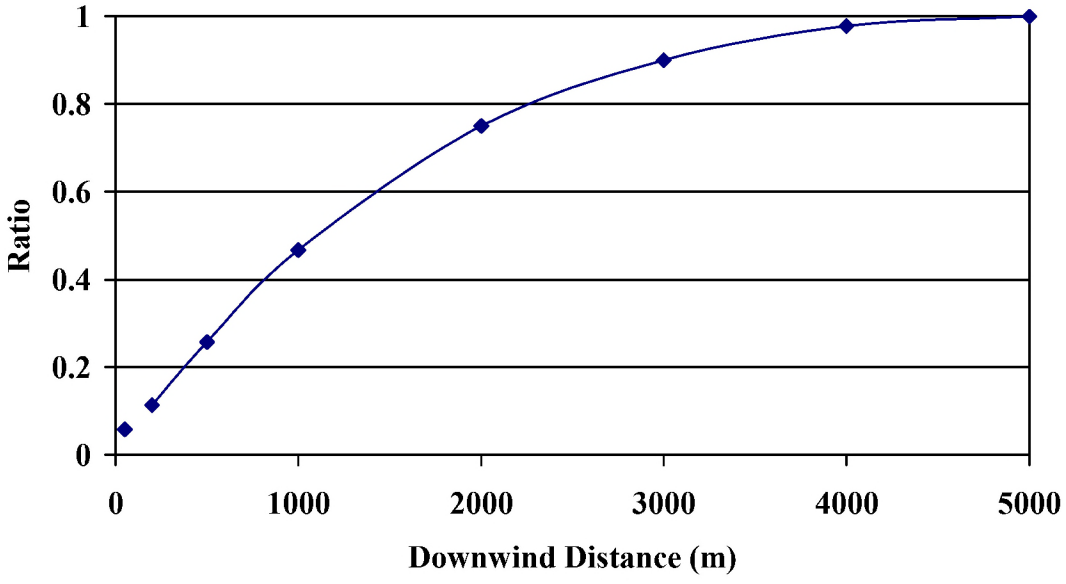


Figure 2-5. NO_2-to-NO_X Ratio as a Function of Downwind Distance

[5] Arellano, J.V., A.M. Talmon, and P.J.H. Builtjes, 1990.

Table 2-4. NO_2-to-NO_X Ratio as a Function of Downwind Distance

Downwind Distance (m)	NO2/NOx Ratio
20	0.053
50	0.059
70	0.064
100	0.074
200	0.114
500	0.258
1000	0.467
2000	0.75
3000	0.9
4000	0.978
5000	1

DERIVING LOCALIZED SIGNIFICANCE THRESHOLDS

Localized Significance Thresholds by Concentration

LSTs by concentrations were used to develop mass rate LSTs. Project proponents, who choose to perform project specific air quality dispersion modeling, should use LST concentrations to determine adverse air quality impacts. Project proponents can either follow the procedures presented below to develop LSTs by concentration or use the tables in Appendix B, and Rules 403 and 1301.

Gaseous Pollutants (NOx and CO)

To derive the LST concentrations it is necessary to know the concentration of the most stringent ambient air quality standard and the ambient concentration for the pollutant under consideration in a specified SRA. The difference between the ambient air quality standard and the peak ambient concentration in the SRA produces a concentration that is then converted into mass emissions. The mass emissions result is the maximum amount of emissions a project can emit, when added to ambient concentrations, without causing or contributing to an exceedance of the most stringent applicable ambient air quality standard (i.e., background + project contribution). The resulting mass emissions amount is the LST for the pollutant under consideration for the specified SRA. The LST concentrations for NOx and CO, which are the differences in concentration between the most stringent ambient air quality standard and the peak ambient concentrations for each SRA are shown in Appendix B. The project contribution emissions level is derived using the following equation:

$$C_{PC} = C_{AAQS} - Cb \qquad \textbf{Eq. 2}$$

Where: C_{PC} is the project contribution emission levels in micrograms per cubic meter;

Cb is the background concentration measured at the closest air quality monitoring station in micrograms per cubic meter; and

C_{AAQS} is the limiting state or federal standards in micrograms per cubic meter.

Particulate Matter

The LST concentrations for particulate matter are the concentration thresholds presented in Rules 403 and 1301. The Rule 403 threshold of 10.4 microns per cubic meter applies to construction activities, and may apply to operational activities at aggregate handling facilities. The Rule 1301 threshold of 2.5 microns per cubic meter applies to nonaggregate handling operational activities.

Localized Significance Thresholds by Mass Rate

LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area. The mass rate LSTs are estimated using an air dispersion model.

Air Dispersion Modeling

A unit emission rate is the single unit of mass over time or emissions rate (e.g., one gram per second, one kilogram per second, one pound per hour, one ton per year, etc.). Unit emission rates are typically developed over established AAQS averaging times or daily operating hours (i.e., one-hour, eight-hour, 24-hour, etc.). Unit emissions rates are used to normalize the resulting concentration produced by a dispersion model for ease of calculation. Therefore, ISC3 modeling was performed assuming a one pound per day emission rate over the eight-hour construction period of 8 a.m. to 4 p.m. The units of the results are in grams per cubic meter, per pound per day ([$\mu g/m^3$]/[lb/day]). ISC3 provides peak predicted concentrations at the downwind distances for the receptor for one-hour, eight-hour, and 24-hour averaging periods.

Calculating Localized Significance Thresholds

Gaseous Pollutants (NOx and CO)

Multiplying the unit emission rate of one-pound per day by the ratio of the project contribution level to the peak predicted concentration using ISC3 yields the mass rate LST in pounds per day.

$$E_{max} = U \times (C_{PC})/C_u) \qquad \textbf{Eq. 3}$$

Where: E_{max} is the daily mass rate LST emissions in pounds per eight-hour day;

U is the unit emission rate of one-pound per eight-hour day (one-lb/day);

C_{PC} is the acceptable impact levels in micrograms per cubic meter; and

C_u is the peak predicted concentration in micrograms per cubic meter estimated by ISC3 for a unit emission rate of one-pound per day.

The daily mass rate LSTs in pounds per day are the emission rates that with the background concentration would equal but not exceed the most stringent AAQS. These allowable maximum

daily emissions are presented in the mass rate Localized Significance Threshold Screening Tables in Appendix C.

Particulate Matter

The predicted PM2.5 or PM10 concentration at a given distance in meters from the fence line is estimated from Equation 1 using the PM2.5 or PM10 concentration at the fence line estimated by ISC3 for sources with combined unit emission rate of one-pound per day. Equation 4 estimates the daily mass rate LST emission in pounds per day from the predicted PM2.5 or PM10 concentration at a given distance from the fence line.

$$E_{max} = (C_{rule})/C_x \qquad \textbf{Eq. 4}$$

Where: E_{max} is the daily mass rate LST emissions in pounds per eight-hour day;

C_{rule} is the concentration threshold presented in Rule 403 (construction) or 1301 (operation); and

C_x is the predicted PM2.5 or PM10 concentration at x meters from the fence line in micrograms per cubic meter for a unit emission rate of one-pound per day. (see Eq. 1);

The concentration threshold is taken from either Rule 403 (10.4 microns per cubic meter) for construction activities or from Rule 1301 (2.5 microns per cubic meter) for operational activities. These allowable maximum daily PM2.5 or PM10 emissions are presented in the mass rate Localized Significance Threshold Screening Tables in Appendix C.

CHAPTER 3
SCREENING TABLES AND THEIR USE

The LST lookup tables provided in Appendix C allow a user to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts. If the calculated emissions for the proposed construction or operational activities are below the LST emission levels found on the LST lookup tables, then the proposed construction or operation activity is not significant. Proposed projects whose calculated emission budgets for the proposed construction or operational activities are above the LST emission levels found in the LST lookup tables should not assume that the project would necessarily generate adverse impacts. Detailed emission calculations and/or air dispersion modeling may demonstrate that pollutant concentrations are below localized significant levels.

The CO, NO_X, PM2.5 and PM10 LST lookup tables for each source receptor area are provided in Appendix C for the 37 source receptor/areas. The CO and NOx LST lookup tables can be utilized for both construction and operational activities. There are two sets of PM2.5 and PM10 LST lookup tables: one for construction emissions and one for operational emissions. The operational emission PM2.5 and PM10 LST lookup tables were developed based on the allowable change in concentration threshold of 2.5 μg/m3 in Table A-2 of Rule 1303. It is recommended that operational emissions associated with fugitive dust area sources (e.g., landfills, aggregate material operations) use the PM10 LST lookup tables for operational activities. A lead agency can contact the SCAQMD staff (ceqa_admin@aqmd.gov) if there are any questions regarding which is the appropriate PM10 LST lookup tables for area source operational activities.

The tables are first organized by pollutant and then by source/receptor area. Within the tables, the distance to the nearest receptor is required to properly choose the correct allowable emission rate. The estimated maximum daily construction and operational emissions are compared to the allowable emissions to determine significance. If the projected emission budgets are less than the allowable emissions then significant local impacts are not expected.

Therefore, the information needed to use the LST lookup tables is as follows:

- Maximum daily emissions of CO, NO_X, PM2.5 and PM10 in pounds per day (lb/day)
- Distance from the boundary of the proposed project site to the nearest off-site receptor
- Geographic location of the construction site in terms of district source/receptor area

This information directs the user to the correct table and table cell. Additional guidance in each of these three areas is given below:

ESTIMATE EMISSIONS

The first step in the process is to estimate the maximum daily emissions of CO, NO_X, PM2.5 and PM10. The emissions include only on-site activities and the emission rate must be expressed in pounds per day. The PM2.5 and PM10 emissions should include both fugitive dust and exhaust from the stationary/mobile equipment on-site. The emission rates can be estimated based on project specific equipment categories and proposed controls.

DETERMINE THE SOURCE/RECEPTOR AREA OF THE PROPOSED CONSTRUCTION/OPERATIONAL ACTIVITY

On the SCAQMD website is a utility that provides the district source/receptor area for a given street address (www.aqmd.gov). The user is advised to follow the instructions on the use of this utility.

ESTIMATE THE RECEPTOR DISTANCE

Receptor locations are off-site locations where persons may be exposed to the emissions from project activities. Receptor locations include residential, commercial and industrial land use areas; and any other areas where persons can be situated for an hour or longer at a time. These other areas include parks, bus stops, and side walks but would not include the tops of buildings, roadways, or permanent bodies of water such as, oceans or lakes.[6]

For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be to be a receptor such as residence, hospital, convalescent facility were it is possible that an individual could remain for 24 hours. Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain onsite for a full 24 hours, but are present for shorter periods of time, such as eight hours. Therefore, applying a 24-hour standard for PM10 is appropriate not only because the averaging period for the state standard is 24 hours, but because, according to the SCAQMD's definition, the sensitive receptor would be present at the location for the full 24 hours.

Since a sensitive receptor is considered to be present onsite for 24 hours, LSTs based on shorter averaging times, such as the one-hour NO_2 or the one-hour and eight-hour CO ambient air quality standards, would also apply. However, LSTs based on shorter averaging periods, such as the NO_2 and CO LSTs, could also be applied to receptors such as industrial or commercial facilities since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours. This assumption is consistent with the CO hotspots modeling protocol, which requires modeling at receptors that may also include commercial and industrial sites. It is for this reason that the Methodology paper included commercial and industrial sites when discussing receptor locations as opposed to sensitive receptors.

[6] SCAQMD, *Risk Assessment Procedures for Rules 1401 and 212*, Version 6.0, 2000. p 8.

The receptor distance is measured from the boundary of the proposed project site to the nearest receptor location. Care should be taken when estimating these distances since allowable emissions increase rapidly with increasing downwind distance. It is acceptable to linearly interpolate to estimate the allowable emissions between the downwind distances given in the tables.

The closest receptor distance on the mass rate LST look-up tables is 25 meters. It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.

MITIGATION MEASURES

If project emissions exceed the mass rates presented in the LST look-up tables or allowable air quality impacts based on modeling, CEQA requires lead agencies to implement feasible mitigation measures, if available, to reduce adverse air quality impacts. Lead agencies may use the mitigation measures presented in Chapter 11 and its appendix in the Handbook (1993), other sources, or develop their own mitigation measures. The CEQA Handbook can be accessed on line at www.aqmd.gov/eg/I-4/I4.htm. AQMD staff is available for consultation on mitigation measures to provide updates or new information, if available, on a project-by-project basis.

LIMITATIONS OF THE SCREENING TABLES

The LST lookup tables were developed to assist lead agencies with a simple tool for evaluating the impacts from small typical projects. Table 3-1 includes a list of typical projects. Large industrial projects, such as installation of turbines at power plants are beyond the scope of these LST lookup tables. LSTs are applicable at the project-specific level and generally are not applicable to regional projects such as local General Plans unless specific projects are identified in the General Plans. Regional analyses are more applicable to the scope of General Plans. Table 3-2 includes typical projects where the LST lookup tables may not apply.

Table 3-1. Typical Projects

Apartments	Medical Office Building
Banks	Mobil Home Park
City Parks	Nursing Home
Condo/Townhouses	Office Buildings
Convenience Market	Pharmacy/Drug Store
Day-Care Center	Places of Worship
Discount Clubs	Racquet/Health Clubs
Discount Stores	Regional Shopping Center
Electronics Store	Residential Planned Unit Development (PUD)
Hardware/Paint Store	Restaurants
Home Improvement Store	Retirement Community
Hospital	Schools (Elementary, Junior High /Middle, High)
Hotels/Motels	Single Family Housing
Industrial Building	Strip Mall
Libraries	Supermarket
Manufacturing	University/College

Table 3-2. Typical Projects Where Screening Tables May Not Apply

Project Sites Larger than 5 acres	Projects that require more than one shift
Projects at RECLAIM facilities	Project sites where emissions are distinctly non-uniform across site
Projects at Title V facilities	Operational sources where fumigation or building downwash is anticipated
Large Combustion Sources	General Plans

The LST lookup tables are limited to projects with the following parameters:

- Five acres or smaller in size
- Limited to eight-hours of operation per day
- Limited to operations during the day
- It is assumed emission sources are distributed evenly across proposed site

Proposed projects that exceed the above limitations should complete a site specific localized significance analysis.

SAMPLE CALCULATIONS

Based on stakeholder comments to ease concerns on potential resource impacts due to necessary quantification of emissions, a separate technical document was prepared to illustrate how construction emissions can be calculated for LST impact analysis. The sample calculations can be used by lead agencies for simlar projects if the projects fall within the general parameters assumed for the sample projects. A copy of this report can be found at www.aqmd.gov/eg/I-4/I4.htm. Additional scenarios can be added upon request for general use and AQMD staff is also available to provide technical assistance to lead agency staff.

CHAPTER 4
CONCLUSION

Environmental justice initiatives and revision of the Handbook have focused attention on localized adverse effects of proposed projects on air quality. In order to address potential localized impacts this proposal attempts to establish the thresholds reflecting existing air quality. The cleaner the air is in a local area, the greater emissions increment it can afford without causing or contributing to an exceedance of the most stringent ambient air quality standard. If the existing air quality is not yet in compliance with the air quality standards, all areas are subject to generally equivalent LSTs

Historically assessing localized air quality impacts required using complex dispersion models. Therefore, to address the issue of localized significance, yet be sensitive to the fact that other public agencies might not have the expertise or adequate financial resources to perform dispersion modeling, in addition to the methodology itself, SCAQMD staff developed localized significant threshold similar to the regional significance thresholds, that is, based on the amount of pounds of emissions per day generated by a proposed project that would cause or contribute to adverse localized air quality impacts. These projects are assumed to be less than five acres in size. Emissions were assumed to be uniformly distributed across a flat proposed project site over an eight-hour workday. Receptors distances are measured in meters from the proposed project boundary. The same emissions estimated for regional significant thresholds should be compared to allowable emissions presented the LST lookup tables for the source/receptor area closest to the proposed project.

Screening procedures are by design conservative, that is, the predicted impacts tend to overestimate the actual impacts. If the predicted impacts are acceptable using the LST approach presented here, then a more detailed evaluation is not necessary. However, if the predicted impacts are significant, then the project proponent may wish to perform a more detailed emission and/or modeling analysis before concluding that the impacts are significant. Project proponents are not required to use this LST procedure; and may complete site specific modeling instead.

CHAPTER 5
REFERENCES

Arellano, J.V., A.M. Talmon, and P.J.H. Builtjes, "A Chemically Reactive Plume Model for the $NO\text{-}NO_2\text{-}O_3$ System," *Atmospheric Environment* **24A**, 2237-2246

Desert Research Institute, *Final Effectiveness Demonstration of Fugitive Dust Control Methods for Public Unpaved Roads and Unpaved Shoulders on Paved Roads*, DRI Document No. 685-5200.1F1, prepared for CARB CRPAQS, December 31, 1996.

SCAQMD, *CEQA Air Quality Handbook*, April 1993.

SCAQMD, *Risk Assessment Procedures for Rules 1401 and 212*, Version 6.0, August 18, 2002.

USEPA, *User's Guide for the Industrial Source Complex (ISC3) Dispersion Models, Volume I and II*, EPA-454/B-95-003, September, 1995.

APPENDIX A

PEAK BACKGROUND CONCENTRATIONS FOR THE 1999–2001 PERIOD

The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table A-1
Peak Background Concentrations for the 1999-2001 Period[a]

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	Units	1999 Conc.	2000 Conc.	2001 Conc.	Max Conc.
1	Central LA	NOx	1-hr	ppm	0.21	0.16	0.14	0.21
		CO	1-hr	ppm	7.00	7.00	6.00	7.00
		CO	8-hr	pphm	6.30	6.00	4.57	6.30
2	Northwest Coastal LA County	NOx	1-hr	ppm	0.13	0.16	0.11	0.16
		CO	1-hr	ppm	6.00	6.00	4.00	6.00
		CO	8-hr	pphm	3.80	4.30	3.00	4.30
3	Southwest Coastal LA County	NOx	1-hr	ppm	0.13	0.13	0.11	0.13
		CO	1-hr	ppm	10.00	9.00	7.00	10.00
		CO	8-hr	pphm	8.40	7.00	5.14	8.40
4	South Coastal LA County	NOx	1-hr	ppm	0.15	0.14	0.13	0.15
		CO	1-hr	ppm	7.00	10.00	6.00	10.00
		CO	8-hr	pphm	5.40	5.80	4.71	5.80
6	West San Fernando Valley	NOx	1-hr	ppm	0.12	0.11	0.09	0.12
		CO	1-hr	ppm	9.00	11.00	7.00	11.00
		CO	8-hr	pphm	7.60	9.80	6.00	9.80
7	East San Fernando Valley	NOx	1-hr	ppm	0.18	0.17	0.25	0.25
		CO	1-hr	ppm	9.00	8.00	6.00	9.00
		CO	8-hr	pphm	9.00	6.10	4.88	9.00

a) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table A-1 (Continued)
Peak Background Concentrations for the 2000-2002 Period[a]

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	Units	2000 Conc.	2001 Conc.	2002 Conc.	Max Conc.
1	Central LA	NOx	1-hr	ppm	0.16	0.14	0.14	0.16
		CO	1-hr	ppm	7.00	6.00	5.00	7.00
		CO	8-hr	pphm	6.00	4.57	4.00	6.00
2	Northwest Coastal LA County	NOx	1-hr	ppm	0.16	0.11	0.11	0.16
		CO	1-hr	ppm	6.00	4.00	4.00	6.00
		CO	8-hr	pphm	4.30	3.00	2.70	4.30
3	Southwest Coastal LA County	NOx	1-hr	ppm	0.13	0.11	0.10	0.13
		CO	1-hr	ppm	9.00	7.00	7.00	9.00
		CO	8-hr	pphm	7.00	5.14	6.10	7.00
4	South Coastal LA County	NOx	1-hr	ppm	0.14	0.13	0.13	0.14
		CO	1-hr	ppm	10.00	6.00	6.00	10.00
		CO	8-hr	pphm	5.80	4.71	4.60	5.80
6	West San Fernando Valley	NOx	1-hr	ppm	0.11	0.09	0.09	0.11
		CO	1-hr	ppm	11.00	7.00	6.00	11.00
		CO	8-hr	pphm	9.80	6.00	4.80	9.80
7	East San Fernando Valley	NOx	1-hr	ppm	0.17	0.25	0.26	0.26
		CO	1-hr	ppm	8.00	6.00	6.00	8.00
		CO	8-hr	pphm	6.10	4.88	4.60	6.10

a) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table A-1 (Continued)
Peak Background Concentrations for the 2000-2002 Period[a]

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	Units	2000 Conc.	2001 Conc.	2002 Conc.	Max Conc.
8	West San Gabriel Valley	NOx	1-hr	ppm	0.17	0.15	0.15	0.17
		CO	1-hr	ppm	9.00	7.00	6.00	9.00
		CO	8-hr	pphm	7.40	5.00	4.00	7.40
9	East San Gabriel Valley 1	NOx	1-hr	ppm	0.15	0.12	0.12	0.15
		CO	1-hr	ppm	5.00	3.00	4.00	5.00
		CO	8-hr	pphm	4.90	2.88	2.40	4.90
9	East San Gabriel Valley 2	NOx	1-hr	ppm	0.13	0.12	0.10	0.13
		CO	1-hr	ppm	4.00	3.00	5.00	5.00
		CO	8-hr	pphm	3.10	2.50	2.30	3.10
10	Pomona/Walnut Valley	NOx	1-hr	ppm	0.14	0.13	0.11	0.14
		CO	1-hr	ppm	7.00	5.00	6.00	7.00
		CO	8-hr	pphm	4.90	3.43	3.30	4.90
11	South San Gabriel Valley	NOx	1-hr	ppm	0.14	0.14	0.12	0.14
		CO	1-hr	ppm	7.00	6.00	5.00	7.00
		CO	8-hr	pphm	5.30	4.00	4.00	5.30
12	South Central LA County 1	NOx	1-hr	ppm	0.14	0.15	0.14	0.15
		CO	1-hr	ppm	13.00	12.00	16.00	16.00
		CO	8-hr	pphm	10.00	7.71	10.10	10.10

a) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table A-1 (Continued)
Peak Background Concentrations for the 2000-2002 Period[a]

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	Units	2000 Conc.	2001 Conc.	2002 Conc.	Max Conc.
12	South Central LA County 2	NOx	1-hr	ppm	0.11	--	--	0.11
		CO	1-hr	ppm	13.00	--	--	13.00
		CO	8-hr	pphm	9.50	--	--	9.50
13	Santa Clarita Valley	NOx	1-hr	ppm	0.10	0.10	0.10	0.10
		CO	1-hr	ppm	6.00	6.00	3.00	6.00
		CO	8-hr	pphm	4.90	3.14	1.90	4.90
16	North Orange County	NOx	1-hr	ppm	0.12	0.13	0.12	0.13
		CO	1-hr	ppm	14.00	11.00	10.00	14.00
		CO	8-hr	pphm	6.10	4.71	4.40	6.10
17	Central Orange County	NOx	1-hr	ppm	0.13	0.12	0.10	0.13
		CO	1-hr	ppm	8.00	8.00	7.00	8.00
		CO	8-hr	pphm	6.80	4.71	5.40	6.80
18	North Coastal Orange County	NOx	1-hr	ppm	0.11	0.08	0.11	0.11
		CO	1-hr	ppm	8.00	6.00	5.00	8.00
		CO	8-hr	pphm	6.30	4.57	4.30	6.30
19	Saddleback Valley 1	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	5.00	--	--	5.00
		CO	8-hr	pphm	2.30	--	--	2.30

a) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table A-1 (Continued)
Peak Background Concentrations for the 2000-2002 Period[a]

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	Units	2000 Conc.	2001 Conc.	2002 Conc.	Max Conc.
19	Saddleback Valley 2	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	4.00	3.00	3.00	4.00
		CO	8-hr	pphm	3.30	2.38	3.60	3.60
22	Norco/Corona	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	--	--	--	8.00
		CO	8-hr	pphm	--	--	--	4.30
23	Metropolitan Riverside County 1	NOx	1-hr	ppm	0.10	0.15	0.10	0.15
		CO	1-hr	ppm	5.00	5.00	8.00	8.00
		CO	8-hr	pphm	4.30	3.43	3.00	4.30
23	Metropolitan Riverside County 2	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	9.00	6.00	7.00	8.00
		CO	8-hr	pphm	4.30	4.50	3.90	4.50
24	Perris Valley	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	--	--	--	8.00
		CO	8-hr	pphm	--	--	--	4.50
25	Lake Elsinore	NOx	1-hr	ppm	0.08	0.09	0.07	0.09
		CO	1-hr	ppm	4.00	2.00	3.00	4.00
		CO	8-hr	pphm	2.00	2.00	2.00	2.00

a) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table A-1 (Continued)
Peak Background Concentrations for the 2000-2002 Period[a]

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	Units	2000 Conc.	2001 Conc.	2002 Conc.	Max Conc.
29	Banning Airport	NOx	1-hr	ppm	0.21	0.24	0.15	0.24
		CO	1-hr	ppm	--	--	--	3.00
		CO	8-hr	pphm	--	--	--	0.00
30	Coachella Valley 1**	NOx	1-hr	ppm	0.07	0.08	0.10	0.10
		CO	1-hr	ppm	3.00	2.00	2.00	3.00
		CO	8-hr	pphm	1.60	1.50	1.20	1.60
30	Coachella Valley 2**	NOx	1-hr	ppm	0.06	0.00	--	0.06
		CO	1-hr	ppm	3.00	--	--	3.00
		CO	8-hr	pphm	2.10	--	--	2.10
32	Northwest San Bernardino Valley	NOx	1-hr	ppm	0.15	0.13	0.12	0.15
		CO	1-hr	ppm	4.00	3.00	4.00	4.00
		CO	8-hr	pphm	2.60	1.75	1.60	2.60
33	Southwest San Bernardino Valley	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	--	--	--	4.00
		CO	8-hr	pphm	--	--	--	2.60
34	Central San Bernardino Valley 1	NOx	1-hr	ppm	0.12	0.13	0.12	0.13
		CO	1-hr	ppm	--	--	--	4.00
		CO	8-hr	pphm	--	--	--	2.60

a) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table A-1 (Concluded)
Peak Background Concentrations for the 2000-2002 Period[a]

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	Units	2000 Conc.	2001 Conc.	2002 Conc.	Max Conc.
34	Central San Bernardino Valley 2	NOx	1-hr	ppm	0.10	0.11	0.11	0.11
		CO	1-hr	ppm	5.00	4.00	5.00	5.00
		CO	8-hr	pphm	4.30	3.25	3.30	4.30
35	East San Bernardino Valley	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	--	--	--	5.00
		CO	8-hr	pphm	--	--	--	4.30
37	Central San Bernardino Mountains	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	--	--	--	5.00
		CO	8-hr	pphm	--	--	--	4.30
38	East San Bernardino Mountains	NOx	1-hr	ppm	--	--	--	0.00
		CO	1-hr	ppm	--	--	--	5.00
		CO	8-hr	pphm	--	--	--	4.30

a) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

APPENDIX B

DIFFERENCES BETWEEN THE MOST STRINGENT AMBIENT AIR QUALITY STANDARD AND AMBIENT CONCENTRATIONS FOR EACH SRA FOR THE 1999–2001 PERIOD

The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

The current NO2 State AAQS is 0.18 ppm as of March 20, 2008. Table B-1 was prepared when the NO2 State AAQS was 0.025.

Table B-1
Difference in Concentration for the 2000-2002 Period

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	AAQS[a] (ppm)	Observed[b] (ppm)	Difference (ppm)	Difference (ug/m^3)
1	Central LA	NO_2	1-hr	0.25	0.16	0.09	170
		CO	1-hr	20	7	13	14,950
		CO	8-hr	9	6	3	3,444
2	Northwest Coastal LA County	NO_2	1-hr	0.25	0.16	0.09	170
		CO	1-hr	20	6	14	16,100
		CO	8-hr	9	4.3	4.7	5,396
3	Southwest Coastal LA County	NO_2	1-hr	0.25	0.13	0.12	226
		CO	1-hr	20	9	11	12,650
		CO	8-hr	9	7	2	2,296
4	South Coastal LA County	NO_2	1-hr	0.25	0.14	0.11	207
		CO	1-hr	20	10	10	11,500
		CO	8-hr	9	5.8	3.2	3,674
6	West San Fernando Valley	NO_2	1-hr	0.25	0.11	0.14	264
		CO	1-hr	20	11	9	10,350
		CO	8-hr	9	9.8	0.45	517
7	East San Fernando Valley	NO_2	1-hr	0.25	0.26	0.01	19
		CO	1-hr	20	8	12	13,800
		CO	8-hr	9	6.1	2.9	3,329

a) The current NO2 State AAQS is 0.18 ppm as of March 20, 2008. Table B-1 was prepared when the NO2 State AAQS was 0.25 ppm.
b) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table B-1 (Continued)
Difference in Concentration for the 2000-2002 Period

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	AAQS[a] (ppm)	Observed[b] (ppm)	Difference (ppm)	Difference (ug/m^3)
8	West San Gabriel Valley	NO_2	1-hr	0.25	0.17	0.08	151
		CO	1-hr	20	9	11	12,650
		CO	8-hr	9	7.4	1.6	1,837
9	East San Gabriel Valley 1	NO_2	1-hr	0.25	0.15	0.1	189
		CO	1-hr	20	5	15	17,250
		CO	8-hr	9	4.9	4.1	4,707
9	East San Gabriel Valley 2	NO_2	1-hr	0.25	0.13	0.12	226
		CO	1-hr	20	5	15	17,250
		CO	8-hr	9	3.1	5.9	6,773
10	Pomona/Walnut Valley	NO_2	1-hr	0.25	0.14	0.11	207
		CO	1-hr	20	7	13	14,950
		CO	8-hr	9	4.9	4.1	4,707
11	South San Gabriel Valley	NO_2	1-hr	0.25	0.14	0.11	207
		CO	1-hr	20	7	13	14,950
		CO	8-hr	9	5.3	3.7	4,248
12	South Central LA County 1	NO_2	1-hr	0.25	0.15	0.1	189
		CO	1-hr	20	16	4	4,600
		CO	8-hr	9	10.1	0.45	517

a) The current NO2 State AAQS is 0.18 ppm as of March 20, 2008. Table B-1 was prepared when the NO2 State AAQS was 0.25 ppm.
b) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table B-1 (Continued)
Difference in Concentration for the 2000-2002 Period

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	AAQS[a] (ppm)	Observed[b] (ppm)	Difference (ppm)	Difference (ug/m^3)
12	South Central LA County 2	NO_2	1-hr	0.25	0.11	0.14	264
		CO	1-hr	20	13	7	8,050
		CO	8-hr	9	9.5	0.45	517
13	Santa Clarita Valley	NO_2	1-hr	0.25	0.1	0.15	283
		CO	1-hr	20	6	14	16,100
		CO	8-hr	9	4.9	4.1	4,707
16	North Orange County	NO_2	1-hr	0.25	0.13	0.12	226
		CO	1-hr	20	14	6	6,900
		CO	8-hr	9	6.1	2.9	3,329
17	Central Orange County	NO_2	1-hr	0.25	0.13	0.12	226
		CO	1-hr	20	8	12	13,800
		CO	8-hr	9	6.8	2.2	2,526
18	North Coastal Orange County	NO_2	1-hr	0.25	0.11	0.14	264
		CO	1-hr	20	8	12	13,800
		CO	8-hr	9	6.3	2.7	3,100
19	Saddleback Valley 1	NO_2	1-hr	0.25	0	--	264
		CO	1-hr	20	5	15	17,250
		CO	8-hr	9	2.3	6.7	7,692

a) The current NO2 State AAQS is 0.18 ppm as of March 20, 2008. Table B-1 was prepared when the NO2 State AAQS was 0.25 ppm.
b) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table B-1 (Continued)
Difference in Concentration for the 2000-2002 Period

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	AAQS[a] (ppm)	Observed[b] (ppm)	Difference (ppm)	Difference (ug/m^3)
19	Saddleback Valley 2	NO_2	1-hr	0.25	0	--	264
		CO	1-hr	20	4	16	18,400
		CO	8-hr	9	3.6	5.4	6,199
22	Norco/Corona	NO_2	1-hr	0.25	0	--	189
		CO	1-hr	20	8	12	13,800
		CO	8-hr	9	4.3	4.7	5,396
23	Metropolitan Riverside County 1	NO_2	1-hr	0.25	0.15	0.1	189
		CO	1-hr	20	8	12	13,800
		CO	8-hr	9	4.3	4.7	5,396
23	Metropolitan Riverside County 2	NO_2	1-hr	0.25	0	--	189
		CO	1-hr	20	8	12	13,800
		CO	8-hr	9	4.5	4.5	5,166
24	Perris Valley	NO_2	1-hr	0.25	0	--	189
		CO	1-hr	20	8	12	13,800
		CO	8-hr	9	4.5	4.5	5,166
25	Lake Elsinore	NO_2	1-hr	0.25	0.09	0.16	302
		CO	1-hr	20	4	16	18,400
		CO	8-hr	9	2	7	8,036

a) The current NO2 State AAQS is 0.18 ppm as of March 20, 2008. Table B-1 was prepared when the NO2 State AAQS was 0.25 ppm.
b) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table B-1 (Continued)
Difference in Concentration for the 2000-2002 Period

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	AAQS[a] (ppm)	Observed[b] (ppm)	Difference (ppm)	Difference (ug/m^3)
29	Banning Airport	NO_2	1-hr	0.25	0.24	0.01	19
		CO	1-hr	20	3	17	19,550
		CO	8-hr	9	0	9	10,332
30	Coachella Valley 1**	NO_2	1-hr	0.25	0.1	0.15	283
		CO	1-hr	20	3	17	19,550
		CO	8-hr	9	1.6	7.4	8,495
30	Coachella Valley 2**	NO_2	1-hr	0.25	0.06	0.19	358
		CO	1-hr	20	3	17	19,550
		CO	8-hr	9	2.1	6.9	7,921
32	Northwest San Bernardino Valley	NO_2	1-hr	0.25	0.15	0.1	189
		CO	1-hr	20	4	16	18,400
		CO	8-hr	9	2.6	6.4	7,347
33	Southwest San Bernardino Valley	NO_2	1-hr	0.25	0	--	189
		CO	1-hr	20	4	16	18,400
		CO	8-hr	9	2.6	6.4	7,347
34	Central San Bernardino Valley 1	NO_2	1-hr	0.25	0.13	0.12	226
		CO	1-hr	20	4	16	18,400
		CO	8-hr	9	2.6	6.4	7,347

a) The current NO2 State AAQS is 0.18 ppm as of March 20, 2008. Table B-1 was prepared when the NO2 State AAQS was 0.25 ppm.
b) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

Table B-1 (Concluded)
Difference in Concentration for the 2000-2002 Period

Source/ Receptor Area	Air Quality Site	Pollutant	Averaging Time	AAQS[a] (ppm)	Observed[b] (ppm)	Difference (ppm)	Difference (ug/m^3)
34	Central San Bernardino Valley 2	NO_2	1-hr	0.25	0.11	0.14	264
		CO	1-hr	20	5	15	17,250
		CO	8-hr	9	4.3	4.7	5,396
35	East San Bernardino Valley	NO_2	1-hr	0.25	0	--	264
		CO	1-hr	20	5	15	17,250
		CO	8-hr	9	4.3	4.7	5,396
37	Central San Bernardino Mountains	NO_2	1-hr	0.25	0	--	264
		CO	1-hr	20	5	15	17,250
		CO	8-hr	9	4.3	4.7	5,396
38	East San Bernardino Mountains	NO_2	1-hr	0.25	0	--	264
		CO	1-hr	20	5	15	17,250
		CO	8-hr	9	4.3	4.7	5,396

a) The current NO2 State AAQS is 0.18 ppm as of March 20, 2008. Table B-1 was prepared when the NO2 State AAQS was 0.25 ppm.
b) The peak concentrations in this appendix were the most recent concentrations available at the time the LSTs were developed. The CEQA practitioner should refer to the peak concentrations in the most recent three-year period.

APPENDIX C

LOCALIZED SIGNIFICANCE THRESHOLD TABLES

The LST mass rate look-up tables are updated annually with the most recent air quality monitoring data. The latest version of the tables can be downloaded from the SCAQMD website at http://www.aqmd.gov/ceqa/handbook/LST/LST.html. Original hard copies of the mass rate LST look-up tables can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by calling (909) 396-2039.

Working Group Meeting #6

Cumulative Impacts from Air Toxics for CEQA Projects

South Coast AQMD

November 6, 2024

2:30 p.m. (PST)

REMOTE MEETING INFORMATION

Join Zoom Webinar Link:
https://scaqmd.zoom.us/j/94556369595

Webinar ID: 945 5636 9595
Dial In: (669) 900 6833



Agenda

I. Overview of Initial Objective and Recap of Previous Working Group Meetings
II. Proposed Revised Cumulative Thresholds and Updated Retrospective Sensitivity Analysis
III. Recent Updates from Other Agencies and Stakeholders
IV. Next Steps
V. Staff Contacts

Recap of Previous Meetings

Why Analyze Cumulative Impacts to Air Toxics?

CEQA requires analysis of direct, indirect, and cumulative environmental impacts[1]

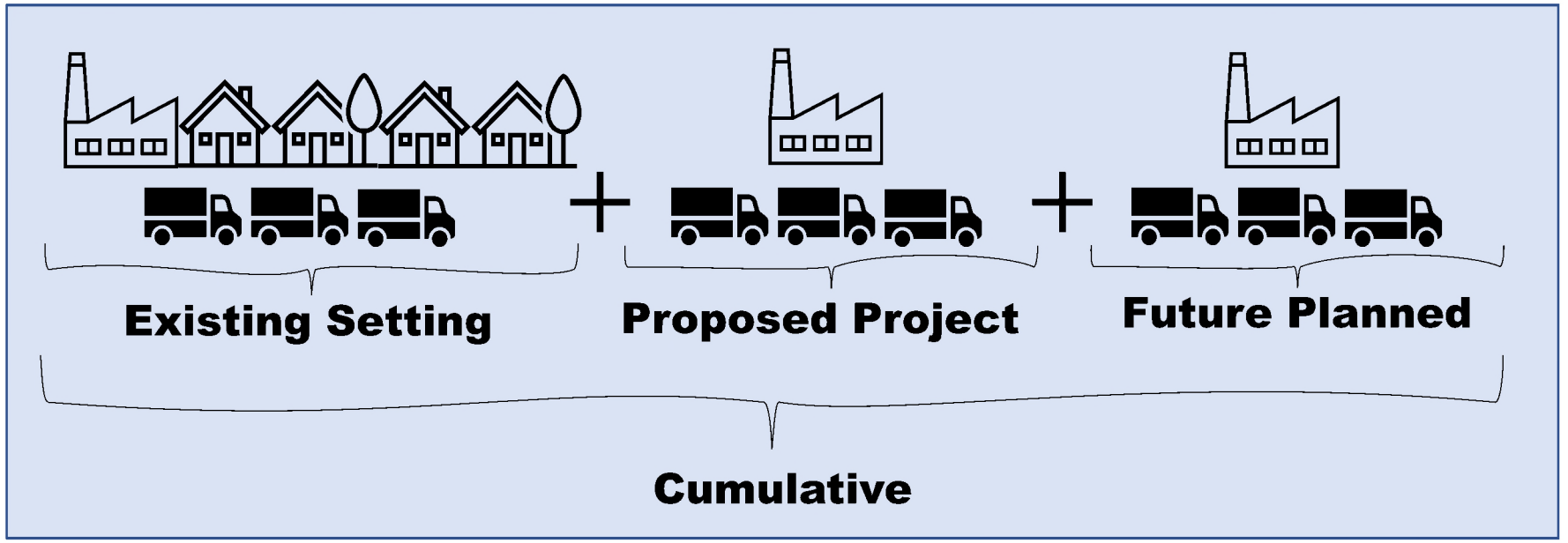
Need for Additional Guidance	Policy Goals	Policy NOT Intended To
• Opportunity to update existing South Coast AQMD cumulative analysis guidance that was developed in 2003[2] • CEQA lawsuit by California Department of Justice in 2021[3] • Community concerns about high health risk impacts from air toxics, particularly from aggregation of warehouses • **South Coast AQMD has initiated policy development to evaluate cumulative air quality impacts from increased concentrations of toxics during project operation**	Provide streamlined guidance that: • Serves as a tool Lead Agencies can rely upon to make informed decisions on projects with potential for cumulative air toxics • Promotes health equity • Addresses community concerns and provides information on a project's potential cumulative health impact	• Delay or stop proposed projects • Automatically assume that all air toxics impacts are cumulatively considerable • Require Environmental Impact Reports (EIRs) for all proposed projects

1. California Environmental Quality Act (CEQA) Guidelines Section 15130
2. South Coast AQMD's White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution, August 2003, accessed here: https://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf
3. People of the State of California v. City of Fontana, San Bernardino Superior Court, Case No. CIVSB2121829

Why We Need to Provide Additional Guidance

Our current policy recommends using the same significance thresholds for project-level and cumulative-level impacts, which may underestimate a project's cumulative impact [1]

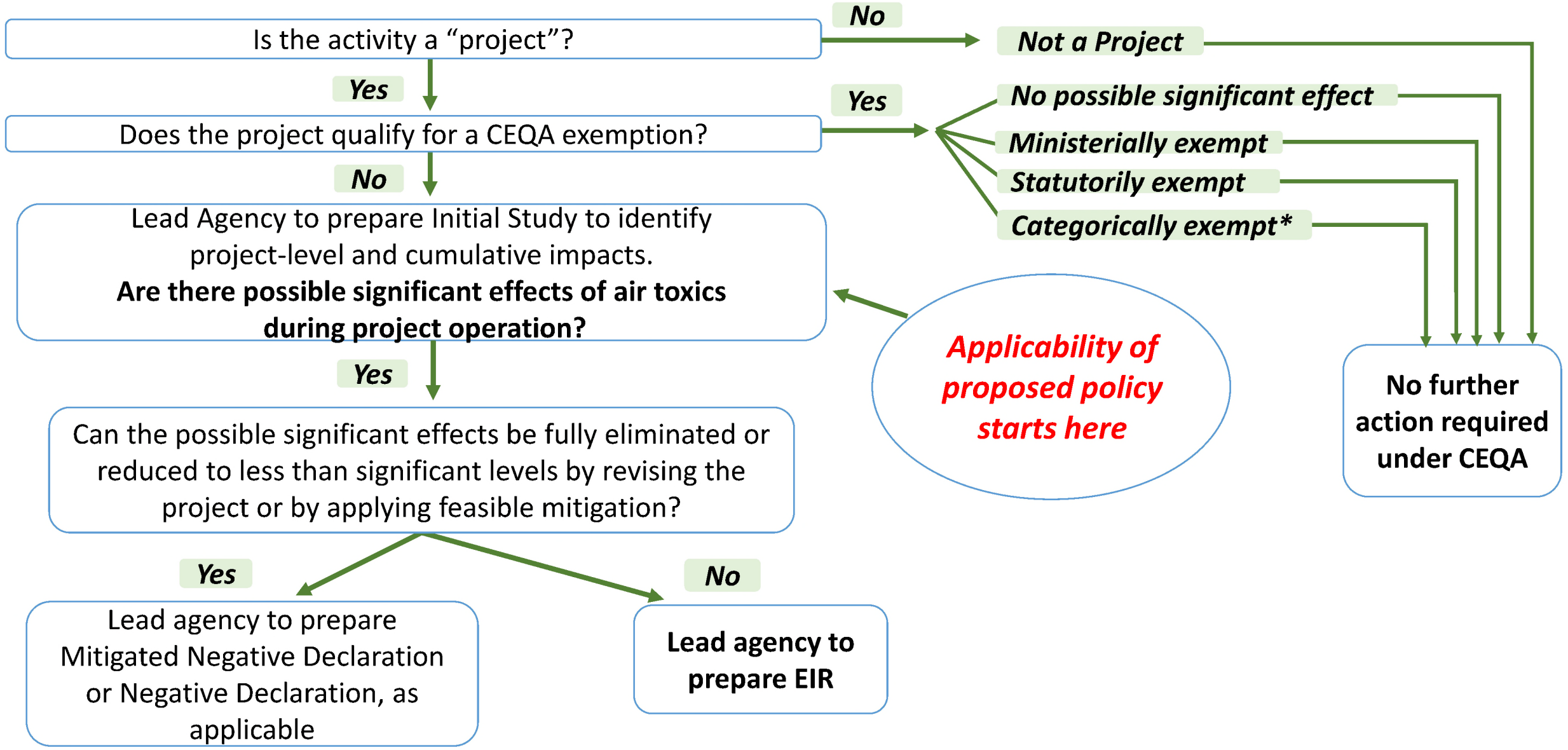
- A project's incremental effect on the environment, though individually limited, may be *cumulatively considerable*[2]



- Cumulatively Considerable – when incremental effects of an individual project are significant when viewed in connection with effects of past, other current, and probable future projects[3]

1. South Coast AQMD's Potential Control Strategies to Address Cumulative Impacts from Air Pollution White Paper, August 2003
2. CEQA Guidelines Section 15064(h) - Determining the Significance of the Environmental Effects Caused by a Project
3. CEQA Guidelines Section 15065(a)(3) - Mandatory Findings of Significance

At what step in the CEQA review process will the Proposed Policy apply?

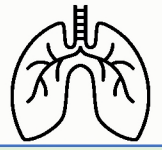


*Provided that none of the exceptions clauses in CEQA Guidelines Section 15300.2 are triggered

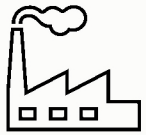
Proposed Policy Considers Key Project Features

Key Project Features

- Potential emissions of air toxics & cancer risk (CR) during operation phase



- Land use type & project size



- Project location and its proximity to sensitive receptors

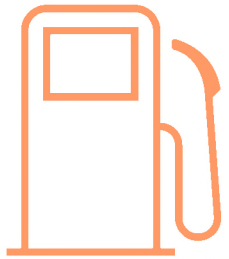


Examples of land uses with varying levels of potential CR impacts



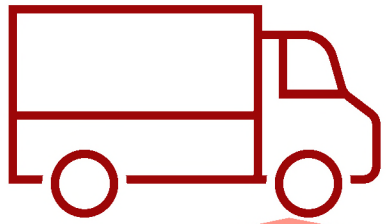
Low CR Impacts

- Residential (apartment, condo, mobile home, single family home development project)
- Commercial (office, bank, government, pharmacy)
- Recreational (arena, park, restaurant, golf course, health club, hotel, theater)
- Educational (daycare, school, college, library, church/temple)
- Retail (auto care, market, mall, shopping store, supermarket)



Medium CR Impacts

- Truck yard (enclosed, parking lot, structure, asphalt/non-asphalt)
- Retail (gas station)
- Certain small industrial projects
- Linear (bridge, road, freeway, new or improvement)



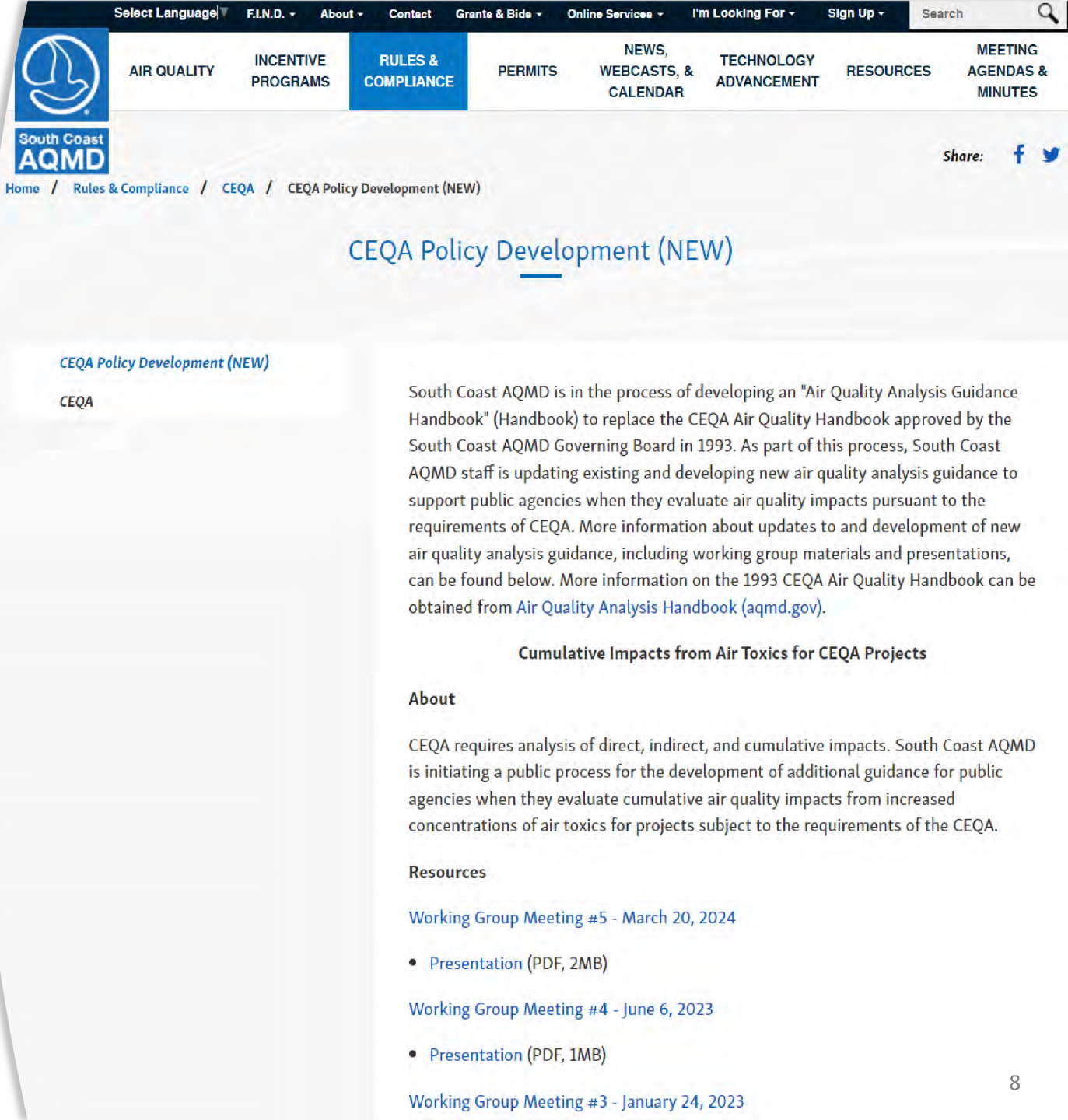
High CR Impacts

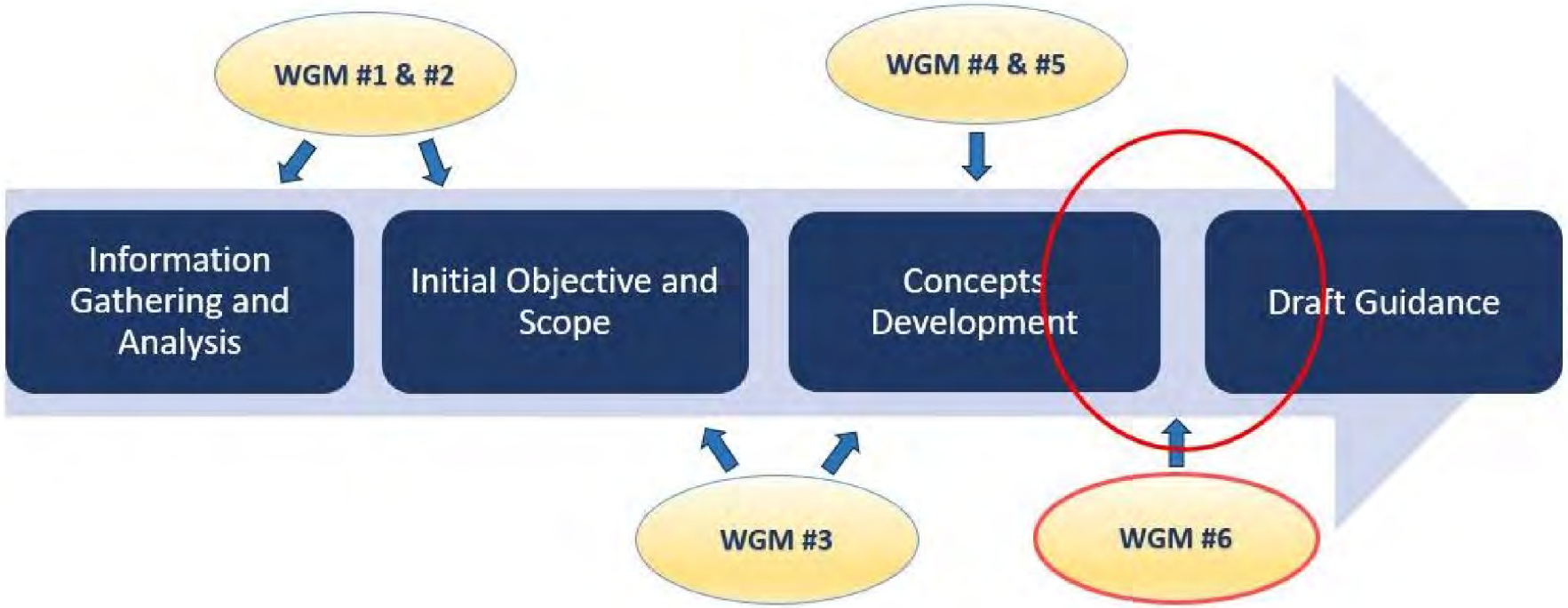
- Industrial (warehouse, light & heavy manufacturing, industrial park)
- Major transportation projects (airport, port, railyard, bus/train station)
- Major planning projects (Master Plan, General Plan, Specific Plan)

Overview of Previous Working Group Meetings

Staff is developing additional guidance for evaluating cumulative impacts from air toxics during the **operation phase** of projects subject to CEQA

- Effort is to provide a step-by-step approach to identify projects that warrant further evaluation
- Staff is working with stakeholders on details of guidance
  - Initiated public process with Working Group Meeting (WGM) #1 in February 2022
  - To date, five WGMs have been held
  - Information on previous WGMs can be found on South Coast AQMD's CEQA Policy Development webpage at http://www.aqmd.gov/home/rules-compliance/ceqa/ceqa-policy-development-(new)





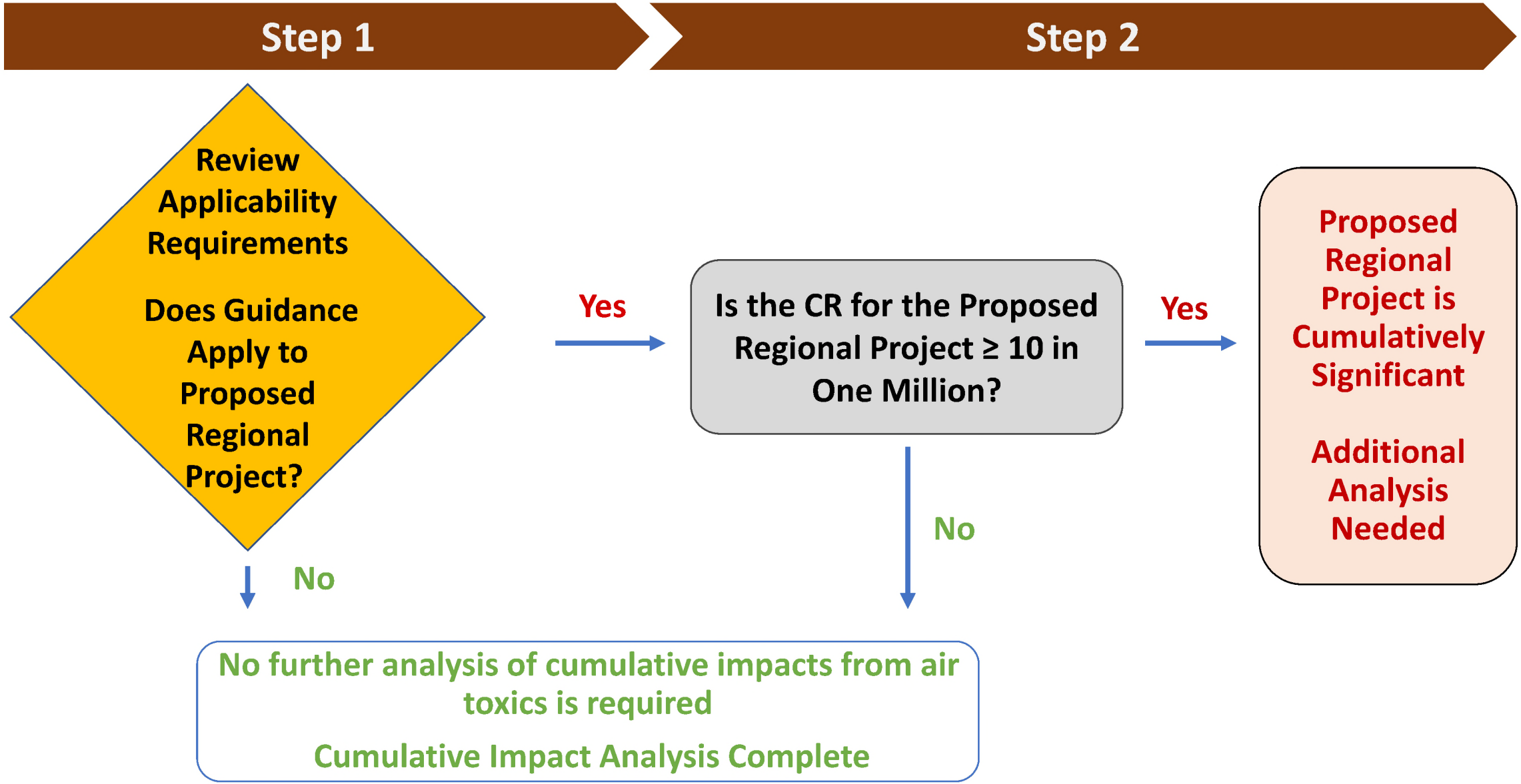
Goals for WGM #6

- Provide updates on criteria for conducting a cumulative impact analysis for TACs
- Seek feedback on updated information

Process for
Regional Projects Analysis

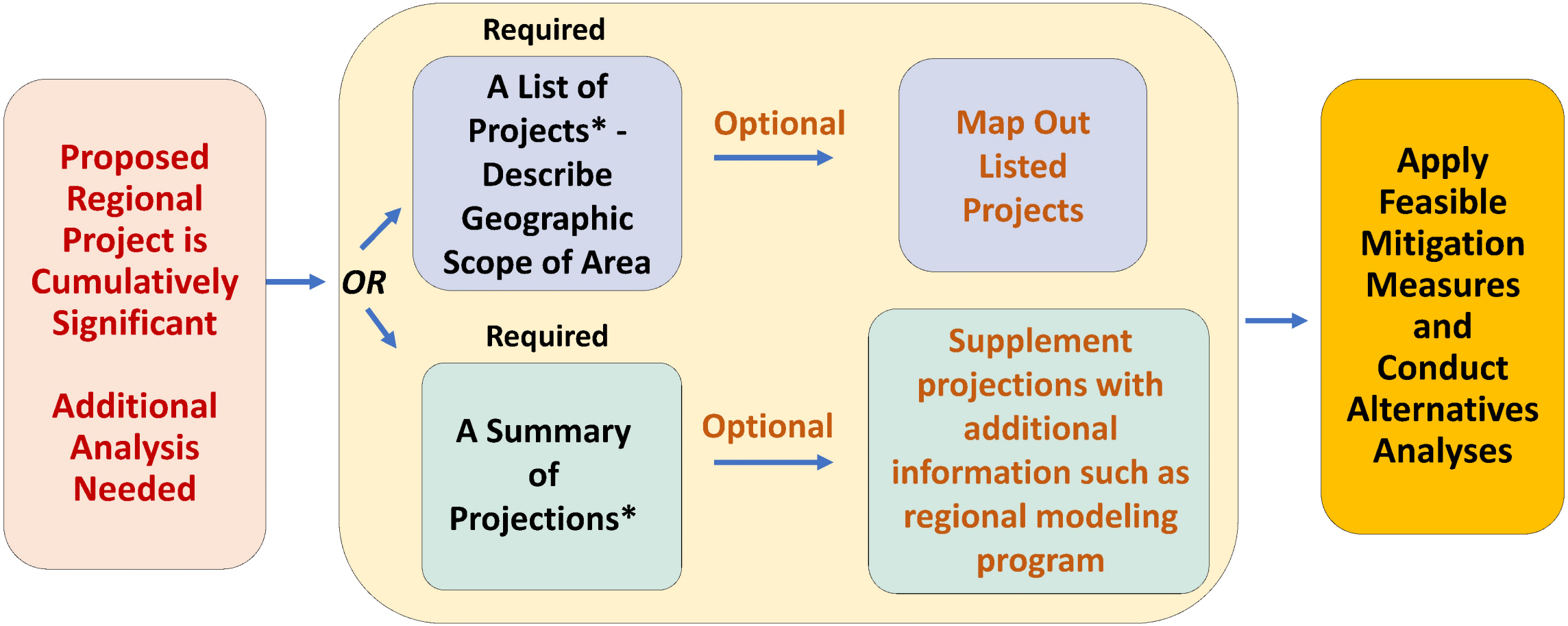


Recap of Process for Analyzing Regional Projects



Recap of Process for Analyzing Regional Projects

Reminder

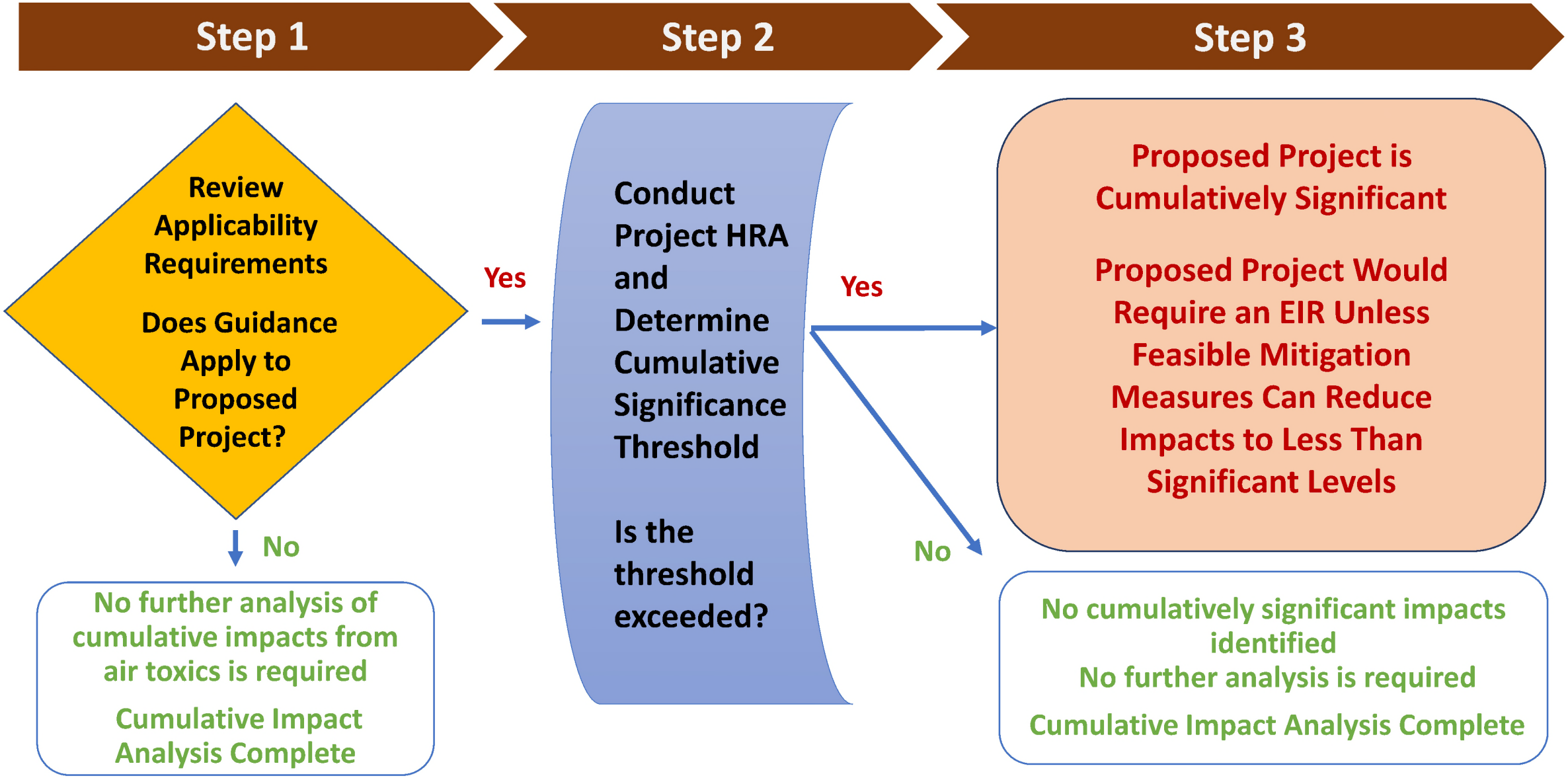


Describe Severity of Cumulative Significant Impacts Via a Qualitative Analysis

*CEQA Guidelines Section 15130(b)

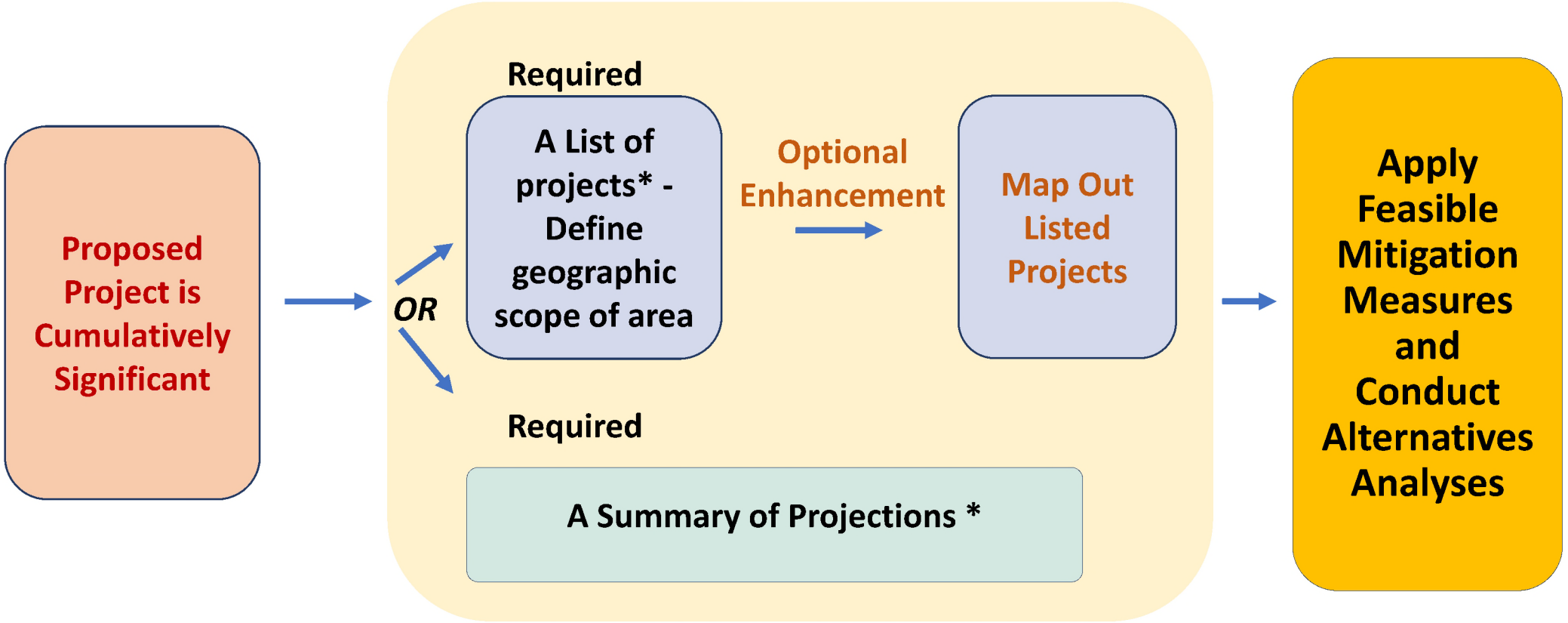
Proposed Revised Process for Project-Level Analysis

Proposed Revised Process for Project-Level Analysis



Proposed Revised Process for Project-Level Analysis

Reminder



Describe Severity of Cumulative Impacts via Qualitative Analysis

*CEQA Guidelines Section 15130(b)

WGM #5 Comments on Previously Proposed Step 3

Determining Cumulative Significance Threshold

Project's Background MATES Cancer Risk	Previously Proposed Initial Threshold Based on Cancer Risk [cases per million]
Most stringent	A (e.g., 1)
> 90th percentile	B (e.g., 3)
90th to 50th percentile	C (e.g., 5)
50th to 30th percentile	D (e.g., 7)
< 30th percentile	E (e.g., 10)

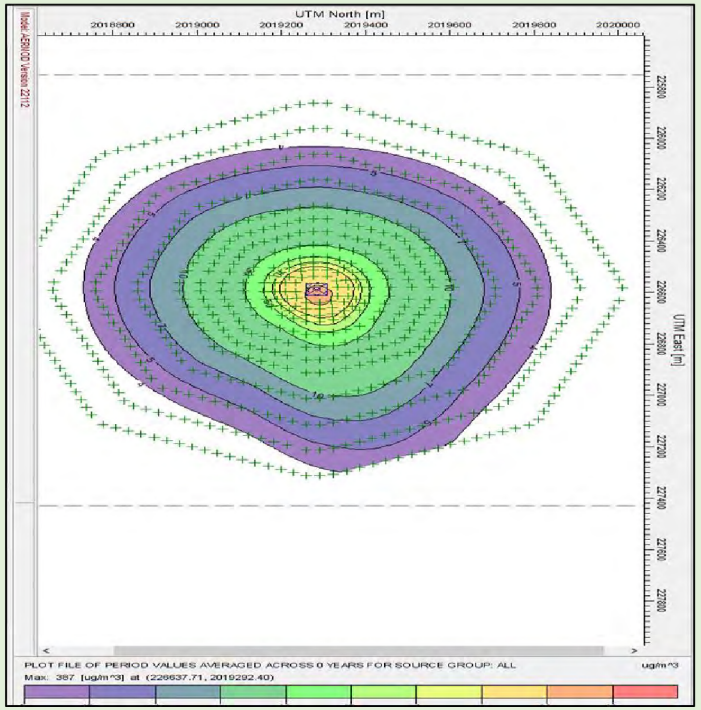
+

Previously Proposed Additional Criteria		Summary of Comments Received
#1	**High Volume Diesel-fueled Sources** Trucks, trains, etc., at or near the Proposed Project site based on certain distance to sensitive receptors	Criterion #1 may result in double-counting
#2	**Post-2018 Projects with High Volume Diesel –fueled Trucks** Along Proposed Project's truck route	Criterion #2 should use a weighted-average of EMFAC2021 data, instead of maximum emission rate from worst-case vehicle type
#3	**Sensitive Receptor Population** Either within AB 617 area or > 80th percentile CalEnviroScreen 4.0	Criterion #3 should not rely on CalEnviroScreen for regulatory purposes
#4	**Other Considerations** Seeking suggestions	

Response to Comments Re: Previously Proposed Criterion #1

Comments from Stakeholders: Criterion #1 may be double counting impacts

- Proposed Project's Cumulative Significance Threshold is based on MATES Cancer Risk percentile and is already addressed
- Proposed Project's truck trip emissions should already be assessed in the CEQA document



South Coast AQMD Response:
Recommend removal of Previously Proposed Criterion #1

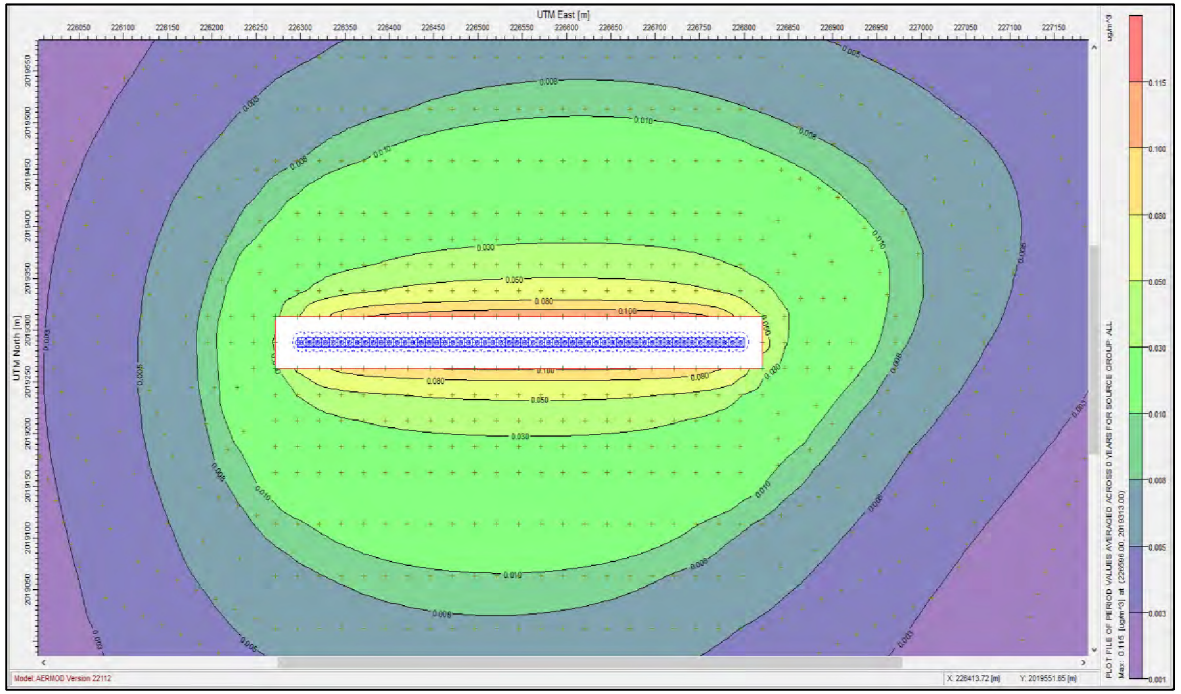
Previously Proposed additional Criteria

#1	**High Volume Diesel-fueled Sources** Trucks, trains, etc., at or near the Proposed Project site based on certain distance to sensitive receptors

Response to Comments Re: Previously Proposed Criterion #2

Comments from Stakeholders: Criterion #2 used overly conservative assumptions and selected the worst-case vehicle type (garbage truck)

- Previously Proposed Criterion #2 used Maximum Value (T7 SWCV Class 8) of PM2.5 RUNEX (g/mile) emission rates, derived from EMFAC2021 rates, derived from EMFAC2021



South Coast AQMD Response: Criterion #2 modified to use **Weighted Average** of PM2.5 RUNEX (g/mile) emission rates, derived from EMFAC2021 modeling results

Weighted Average (instead of Maximum Value) better represents:

- Range of heavy-duty vehicle emissions on the road
- Typical truck types seen in on-road traffic

Weighted Average calculated based on the following vehicle types:

- T6/T7 Trucks, LDT, LHD, Motor Coach, and PTO

Threshold adjusted from 100 in one million to 10 in one million:

- Consistent with South Coast AQMD CEQA, and Rule 1401 threshold
- More conservative and health protective

Latest Met. Station data set V.11 applied

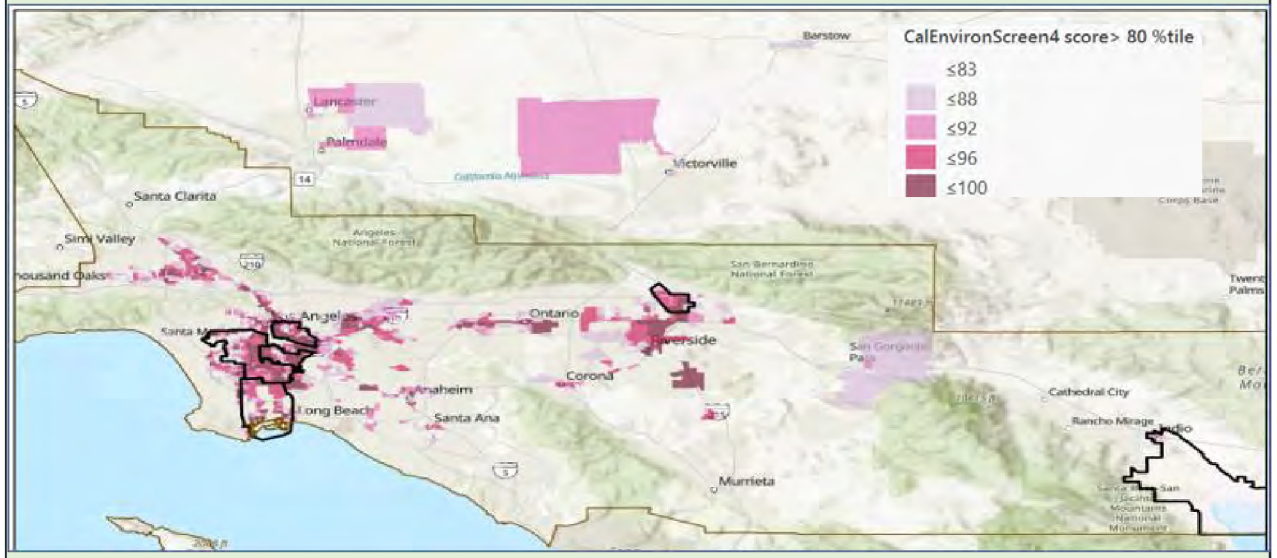
- https://www.aqmd.gov/home/air-quality/meteorological-data/data-for-aermod

Response to Comments Re: Previously Proposed Criterion #3

Comments from Stakeholders: Criterion #3 should not rely on CalEnviroScreen for regulatory purposes

Previously Proposed Criterion #3 would be triggered based on Proposed Project's location either in:

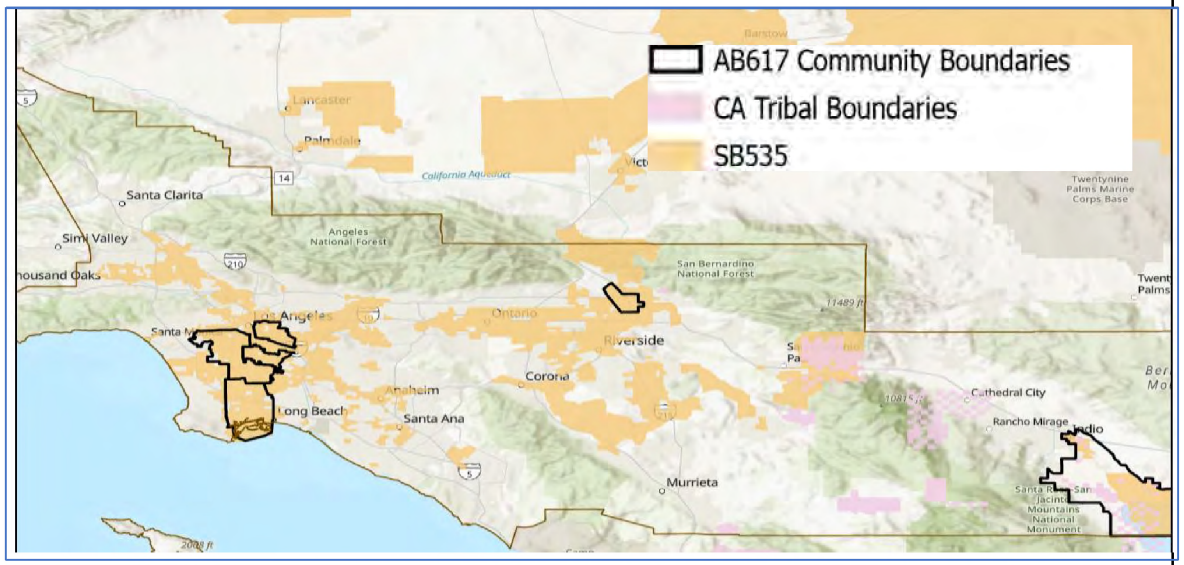
- An AB 617 area or
- Area greater than 80th Percentile in CalEnviroScreen 4.0



Maps provided by South Coast AQMD

South Coast AQMD Response: Recommend **keeping AB 617 but using SB535 Disadvantaged Communities** to Designate Sensitive Receptor Population in lieu of CalEnviroScreen because:

- SB535 targets top 25% of CalEnviroScreen tracts, along with additional communities
- SB535 is more comprehensive and is the most recent state designation



Maps provided by South Coast AQMD

Comparison of Previous Proposal vs. Current Proposal

Previously Proposed Cumulative Significance Threshold

Project's Background MATES* Cancer Risk	Previously Proposed Initial Threshold Based on Cancer Risk [cases per million]
Most stringent	A (e.g., 1)
> 90th percentile	B (e.g., 3)
90th to 50th percentile	C (e.g., 5)
50th to 30th percentile	D (e.g., 7)
< 30th percentile	E (e.g., 10)

Previously Proposed Additional Criteria

#1	**High Volume Diesel-fueled Sources** Trucks, trains, etc., at or near the Proposed Project site based on certain distance to sensitive receptors
#2	**Post-2018 Projects with High Volume Diesel –fueled Trucks** Along Proposed Project's truck route
#3	**Sensitive Receptor Population** Either within AB 617 area or > 80th percentile CalEnviroScreen 4.0
#4	**Other Considerations** Seeking suggestions

Step 3

Cumulative Significance Threshold

Currently Proposed Cumulative Significance Threshold

Revised Initial Threshold

Project's Background MATES* Cancer Risk	Proposed Revised Initial Threshold Based on Cancer Risk [per million]
Most stringent	1
> 90th percentile	3
90th to 50th percentile	5
50th to 30th percentile	7
< 30th percentile	10

Revised Additional Criteria (to Adjust Stringency)

#1	**Post-2018 Projects with High Volume Diesel –fueled Trucks** Along Proposed Project's truck route†
#2	**Health Sensitive Population** Either within SB535 or AB 617 areas

Step 2

Cumulative Significance Threshold

Proposed Revised Project-Level Analysis: Step 2 of 3 – Determine Cumulative Significance Threshold

Proposed Revised Initial Threshold

Project's Background MATES* Cancer Risk	Proposed Revised Initial Threshold Based on Cancer Risk [per million]
Most stringent	1
> 90th percentile	3
90th to 50th percentile	5
50th to 30th percentile	7
< 30th percentile	10

Proposed Revised Additional Criteria (to Adjust Stringency)

Proposed Revised Additional Criteria	
#1	Post-2018 Projects with High Volume Diesel –fueled Trucks Along Proposed Project's truck route†
#2	Health Sensitive Population Either within SB535 or AB 617 areas

Step 2

Cumulative Significance Threshold

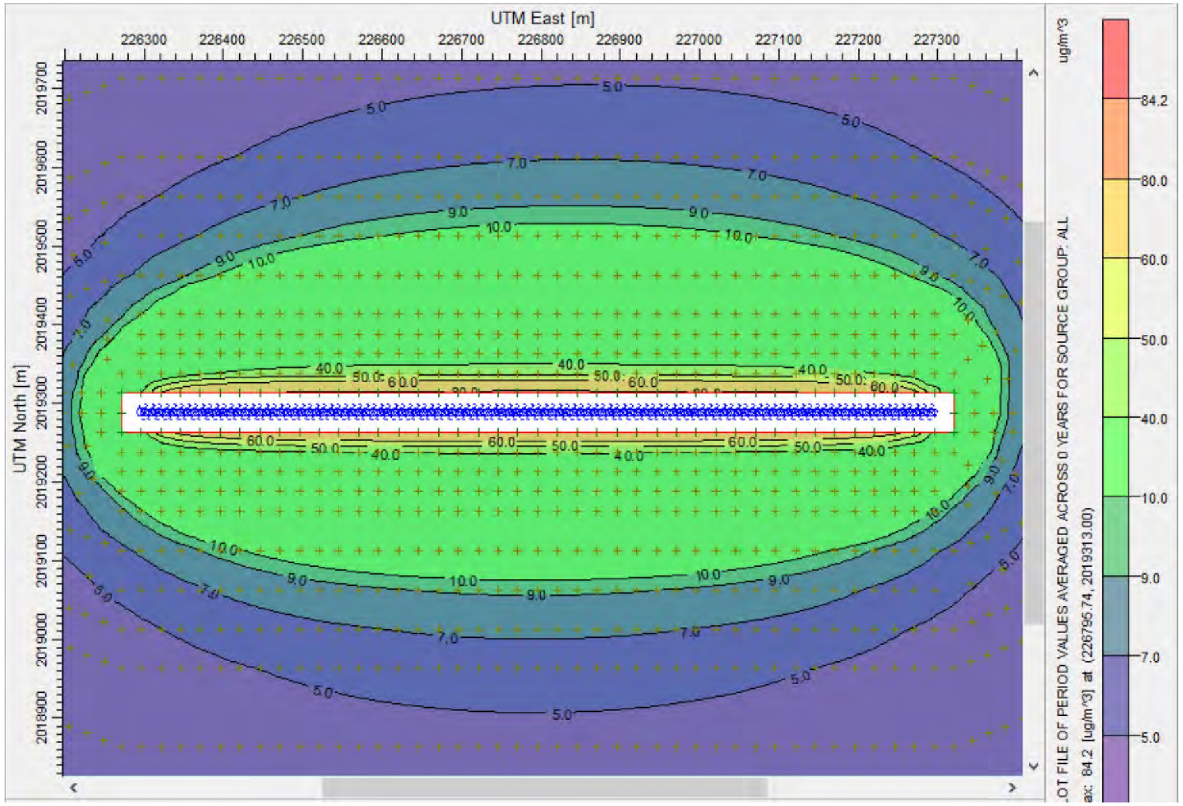
* Most current MATES V is based on 2018 data

- If one or more additional criteria apply, the initial threshold will be adjusted to the next, more stringent level. For example, the least stringent initial threshold is 10 in one million. If Criterion #1 applies, the cumulative threshold will adjust to a more stringent level: 7 in one million. If Criterion #2 also applies, the cumulative threshold will further adjust to the next level: 5 in one million.
- † Truck route is from the Proposed Project site to major freeway, within certain distance to sensitive receptors, add all diesel-fueled trucks from post-2018 projects.

Proposed Revised Criterion #1:
High Volume Diesel-Fueled Trucks Along Route to Freeway

- Cancer Risk (CR) calculated based on OEHHA 2015 Risk Assessment Guidelines:
  - Residential cancer: 30-year exposure-RMP Using the Derived Method

- Calculated truck trips that trigger **CR threshold of 10 in a million** from the calculated ground level concentration (µg/m^3)
  - **951 one-way trips/day**



Revised Criterion #1 truck trips (Annual Average Daily Traffic (AADT) =
[Most recent Caltrans truck trips + Proposed Project truck trips + Future truck trips (if known) - 2018 Caltrans truck trips]

Response to Stakeholder Questions on Modeling Parameters used for Developing Proposed Revised Criterion #1: Receptors and source type

Receptor Type and Spacing:

Receptor Type	Number of Receptor
Cartesian Plant Boundary	4
Cartesian Plant Boundary Intermediate	84
Fenceline Grid	1824

AERMOD Segment Distance (meter)	AERMOD Tier Spacing (meter)
100	25
200	50
400	100

Source Type:

- Along Proposed Project's truck route
- Calculated CR for 25 Meteorological Stations (Dataset V.11) using AERMOD Version 23132
- Line Volume Source: Truck route from project site to major freeway

Model Type	Model ER (g/s)	Segment Distance (m)	Emission Rate (one truck drive one time per day)	CR Threshold (in the million)	DPM emission rate (weighted Avg.) - (g/mile)	Plume Hight (m)	Plume Width (m)
Line Volume	1	1000	1.5E-07 (g/s)	10	0.02	5.1	9.0

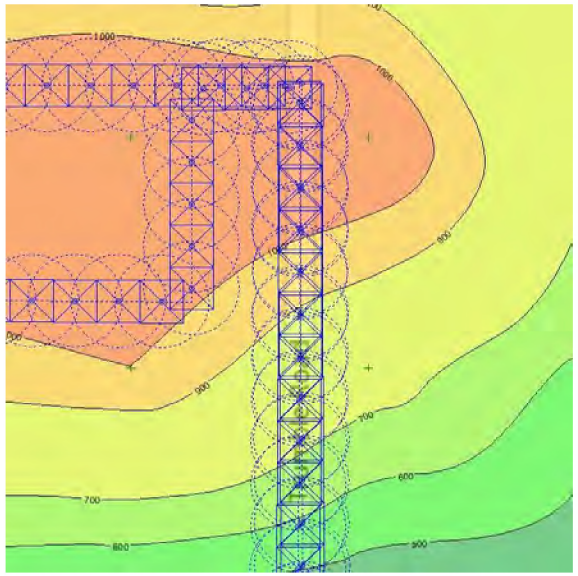
Proposed Revised Criterion #1: Sensitivity Analysis

Staff ran different types of sources in AERMOD and compared results for **KCNO Meteorological Station**

Source Type (1000 meter-length)	Emission Rate Used In The Model (g/s) or ($g/s/m^2$)	Emission Rate For One Truck	One-Way Trips Per Day
Rline Source (**not regulatory default option**)*	1 ($g/s/m^2$)	1.6E-11 ($g/s/m^2$)	**1,363**
Line Source	1 ($g/s/m^2$)	1.6E-11 ($g/s/m^2$)	**1,176**
Line Volume Source	**1 (g/s)**	**1.5E-07 (g/s)**	**1,010**

*AERMOD's RLINE source algorithm can be used to represent a travelled roadway with either single or multiple lanes of traffic, https://www.weblakes.com/2019/10/15/modeling-tip-october-2019/





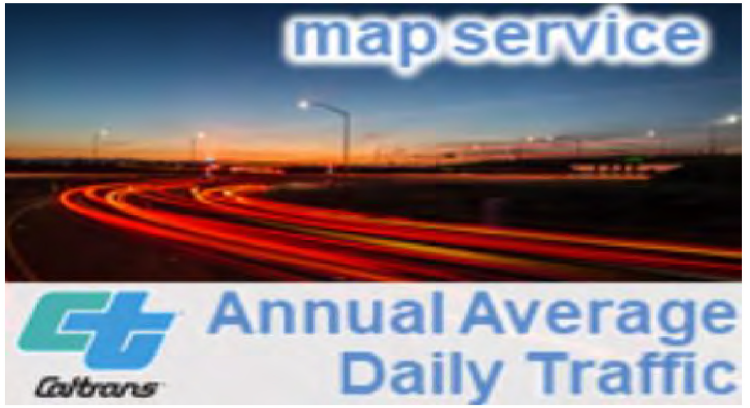
Example of Line-Volume Source Type in AERMOD: Off-site Diesel Truck Travel and On-site Diesel Truck Circulation

Available Data Resources When Evaluating Proposed Revised Criterion #1

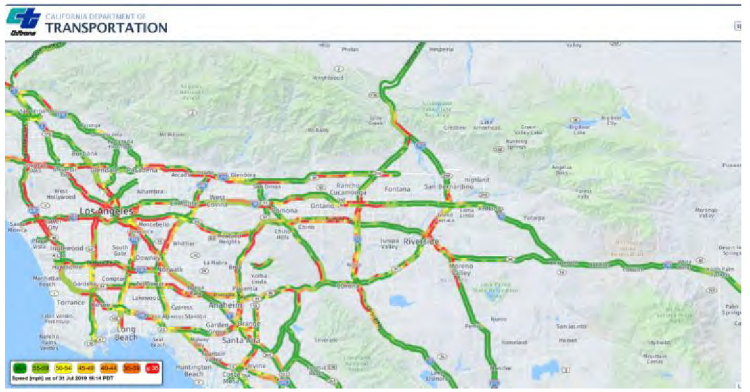
Caltrans Traffic Census Program

- Truck traffic volumes for freeway on- and off-ramps- Annual Average Daily Traffic (AADT) (https://dot.ca.gov/programs/traffic-operations/census)
- Highway datasets (Caltrans Home (arcgis.com))
- Caltrans Performance Measurement System (PeMS)

Other Traffic Data from City, County, and Other Government Agencies







Retrospective Sensitivity Analysis Comparison

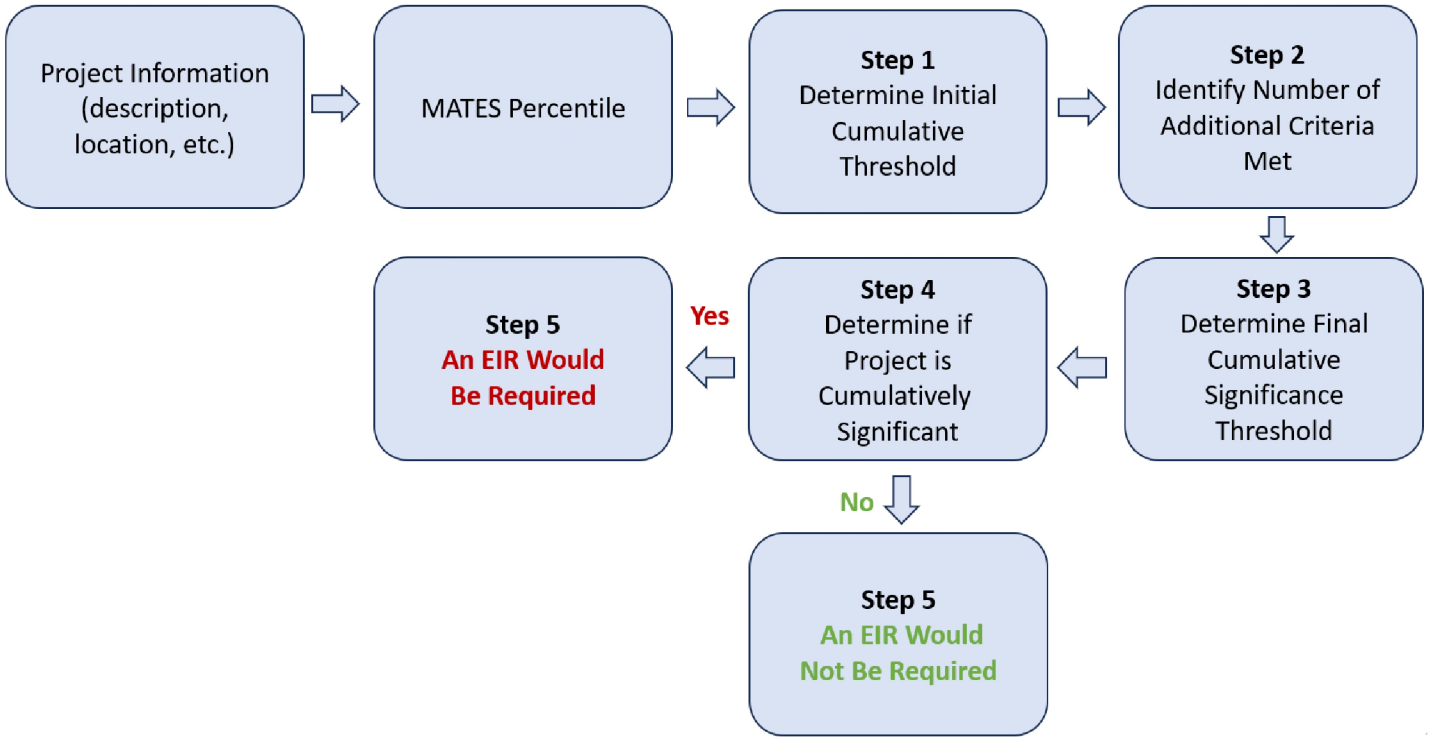
Retrospective Sensitivity Analysis Comparison

	Analysis Based on Previously Proposed Methodology (WGM #5)	**Analysis Based on Proposed Revised Methodology**
Initial Thresholds	Based on MATES Percentile	Based on MATES Percentile
Additional Criteria	Criterion #1: High Volume Diesel-fueled Mobile Sources (Trucks, trains, etc., at or near the Proposed Project site based on certain distance to sensitive receptors) **91 one-way truck trips/day**	Removed
	Criterion #2: Post-2018 Projects with High Volume Diesel –fueled Trucks (Along Proposed Project's truck route) **368 one-way truck trips/day**	Criterion #1: Post-2018 Projects with High Volume Diesel –fueled Trucks (Along Proposed Project's truck route) **951 one-way truck trips/day**
	Criterion #3: Sensitive Receptor Population **Either within AB 617 area or > 80th percentile CalEnviroScreen 4.0**	Criterion #2: Health Sensitive Population **Either within SB 535 or AB 617 areas**

Recap: Methodology to Determine if an EIR is Required

Process to determine if an EIR is required:

- Gather project information (e.g., description, location)
- **Step 1** - Determine the **Initial Cumulative Threshold** based on MATES percentile
- **Step 2** - Identify if project triggers any of the additional criteria
- **Step 3** - Determine the **Final Cumulative Significance Threshold** based on the initial cumulative thresholds in Step 1 and the number of additional criteria met in Step 2
- **Step 4** - Compare the project's operational CR to the **Final Cumulative Significance Threshold** and determine if project is cumulatively significant
- **Step 5** – For a cumulatively significant project, an EIR would be required unless the project design is modified, or mitigation can reduce impacts less than significant levels



Results of Retrospective Sensitivity Analysis For Warehouses & Distribution Centers Land Use - Example

Project Description in MND: Construction of a 232,575 square foot warehouse and a hotel with 125 rooms on 15-acre site. Warehouse building with 39 dock doors and 142 daily truck trips.

Project's operational CR = 1.1 in one million.

Step 1 – Determine the Initial Cumulative Threshold

Project's MATES Percentile	Initial Cumulative Threshold
76	5

Proposed Revised Initial Threshold

Project's Background MATES* Cancer Risk	Proposed Revised Initial Threshold Based on Cancer Risk [per million]
Most stringent	1
> 90th percentile	3
90th to 50th percentile	5
50th to 30th percentile	7
< 30th percentile	10

Step 2 – Determine the Number of Proposed Revised Additional Criteria Triggered

- Criterion # 1: Post-2018 Projects with High Volume Diesel –fueled Trucks

Revised Criterion #1 truck trips (Annual Average Daily Traffic (AADT) =
[Most recent Caltrans truck trips + Proposed Project truck trips + Future truck trips (if known) - 2018 Caltrans truck trips]

Most recent – 2022 Caltrans Annual Average Daily Truck Traffic (AADT)	Proposed Project Truck Trips per Day	2018 Caltrans Truck Numbers (AADT)	Calculated Criterion #1 Truck Trips per day	Criterion # 1 Threshold Truck Trips per day	Criterion # 1 Triggered?
22,538	142	20,296	2,384	951	Yes

Results of Retrospective Sensitivity Analysis For Warehouses & Distribution Centers Land Use - Example (Cont'd)

Step 2 – Determine the Number of Proposed Revised Additional Criteria Triggered (cont'd)

- Criterion # 2: Health Sensitive Population

Project is in SB 535 areas?	Project is in AB 617 areas?	Criterion #2 Triggered?
No	No	No

Step 3 - Determine the Final Cumulative Significance Threshold

Initial Cumulative Threshold	Criterion #1 Triggered?	Criterion #2 Triggered?	Final Cumulative Significance Threshold
5	Yes	No	3

Step 4 – Compare the Project's Operational CR to the Final Cumulative Significance Threshold

Project's Operational CR	Final Cumulative Significance Threshold	Project is Cumulatively Significant?
1.1	3	No

Results of Previous versus Proposed Revised Retrospective Sensitivity Analysis

Land Use Type	Total Projects Reviewed	How Many Projects Would Require an EIR? (Number/%)	
		Previous Results	Current Results
1 – Goods Movement†	13	2 / 15%	2 / 15%
2 – Warehouses & Distribution Centers*	37	15 / 41%	7 / 19%
3 – Airports†	4	0 / 0%	0 / 0%
4 – Industrial & Commercial*	17	4 / 24%	1 / 6%
5 – Waste and Water-Related*	26	0 / 0%	0 / 0%
6 – Utilities†	10	1 / 10%	1 / 10%

* Land Use with a 1-year project list from June 2022 to June 2023
† Land Use with a 5-year project list from June 2018 to June 2023

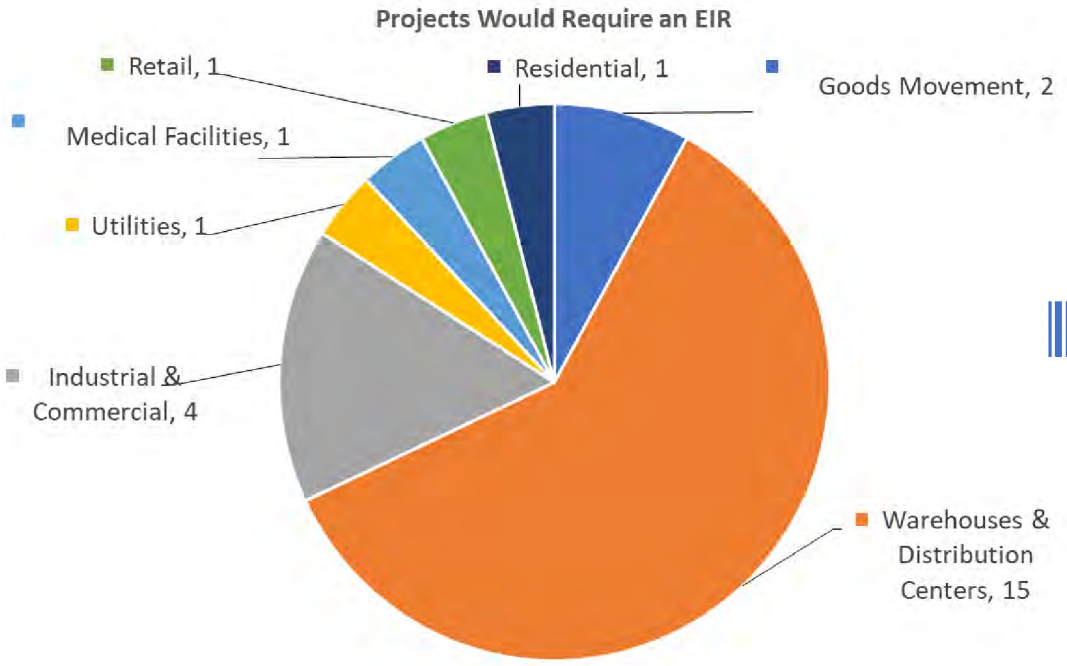
Results of Previous versus Proposed Revised Retrospective Sensitivity Analysis

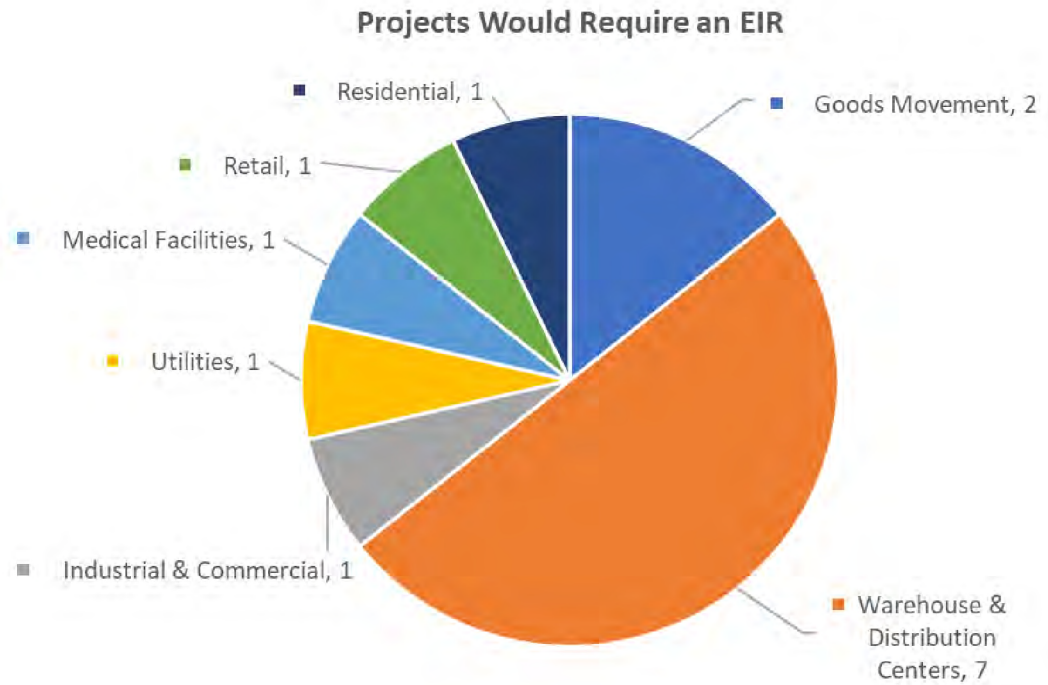
Land Use Type	Total Projects Reviewed	How Many Projects Would Require an EIR? (Number/%)	
		Previous Results	Revised Results
7 – Transportation*	10	0 / 0%	0 / 0%
8 – Institution*	26	0 / 0%	0 / 0%
9 – Medical Facilities†	16	1 / 6%	1 / 6%
10 – Retail*	16	1 / 6%	1 / 6%
11 – General Land Use (Residential)*	57	1 / 2%	1 / 2%
12 – Plans and Regulations*	9	0 / 0%	0 / 0%

* Land Use with a 1-year project list from June 2022 to June 2023
† Land Use with a 5-year project list from June 2018 to June 2023

Results of Previous versus Proposed Revised Retrospective Sensitivity Analysis

- Previously, EIRs would be required for approximately 10% of the total projects reviewed, with more than half attributed to Warehouses and Distribution Centers land use
- With the proposed revised additional criteria, EIRs would be required for approx. 6% of the total projects reviewed, with half attributed to Warehouses and Distribution Centers land use





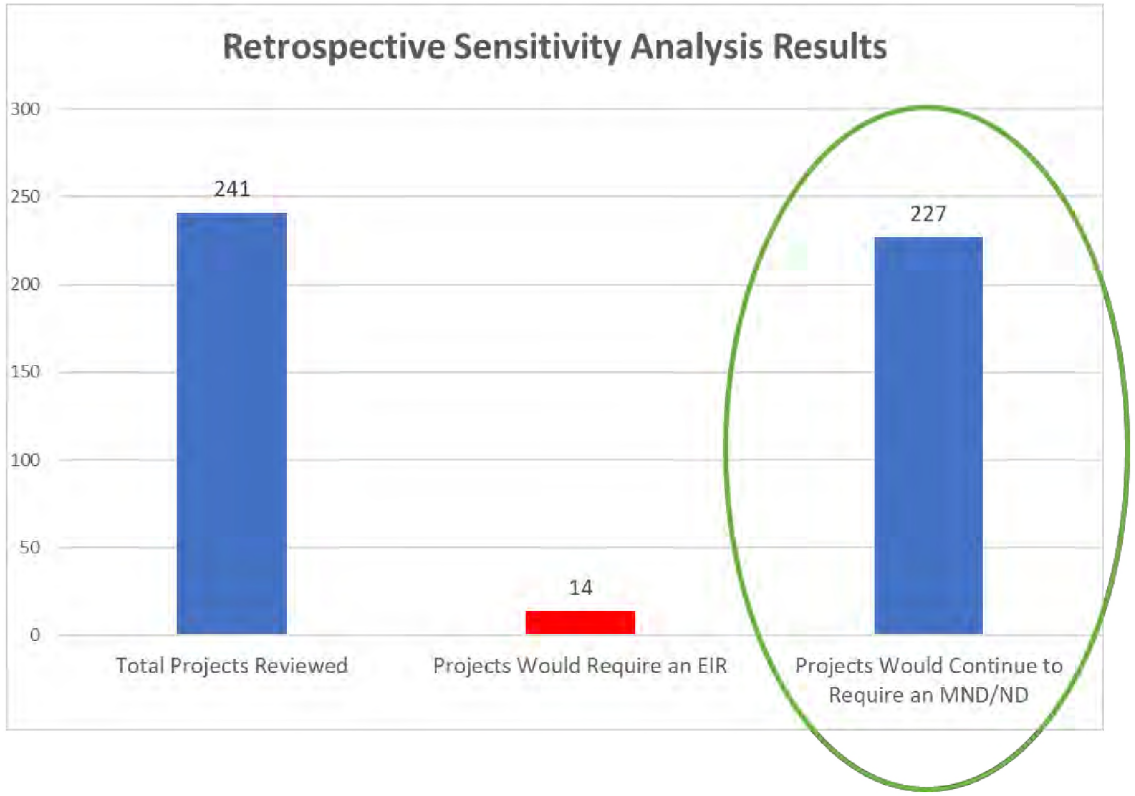
Previous Results Presented in WGM # 5

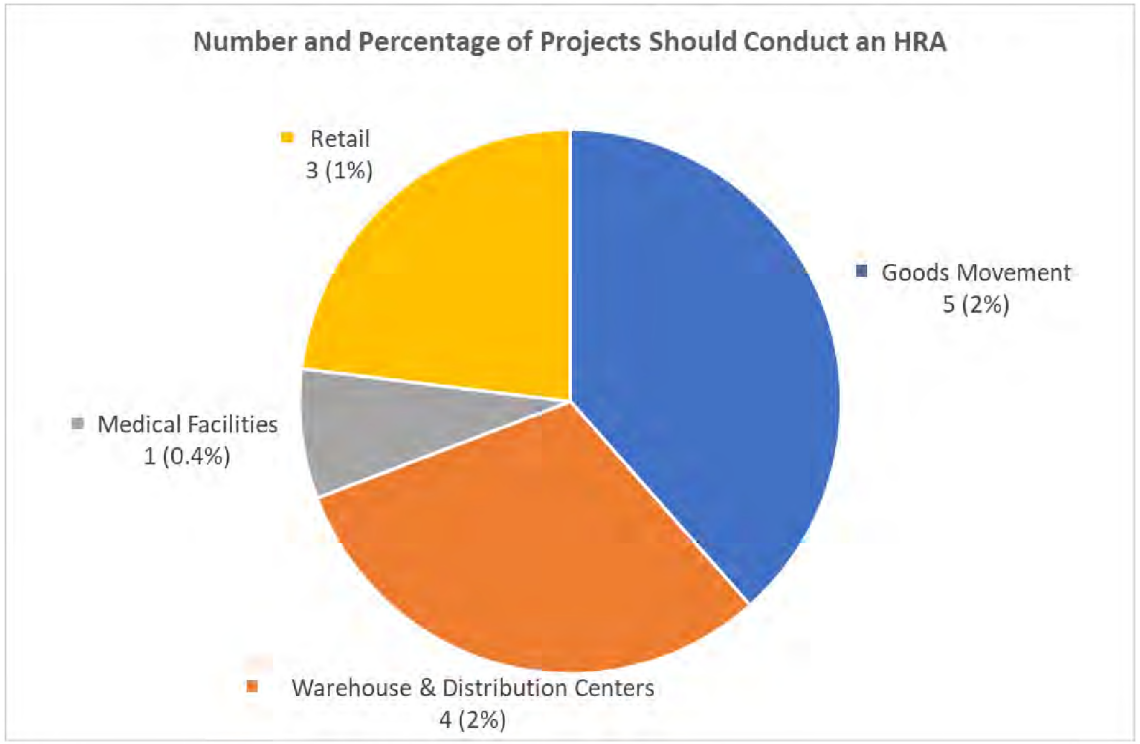
Revised Results

Results of Proposed Revised Retrospective Sensitivity Analysis

Out of 227 reviewed projects that would continue to require an MND/ND

- 13 projects should conduct an HRA instead of qualitative or non-HRA analysis
- Resulting in approx. 6% more projects would need to prepare an HRA analysis
- More than half of the project that would prepare an HRA under the proposal policy are in Goods Movement and Warehouse & Distribution Centers Land Uses



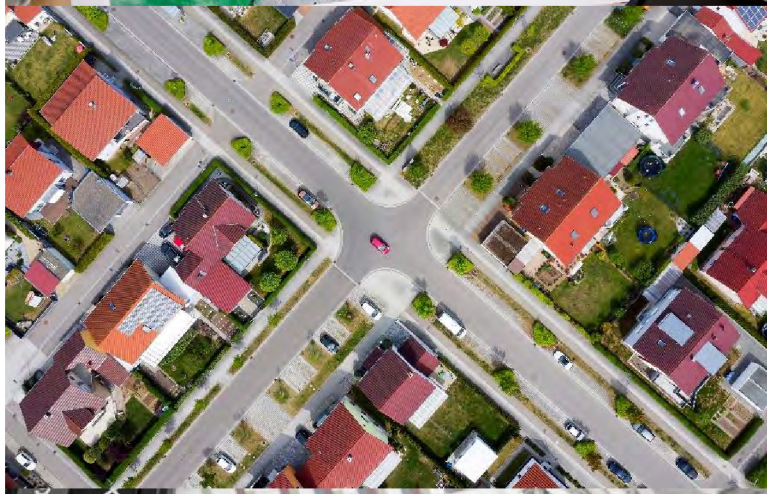


Retrospective Determination Whether An HRA Should Have Been Conducted

Factors considered in the retrospective sensitivity analysis to determine if an HRA would be needed

- Project land use types (e.g., warehouse, retail, residential, etc.)
- Project description and information (e.g., truck trips, sources and types of emission during operation)
- Location and surrounding area (e.g., industrial, residential, commercial, etc.)
- Distance to the nearest sensitive receptors
- Truck traffic and truck routes (if applicable)





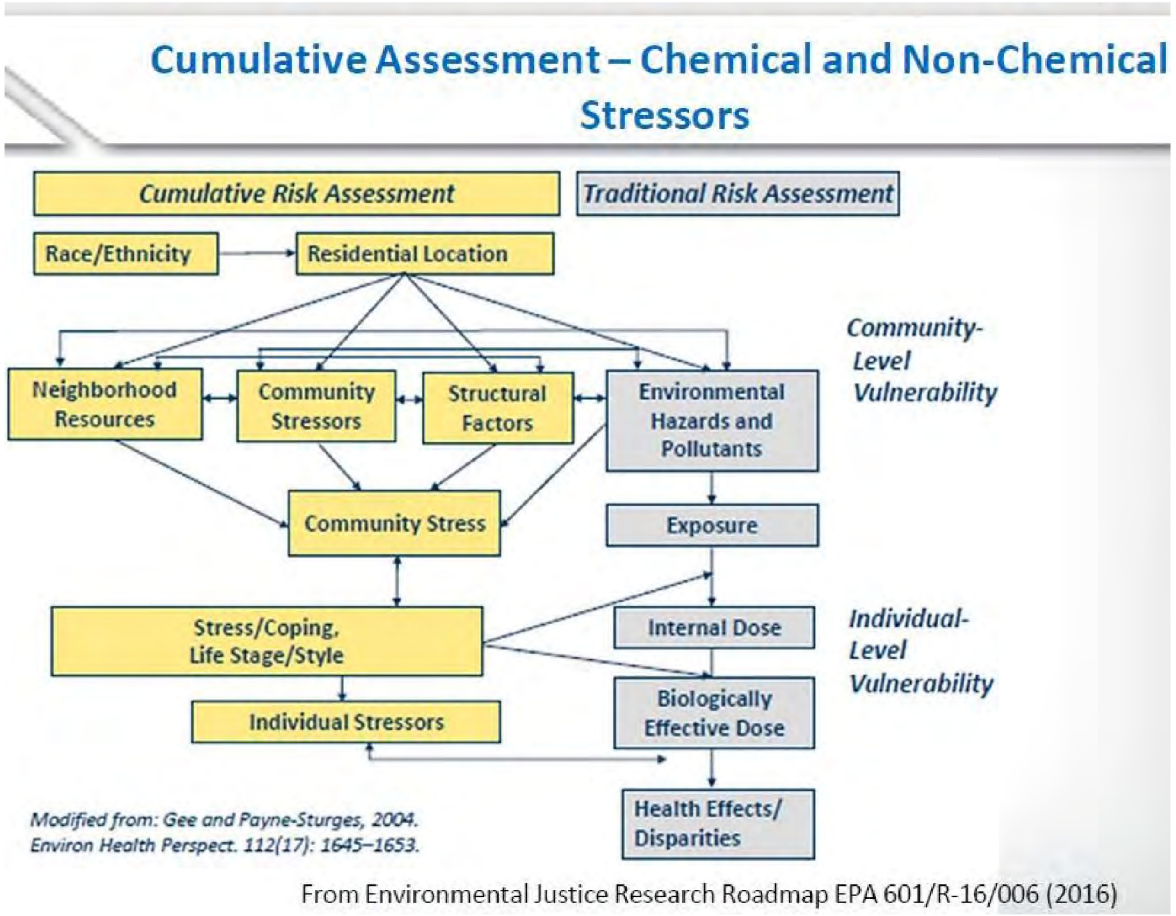


Example of a Project That May Need an HRA

	Example 1	Example 2	Example 3
Project Type	Warehouse 	Residential 	Retail 
Project Description in CEQA Document	Develop a 164,187 sq. ft industrial building with 23 dock doors and 110 daily truck trips	Develop 118 residential units and recreational uses	Develop 3,468 sq. ft of restaurant uses
Surrounding Area	Residential, Commercial & Industrial	Public Park & Residential	Residential & Commercial
Distance to the Nearest Sensitive Receptor	< 50 ft	< 100 ft	< 100 ft
Potential HRA Triggers During Operation	DPM from truck trips and proximity to the sensitive receptors	None	None
HRA Needed ? (Yes/No)	**Yes**	**No**	**No**

Updates from Other Agencies

Updates From Other Agencies:
U.S. Environmental Protection Agency's (U.S. EPA) Cumulative Impacts Research



From Environmental Justice Research Roadmap EPA 601/R-16/006 (2016)

Evaluating Non-Chemical Stressors for Children's Environmental Health Protection: Workshop Summary (May 2024)[1]

- Summarizes 2-day virtual workshop devoted to non-chemical stressors within a chemical stressor paradigm (workshop held on October 6 & 7, 2021)
- Workshop to be used for upcoming research planning
- Research on interrelationships between chemical and non-chemical stressors and how these interactions affect health and well-being is still in its infancy
- Identified four most important non-chemical stressors (for further research) as: 1) Geography; 2) Neighborhood Environment & Characteristics; 3) Housing Stock; and 4) Racism

1. Tulve N., Eisenhauer E., Essoka J., Hahn I., Harwell M., Julius S., Mazur S., Nye M., and Shatas A. Evaluating Non-Chemical Stressors for Children's Environmental Health Protection: Workshop Summary. U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA/600/R-24/082. 2024. Accessed here: https://www.epa.gov/healthresearch/cumulative-impacts-research

Updates From Other Agencies:
Massachusetts Department of Environmental Protection (MassDEP)

Cumulative Impact Analysis (CIA) Regulation for Air Quality Permits

On 3/29/24 MassDEP promulgated amendments to 310 Code of Massachusetts Regulations (CMR) 7.00 *Air Pollution Control,* requiring applicants to conduct a CIA as part of a Comprehensive Plan Application (CPA) for facilities located in or near EJ populations[1,2]

The amendments apply to permit applications filed with MassDEP on or after 7/1/2024

CIA amendment requirements are contained in a new section, 310 CMR 7.02(14), and require an applicant to:

- Perform enhanced public outreach to and involvement of EJ populations
- Assess existing community conditions
- Analyze cumulative impacts of a proposed project

MassDEP plans to review this program within two years of the effective date of the regulations

1. Information on MassDEP's CIA in Air Quality Permitting, accessed here: https://www.mass.gov/info-details/cumulative-impact-analysis-in-air-quality-permitting
2. Press release found here: https://www.mass.gov/news/massachusetts-becomes-first-state-to-require-analysis-of-cumulative-impacts-for-air-quality-permits-near-environmental-justice-populations

Updates From Other Agencies:
Bay Area Air Quality Management District (BAAQMD) - Advisory Council Meeting[1]

Focus: Cumulative Impact Studies

- 5 meetings held since March 2024
- Last Meeting on October 30, 2024

Key takeaways:

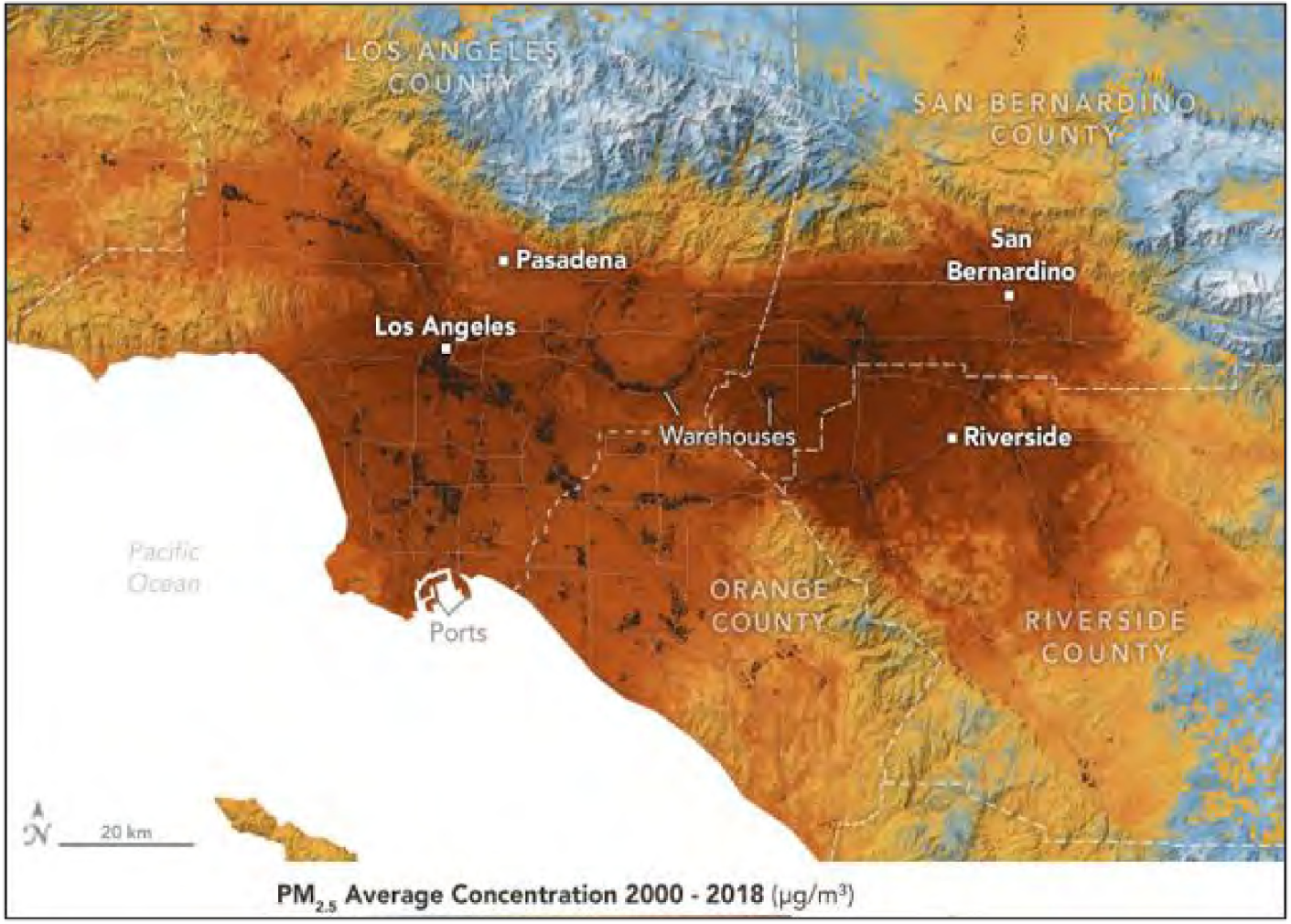
- Discussed how to better address cumulative impacts in air district policies and programs, including air quality planning, CEQA, permitting, and stationary source regulations
- Identified areas for improvement in CEQA:
    - Incorporate the Air District-developed local risk methodology for PM2.5
    - Set more protective significance thresholds in overburdened and vulnerable communities
    - Incorporate consideration of synergistic effects into significance determinations for air toxics

1. 2024 BAAQMD's Advisory Council Agendas, Minutes & Media can be found at: https://www.baaqmd.gov/en/about-the-air-district/advisory-council/agendasreports

Updates From Other Agencies:
National Aeronautics and Space Administration (NASA) Study [1]

NASA-Funded Study Assesses Pollution Near Los Angeles-Area Warehouses (Oct. 2024)

A data visualization shows the average PM2.5 concentration in the Los Angeles region from 2000 to 2018, along with the locations of nearly 11,000 warehouses. Darker red indicates higher concentration of these toxic particles; small black circles represent warehouse locations.



1. The study from NASA can be found at: https://www.nasa.gov/earth/nasa-funded-study-assesses-pollution-near-los-angeles-area-warehouses/

California Assembly Bill No. 98 (AB 98)[1]

Governor Gavin Newsom signed AB 98 into law on September 29, 2024.

AB 98 prescribes new regulations for logistics use developments in California, aiming to address environmental and community impacts.

Applies to: All new or expanded warehouse developments.

Key requirements:

- **Warehouse design and build standards:** Includes design, location, parking, truck routing plans, zero-emissions technology, energy efficiency, truck loading bays, setbacks, landscaping buffers, entry gates, signage, and more.
- **More stringent standards:** for warehouses over 250,000 square feet and those located within 900 feet of a sensitive receptor.
- **Local agency responsibilities:** Cities, Counties, and land use agencies cannot approve non-compliant projects, may conditionally approve certain projects, enforce truck routing plans, and update general plans.
- **South Coast AQMD requirements:** Community input on penalties (ISR), mobile air monitoring systems, air modeling analysis, and reporting to the Legislature.





1. Full text of AB-98 Planning and zoning: logistics use: truck routes can be found at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240AB98

Next Steps

Seeking Feedback on South Coast AQMD Recommendations

South Coast AQMD recommendation:

- Proceed with developing a draft guidance document to implement the proposed revised policy/methodology for analyzing cumulative impacts from air toxics



Stakeholder feedback requested:

- Proposed revisions to cumulative significance thresholds for air toxics
- Proposed revised methodology for conducting the analysis
- Any other thoughts or concerns for consideration

Next Steps in South Coast AQMD's Policy Development



- Prepare preliminary draft of proposed guidance
- Research and compile feasible mitigation measures and alternatives
- Continue to hold WGMs, meet with stakeholders, and hold Public Workshop
- Mobile Source Committee update in early 2025
- Public Hearing for Governing Board approval and adoption
- Provide updates on CEQA Policy Development webpage at http://www.aqmd.gov/home/rules-compliance/ceqa/ceqa-policy-development-(new)

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</table>

WILMINGTON-HARBOR CITY

Community Plan

TABLE OF CONTENTS

ACTIVITY LOG

COMMUNITY MAPS

COMMUNITY PLAN

I. Introduction
II. Function of the Community Plan
III. Land Use Policies and Programs
IV. Coordination Opportunities for Public Agencies
V. Urban Design

WILMINGTON-HARBOR CITY

ACTIVITY LOG

ADOPTION DATE	PLAN	CPC FILE NO.	COUNCIL FILE NO.
July 14, 1999	**Wilmington-Harbor City Community Plan Update**	**97–0050 CPU**	**98-1619**

ADOPTION	AMENDMENT	CPC FILE NO.	COUNCIL FILE NO.
Sept. 7, 2016	Mobility Plan 2035 Update	CPC-2013-910-GPA-SPCA-MSC	15-0719

WILMINGTON-HARBOR CITY

Community Plan

Chapter I
INTRODUCTION

COMMUNITY BACKGROUND

PLAN AREA

The Wilmington-Harbor City Community Plan Area (CPA) is situated in the far southern portion of the Los Angeles Basin, near Los Angeles Harbor. It is located between the planning communities of Harbor Gateway, San Pedro, and the Port of Los Angeles, and adjacent to the cities of Torrance, Lomita, Rancho Palos Verdes, Carson, Long Beach, and an unincorporated area of Los Angeles County.

The Wilmington-Harbor City CPA is generally bounded by the Sepulveda Boulevard, Normandie Avenue, Lomita Boulevard, the Los Angeles City boundary, Los Angeles Harbor, Harry Bridges Boulevard, John Gibson Boulevard, Taper Avenue, and Western Avenue.

The Wilmington-Harbor City CPA contains approximately 6,481 net acres. Most of the topography is level except for a small amount of varied, hillside terrain located in the southwest portion of the Plan area, adjacent to Rancho Palos Verdes. The land use consists primarily of low to low-medium density residential, with commercial uses concentrated near the transit corridors of Pacific Coast Highway, Anaheim Street, and Avalon Boulevard.

Residential land uses account for 1,809 net acres with approximately 21,936 dwelling units, of which 57% are multi-family units. Most of the housing stock is over 30 years of age, and one-third is over 50 years of age. Concentrations of multi-family residential uses can be found near Anaheim Street in Wilmington, and Lomita Boulevard, Anaheim Street, Western and Normandie Avenues in Harbor City.

The two communities that comprise the CPA have the following features that distinguish them:

Wilmington, based on its established boundaries when incorporated into the City of Los Angeles, is bounded by Lomita Boulevard, the City of Long Beach, the Port of Los Angeles, Gaffey Street and Normandie Avenue. The historic resources of the community include the General Phineas Banning Residence, the Drum Barracks, and the Camp Drum Powder Magazine. The area is a varied mixture of land uses, including single family and low-medium density multiple residential. A large portion of the southeast quadrant of the

community is industrial.

Commercial uses are primarily located along Avalon Boulevard, especially in the Community Center near the intersection with Anaheim Street, and also along Pacific Coast Highway. The established "downtown" center of Wilmington is the commercial district surrounding the intersection of Avalon Boulevard and Anaheim Street, bounded approximately by I Street on the north, Broad Avenue on the east, E Street on the south, and Fries Avenue on the west. This area features intensive commercial development that includes many different types of retail establishments and services, and some portions have developed into lively pedestrian areas.

This commercial district is centrally located within the Wilmington community, and is accessible via mass transit (bus) lines on both Avalon Boulevard and Anaheim Street. The Community Plan designates the area as a "Community Center" in order to encourage the continued development of community-serving commercial uses in a pedestrian-friendly environment.

The commercial area at the foot of Avalon Boulevard includes the commercially-zoned land east and west of Avalon Boulevard, including Broad Avenue, from Harry Bridges Boulevard south to the Port of Los Angeles. The Wilmington community has a long-standing desire to have a marine-oriented commercial area develop on this site, which adjoins Slip No. 5 of the Los Angeles Harbor, and is the community's most convenient and direct access to the waterfront. It is centrally located at the terminus of Avalon Boulevard, the primary north-south arterial through Wilmington.

Despite the wishes of the community, in the past, the market has not existed to stimulate the development of the area as a commercial district. Most of this land is currently vacant, used for parking or open storage, with some general commercial. However, with the increases in population and employment projected for the local community, and the large-scale port improvements undertaken by Los Angeles and Long Beach, the market to create this commercial district may develop in the future. The Banning's Landing community center should also draw additional visitors into the area. The Plan designates this site a "Community Center" in recognition of its potential and importance to the community.

The Wilmington Industrial Park is an irregular-shaped area, bounded approximately by Anaheim Street on the north, Harry Bridges Boulevard on the south, Alameda Street on the east, and Broad Avenue on the west. It has an ideal location with excellent access to the Port of Los Angeles, the Harbor and San Diego Freeways, and the Alameda Corridor. The industrial park is designated and zoned for Light Industry, and is developed with a number of industrial uses, as well as some container and truck storage facilities. Some large areas of land remain vacant and available for development.

Other heavy industrial uses are mostly concentrated in the southern and eastern portions of the Wilmington near the Harbor. A recent trend is the utilization of industrial properties for cargo container storage, which can create adverse impacts when containers are stacked to excessive heights in close proximity to residential or other sensitive land uses.

Open space areas serving Wilmington include Banning Park, important as both a recreational and cultural resource, and Harbor Regional Park. Additional open space is provided by several other parks, including portions of an abandoned railroad right-of-way. Public facilities in the area include Los Angeles Harbor College, Kaiser Hospital, a branch library, and a number of Department of Water and Power facilities that provide service to greater Los Angeles.

Harbor City is bounded by Sepulveda Boulevard, Normandie Avenue, Gaffey Street, Taper Avenue, and Western Avenue. This community contains a significant amount of multiple family residential housing in the area bounded by Lomita Boulevard, Anaheim Street, and Normandie and Western Avenues.

The commercial area at the intersection of Pacific Coast Highway and Normandie Avenue is one of the primary retail/ commercial areas serving Harbor City, and the site of intensive commercial development, including several shopping centers and the Kaiser Hospital. It is centrally located within the community, in walking distance of many residential areas, including the Normont Terrace development. Public transit is also available. The Plan designates this area as a "Community Center" in recognition of its importance to Harbor City.

Other "strip" commercial areas are located along Pacific Coast Highway, Western Avenue, portions of Anaheim Street, and Lomita Boulevard.

Limited industrial areas, consisting mostly of warehouses and light manufacturing, are located in Harbor City near Pacific Coast Highway, Normandie Avenue, and Lomita Boulevard.

Open space areas serving the Harbor City area include Harbor Regional Park, both a significant ecological resource and recreational area, the Harbor City Recreation Center on Lomita Boulevard, and recreational fields and open space on the Navy Fuel Depot property in the southwest part of the CPA. Public facilities nearby include two major hospitals, and Los Angeles Harbor College.

COMMUNITY PARTICIPATION

The State of California requires citizen participation in the preparation or amendments of community plans. General Plan Government Code Section 65351 reads, "During the preparation or amendment of the general plan the planning agency shall provide opportunities for the involvement of citizens, public agencies, public utility companies, and civic, education, and other community groups through public hearings and any other means the city or county deems appropriate."Drafting of the first community plan involved members of the community who helped to identify and define the needs, desires, resources, and the unique nature of the community. Community participation occurred through focus group meetings, a community workshop, open house, and the public hearing process. Community participation helps to update the plan as to what changes have taken place since its adoption.

COMMUNITY ISSUES AND OPPORTUNITIES

The following summarizes the most significant planning and land use issues which were identified in the Wilmington-Harbor City Community.

RESIDENTIAL

Issues

- Need to maintain the low-density character of single-family neighborhoods and protect them from other incompatible uses.
- Lack of transition in scale, density and character of multiple-housing and other uses adjacent to single-family homes.
- Lack of maintenance of existing housing stock, particularly rented multiple-family projects.
- Need to promote rehabilitation of residential areas to improve quality of housing in the Plan area.
- Lack of adequate parking, usable open space and recreational areas in multi-family apartment projects.
- Compatibility between residential and adjacent commercial and other uses.
- Compatibility between public infrastructure and new development.

Opportunities

- Moderate priced housing in relatively smog-free and mild "Mediterranean" climate.
- Proximity to ocean amenities, Los Angeles and Long Beach port and harbor facilities, Los Angeles International, Long Beach, and Torrance airports, and to major universities: Cal State Dominguez Hills, USC, UCLA, Long Beach State, Loyola Marymount, and Los Angeles Harbor College.
- Access to two major freeways (Harbor I-110, San Diego I-405) and proximity to employment centers such as the Los Angeles and Long Beach port facilities, Harbor Gateway, San Pedro, Long Beach, Dominguez Hills, and Los Angeles downtown.
- Potential for residential and mixed-use development along commercial corridors.
- Establishment of transitional heights and densities between multiple and single-family residential uses.
- Access and proximity to employment.

COMMERCIAL

Issues

- Lack of cohesiveness and continuity of complementary uses along commercial frontages.
- Unsightly strip commercial areas, lack of overall parking and general inconvenience and access within commercial areas.
- Commercial areas with poor visual identity and more oriented to pass through traffic rather than neighborhood-oriented which promote pedestrian activity.
- Heavy and high-speed traffic on many streets in commercial areas, including non-local "thru" traffic.
- Visual and aesthetic problems, such as the proliferation of out-of-scale signs, including large roof signs and sandwich board signs on sidewalks, barren railroad tracks and abandoned rights-of-way, and many vacant parcels used for dumping and other illegal activities.
- Unsightliness of new construction, such as minimalls, due to the lack of landscaping, architectural character and parking.
- Lack of adequate design standards and code enforcement along commercial corridors.
- Inadequate transition between commercial and residential uses.
- Many existing commercial areas, such as downtown Wilmington, are in need of revitalization.

Opportunities

- Develop a distinctive urban character and cohesive visual identity for the community, especially on major streets such as Pacific Coast Highway, Anaheim Street, and Avalon Boulevard.
- Complement the efforts for revitalization of downtown Wilmington by promoting a pedestrian-oriented business district using banners, murals, street trees, kiosks, street furniture, street lamps, benches, trash receptacles and other pedestrian-oriented amenities, and also landmark buildings that will give the area a distinctive feeling.
- Promote the development of a marine-related Community Center near the foot of Avalon Boulevard, between Harry Bridges Boulevard and the Port of Los Angeles. This area could include shops, restaurants, and other services oriented toward the port and the ocean, serving residents, employees, and visitors in the area.
- Potential for mixed-use development on portions of Anaheim Street and Avalon Boulevard, which with appropriate development standards can introduce more pedestrian activity to commercial areas.
- Promote the development of the area around the intersection of Pacific

Coast Highway and Normandie Avenue as a downtown commercial district for Harbor City, serving local residents, and visitors to Kaiser Hospital, Harbor Regional Park, or Los Angeles Harbor College.

- Public utility, state and local government incentive programs which offer tax credits (revitalization zone), technical assistance for Business Improvement Districts (Community Development Department), and other capital-generating assistance programs.

- Active support for efforts to preserve and rehabilitate older structures with special architectural and/or cultural character.

INDUSTRIAL

Issues

- Preserving a strong industrial base to provide jobs for residents and promote economic vitality within the Plan area.

- Protection of residents from noxious environmental impacts of industrial activities.

- Adequate buffering of industrial areas from nearby residential and commercial uses.

- Adverse environmental impacts caused by container storage to surrounding properties, particularly near residential areas.

- Lack of basic infrastructure and other amenities to support business in East Wilmington.

- Cost to clean up some sites, which include hazardous waste, contaminated soil, or abandoned oil wells.

- Illegal dumping and other criminal activities have occurred in some industrial areas.

Opportunities

- Excellent access to regional freeways, railroads, the Alameda Corridor rail and truck transportation facilities, the Ports of Los Angeles and Long Beach, and the South Bay.

- Encourage the area to continue to develop as a major industrial and employment center within the Wilmington community by attracting new industrial uses that create jobs in the local economy.

- Availability of land for reuse or development which are planned for job-producing uses that improve the economic and physical condition of the area.

- Clean up environmentally-damaged sites and eliminate crime problems, illegal dumping, and unauthorized uses that discourage viable industrial uses from locating in the area.

- Active support for redevelopment efforts in the Wilmington Industrial Park in southeast Wilmington.

TRANSPORTATION

Issues

- Congestion from through traffic from outside the community.
- Inadequate automobile alternatives such as rail, improved bus service, bicycle and walking.
- The need to continue planning and improvements to public transportation in the community.
- Truck traffic related to nearby industrial or container storage facilities invading local residential streets.

Opportunities

- Neighborhood shopping districts and mixed-use developments which would encourage walking and reduce traffic congestion and air pollution.
- Future study of alternative Transportation Systems Management strategies such as Automated Traffic Surveillance and Control (ATSAC) and the Smart Corridor program which reduce impacts of through traffic and control traffic flows into designated corridors by measures such as timed traffic signals for fewer stops, and higher traffic speeds, elimination of peak on-street parking and traffic flow monitoring.
- Improved vehicular and truck access to/from industrial areas and the Port of Los Angeles via the Alameda Corridor and Harry Bridges Boulevard realignment.

RECREATION, PARKS and OPEN SPACE

Issues

- Most of the open space and recreational amenities of the community are concentrated in Harbor Regional Park and Banning Park. There is a need for more neighborhood parks throughout the plan area to serve the local population.
- Harbor Regional Park is a designated Significant Ecological Area, because of the unique habitat there and the presence of endangered animal species.
- Despite the proximity of the ocean, few marine-oriented recreational amenities have been developed to take advantage of this location.

Opportunities

- Acquisition, expansion and improvement of needed local parks throughout the community should be accelerated.

- Possibility of multi-purpose use of existing facilities for the general public.

- A number of historic and cultural monuments are located within the plan area, including the General Phineas Banning residence, and the Drum Barracks and Officers' Quarters.

MAJOR OPPORTUNITY SITES

The Community Plan identifies appropriate areas to encourage commercial, industrial, and residential development where design guidelines or other planning tools might be applied to enhance an area. These areas are indicated as a Regional Center, Community Center, or Neighborhood District on the Land Use Diagram map. The intent is to show the location of future growth strategy and the relative importance of the area, and to provide policies and standards as a guide for development to take place.Several areas are identified as major opportunity sites: the commercial district surrounding the intersection of Avalon Boulevard and Anaheim Street, the commercially zoned land at the foot of Avalon Boulevard south of Harry Bridges Boulevard, the commercial area surrounding the intersection of Pacific Coast Highway and Normandie Avenue, and the Wilmington Industrial Park located east of Avalon Boulevard and south of Anaheim Street.

The Commercial District Surrounding Avalon Boulevard And Anaheim Street

Issues

- Heavy traffic on both Avalon Boulevard and Anaheim Street, including non-local "thru" traffic.

- More off-street parking is needed in many portions of the area.

Opportunities

- Enhance the area as the "downtown" center of Wilmington by continuing to encourage the development of community-serving commercial uses.

- Encourage the enhancement of a pedestrian-friendly environment through design standards, street furniture and trees, etc.

The Commercial Area at the Foot of Avalon Boulevard--South of Harry Bridges Boulevard

Issues

- Heavy traffic and trucks on Harry Bridges Boulevard will further isolate this area from the community to the north.

- Possible environmental impacts from a variety of industrial uses and DWP facilities located nearby.

- The presence of many vacant parcels, a number of which are used for open storage.

Opportunities

- Develop the area into a visitor-serving, marine-oriented commercial district, in conjunction with the Banning's Landing community center, to serve as the Wilmington community's gateway to the waterfront.

- Encourage the development of a pedestrian-friendly environment with places for people to walk or sit and view the Harbor and its activities.

The Commercial Area Surrounding the Intersection of Pacific Coast Highway and Normandie Avenue

Issues

- Very heavy traffic, particularly on Pacific Coast Highway, make the area less attractive and safe for pedestrians.

- Much of the existing development is oriented toward auto traffic rather than local residents.

- A number of motels are located nearby along Pacific Coast Highway, which have been a source of crime problems in the past.

Opportunities

- Encourage the area to develop as a retail and service area for local residents, and visitors to Kaiser Hospital, Harbor Regional Park, or Los Angeles Harbor College.

- Encourage the development of a pedestrian-friendly environment through design standards, wider sidewalks and crosswalks, street furniture, landscaping, etc.

The Wilmington Industrial Park

Issues

- The cost of cleaning up some sites which include hazardous waste, contaminated soil, or abandoned oil wells.

- Unauthorized uses are illegally located on some sites.

- Illegal dumping and other criminal activities have occurred in some areas of the park.

Opportunities

- Encourage the area to continue develop as a major industrial and employment center within the Wilmington community by attracting new industrial uses that create jobs in the local economy.

- Clean up environmentally-damaged sites, and eliminate crime problems, illegal dumping, and unauthorized uses that discourage new industrial

tenants from locating in the park.

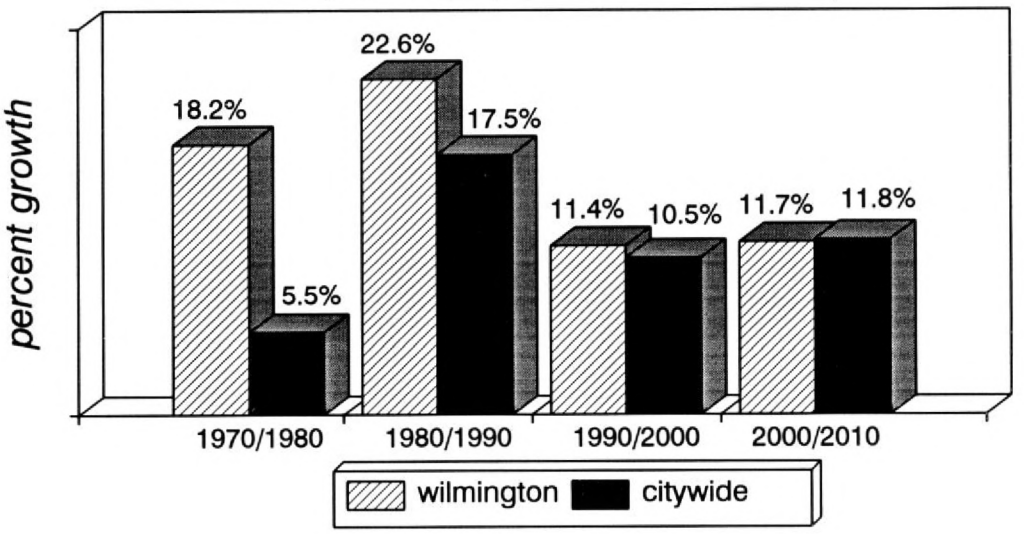
COMMUNITY PROFILE

The Community Profile provides an overview of population, housing, and socio/demographics for the Wilmington-Harbor City Community Plan Area and compares it to the rest of the City. The following tables contain the statistical data for previous census dates and rates of growth.

WILMINGTON/HARBOR CITY
COMMUNITY PROFILE

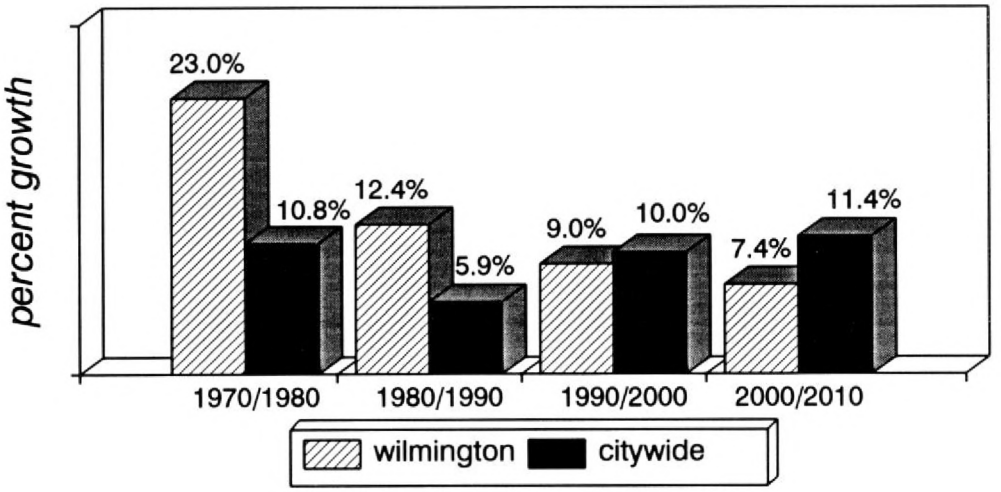
	estimated data (from U.S. Census)			projections (from SCAG) *	
total population	**1970**	**1980**	**1990**	**2000**	**2010**
wilmington	51147	60438	74073	82518	92168
citywide	2811801	2966850	3485398	3852993	4306564
growth rate		**1970 to 1980**	**1980 to 1990**	**1990 to 2000**	**2000 to 2010**
wilmington		18.2%	22.6%	11.4%	11.7%
citywide		5.5%	17.5%	10.5%	11.8%

population growth rate comparison
(includes group quarters population) **



total households	**1970**	**1980**	**1990**	**2000**	**2010**
wilmington	15639	19230	21607	23562	25311
citywide	1024873	1135491	1203052	1323882	1474514
growth rate		**1970 to 1980**	**1980 to 1990**	**1990 to 2000**	**2000 to 2010**
wilmington		23.0%	12.4%	9.0%	7.4%
citywide		10.8%	5.9%	10.0%	11.4%

household growth rate comparison
(occupied dwelling units only)



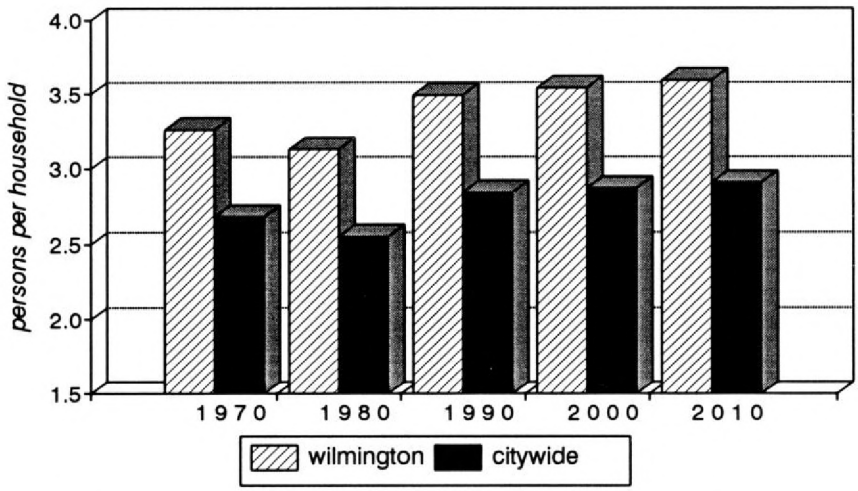
* Southern California Association of Governments; a regional council of county and municipal governments that includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties.

** Population in group quarters includes institutionalized individuals, students in dormitories, and persons in emergency shelters, migrant worker housing, halfway houses, nursing homes, military quarters, etc.

WILMINGTON – COMMUNITY PROFILE

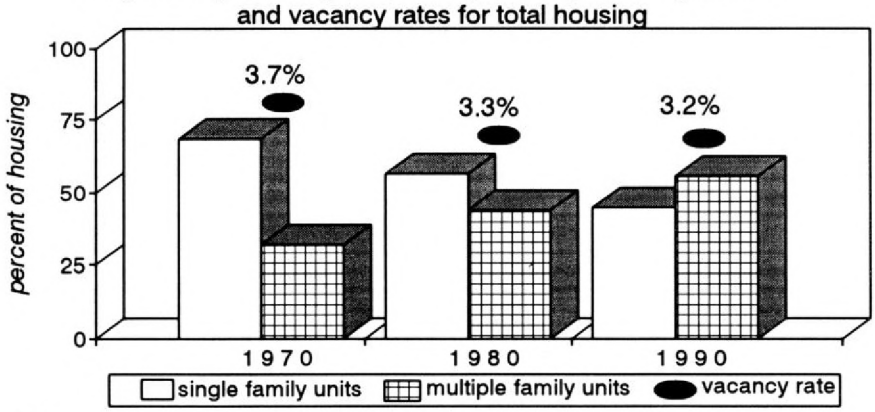
household size (persons per dwelling unit) *	estimated data (from U.S. Census) 1970	1980	1990	projections (from SCAG) 2000	2010
wilmington	3.26	3.13	3.49	3.54	3.59
citywide	2.68	2.55	2.84	2.87	2.91

household size comparison



housing splits / vacancy factors ** (wilmington only)	1970	1980	1990
single family dwellings	68%	56%	45%
multiple family dwellings	32%	44%	55%
vacancy rate (total housing)	3.7%	3.3%	3.2%

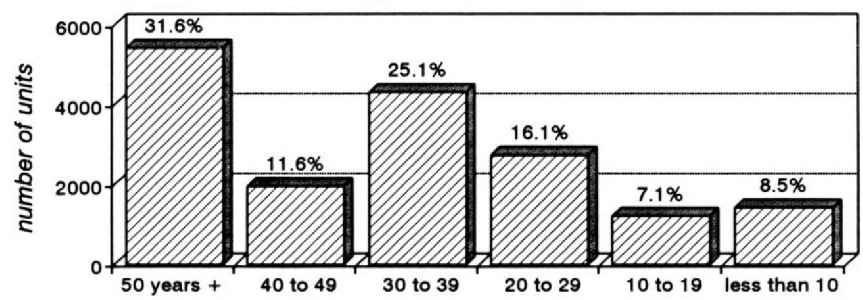
single family dwelling units, multiple family dwelling units, and vacancy rates for total housing



age of housing as of 1994 ***

total dwellings in wilmington (includes vacant and occupied units).

age of housing



* Count of all persons in occupied dwellings. Does not include group quarters population.

** Housing splits are defined by the presence of a common wall between two or more dwelling units. Typical multiple family units include condominiums and apartments. Typical single family units include detached structures.

*** Source of this information is the Los Angeles County Assessor. Data derived from the Assessors LUPAMS (Land Use Planning and Management Subsystem) file. File date is mid 1994.

WILMINGTON – COMMUNITY PROFILE
HOUSING and OCCUPANCY FACTORS

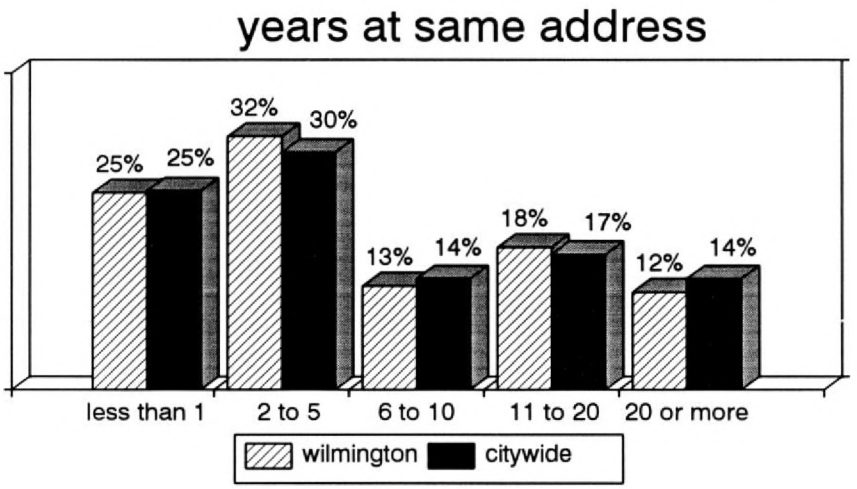
1990 census data;

cost of housing (as a percent of income) *	20% or less	20% to 29%	30% or more
owner occupied housing units	52.1%	20.0%	27.9%
renter occupied housing units	23.3%	24.0%	52.7%

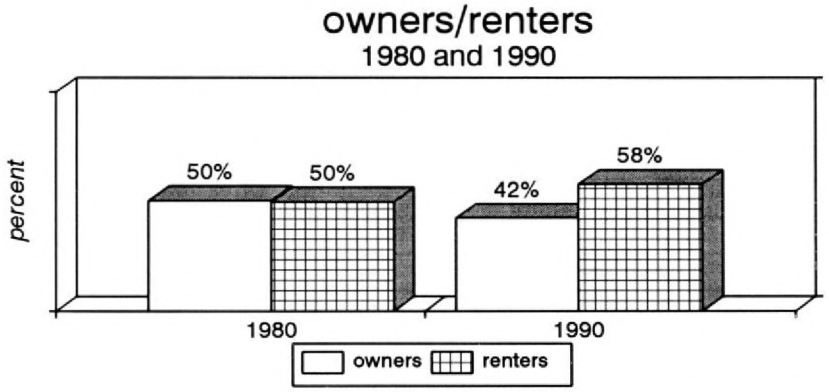
cost of housing (owner occupied units) (value estimated by owner)	under $100,000	$100,000 to $200,000	$200,000 to $300,000	$300,000 to $500,000	$500,000 or more
wilmington	7.5%	45.7%	32.3%	14.1%	0.4%
citywide	8.4%	28.5%	25.9%	21.4%	15.8%

cost of housing (renter occupied units) (monthly cost estimated by resident)	under $300	$300 to $500	$500 to $750	$750 to $1,000	$1,000 or more
wilmington	12.9%	32.0%	43.2%	7.8%	4.0%
citywide	10.9%	29.9%	38.3%	13.1%	7.9%

stability indicator (percent) ** (length of time in the community)	less than 1 year	2 to 5 years	6 to 10 years	11 to 20 years	20 years or more
wilmington	24.8%	32.0%	13.1%	17.9%	12.3%
citywide	25.1%	30.3%	13.7%	16.9%	14.1%



residential tenure (ownership status)



NOTE: All information included on this sheet calculated on basis of householders response to census questionaire.

* Sums to 100% by type of housing. This is a distributed calculation of all householders who responded to census questions about cost of housing. Approximately 90% of all householders responded.

** Describes length of time living at the same location. Owners and renters combined.

WILMINGTON – COMMUNITY PROFILE
SOCIO/DEMOGRAPHICS

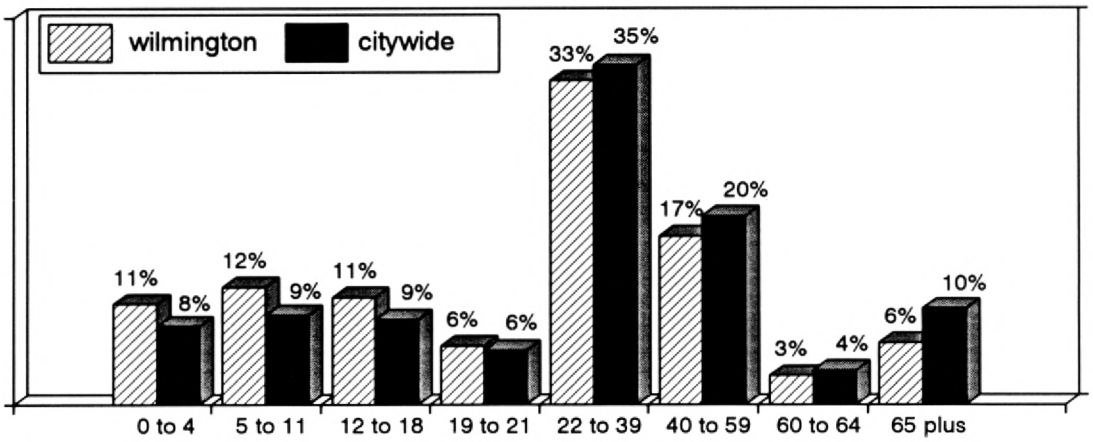
1990 census data;

employment (percent) *	
females employed	39.8%
males employed	60.2%
employment participation rate	68.3%
(citywide rate)	67.3%

household income (1989) **	
average	$36,306
(citywide)	$45,701
poverty (percent)	18.8%
(citywide)	18.9%

education (percent) ***	high school	beyond high school	college graduate
wilmington	53.5%	31.7%	10.2%
citywide	67.0%	47.8%	23.0%

age of the general population

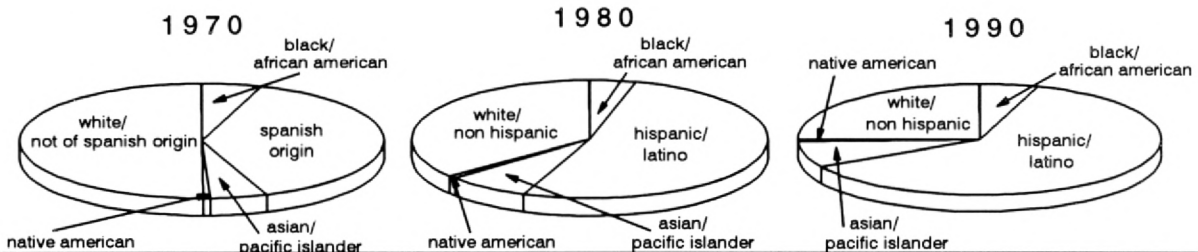


language and citizenship (percent) ****	foreign language spoken at home: spanish	asian	other language	foreign born
wilmington	50.8%	6.3%	2.5%	49.5%
citywide	24.3%	6.0%	5.6%	44.9%

means of transportation to work (percent) *****	drive alone	vanpool/ carpool	public transit	other means
wilmington	65.7%	20.7%	5.4%	8.1%
citywide	65.2%	15.4%	10.5%	10.5%

head of household ******	live alone	married with children	married no children	single parent	single non family
wilmington	20.4%	37.5%	20.8%	15.6%	5.7%
citywide	31.0%	24.3%	22.0%	12.7%	10.0%

race/ethnicity (percent) *******	1970	1980	1990
asian/pacific islander	5.1%	7.5%	7.5%
black/african american	5.3%	4.2%	5.1%
hispanic/latino	39.0%	52.0%	61.7%
native american	0.6%	0.9%	0.4%
white–non hispanic	50.0%	35.5%	25.2%



NOTE: All information included on this sheet calculated on basis of householders response to census questionaire.

* Civilian persons 16 years or older. Employment participation measures only persons eligible to work; therefore, students, retirees, housewives, military personnel, etc. are not included in this calculation.

** See the note above. Poverty is calculated on the basis of all persons surveyed (98% of citywide population).

*** Only persons 25 years or older are included in this calculation.

**** Persons 5 years or older (except for foreign born which excludes anyone under the age of 18).

***** Total workers 16 years of age or older. Includes military personnel.

****** Adult person acknowledged as representing the household in response to census questionaire. Household may consist of any number of persons or families.

******* Census definition of hispanic/latino persons changed after 1970. Previously described as "spanish origin".

Chapter II
FUNCTION OF THE COMMUNITY PLAN

Chapter 2 of the Plan Text contains the statutory requirements for the Community Plan outlining the mandatory elements that must be addressed. The Chapter contains the explanations of the Role, Purpose, and Organization of the Community Plan. Chapter 2 shows the relationship to other General Plan elements and provides for Plan Monitoring and Consistency.

STATUTORY REQUIREMENTS

California State Law (Government Code Section 65300) requires that each city prepare and adopt a comprehensive, long-term general plan for its development. It must contain seven mandatory elements including land use, circulation, housing, conservation, open space, noise, and safety. California State law requires that the Land Use Element be prepared as part of the city's General Plan, and that the Land Use Element be correlated with the Circulation Element. In the City of Los Angeles thirty-five community plans comprise the City's Land Use Element.

The Land Use Element has the broadest scope of the General Plan elements required by the State. It regulates how land is utilized; thus many of the issues and policies contained in all the plan elements are impacted by and/or impact this element.

Government Code Section 65302(a) requires a land use element to designate the proposed general distribution, general location, and extent of uses of the land for housing, business, industry, open space (including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid waste disposal facilities), and other categories of public and private uses of land. The land use element shall include a statement of the standards of population density and building intensity recommended for the various communities and other territory covered by the plan.

The Wilmington-Harbor City Community Plan is a part of the General Plan of the City of Los Angeles. It consists of this text and the accompanying map. The Community Plan text states the objectives, policies, and programs. The Community Plan map outlines the arrangement and intensities of land uses, the street system, and the location and characteristics of public service facilities.

ROLE OF THE COMMUNITY PLAN

The General Plan is the fundamental policy document of the City of Los Angeles. It defines the framework by which the City's physical and economic resources are to be managed and utilized over time. Decisions by the City

with regard to the use of its land, design and character of buildings and open spaces, conservation of existing and provision of new housing, provision of supporting infrastructure and public and human services, protection of environmental resources, protection of residents from natural and man-caused hazards are guided by the Plan.

The Community Plans are intended to promote an arrangement of land uses, streets, and services which will encourage and contribute to the economic, social and physical health, safety, welfare, and convenience of the people who live and work in the community. The plans are also intended to guide development in order to create a healthful and pleasant environment. Goals, objectives, policies, and programs are created to meet the existing and future needs and desires of the community through the year 2010. The plans are intended to coordinate development among the various parts of the City of Los Angeles and adjacent municipalities in a fashion both beneficial and desirable to the residents of the community. The general plan clarifies and articulates the City's intentions with respect to the rights and expectations of the general public, property owners, and prospective investors and business interests. Through the Community Plan, the City can inform these groups of its goals, policies, and development standards, thereby communicating what is expected of the City government and private sector to meet its objectives.

The Community Plan ensures that sufficient land is designated which provides for the housing, commercial, employment, educational, recreational, cultural, social, and aesthetic needs of the residents of the plan area. The Plan identifies and provides for the maintenance of any significant environmental resources within the Plan Area. The Plan also seeks to enhance community identity and recognizes unique neighborhoods within the Plan Area.

PURPOSE OF THE COMMUNITY PLAN

The last comprehensive update of the Wilmington-Harbor City Community Plan was completed June 15, 1989, in conjunction with the General Plan Zoning Consistency Program required by AB283. The community has grown at a faster rate than the city in the past 20 years. During the 1970's the community population increased by 9,291 residents, a growth rate of 18%. Since 1980 the community's population has grown by 13,635 residents representing an average growth of over 2% per year.

The Wilmington-Harbor City Community Plan sets forth goals to maintain the community's individuality by:

- Preserving and enhancing the positive characteristics of existing residential neighborhoods while providing a variety of compatible new housing opportunities.

- Improving the function, design, and economic vitality of the commercial corridors and industrial areas.

- Maximizing the development opportunities around the future transit system while minimizing any adverse impacts.

- Planning the remaining commercial and industrial development opportunity sites for needed job producing uses that improve the economic and physical condition of the Wilmington-Harbor City Community Plan Area.

ORGANIZATION AND CONTENT OF THE COMMUNITY PLAN

This plan sets forth goals, objectives, policies, and programs that pertain to the Wilmington-Harbor City Community. Broader issues, goals, objectives, and policies are provided by the Citywide General Plan Framework.

The Plan is organized and formatted to facilitate periodic updates. The State recommends that the entire plan be comprehensively reviewed every five years to reflect new conditions, local attitudes, and technological advances.

The principal method for the implementation of the Land Use Map is the Zoning Ordinance. The City's Zoning Map must be updated to remain consistent with the adopted Land Use Map. Together, the Zoning Ordinance and the Zoning Map identify specific types of land use and development standards applicable to specific areas and parcels of land within the community.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The City of Los Angeles has the responsibility to revise and implement the City's General Plan. Since State law requires that the General Plan have internal consistency, the Wilmington-Harbor City Community Plan, which is a portion of the City's Land Use Element, must be consistent with the other elements and components of the General Plan.

The General Plan Framework is a long range, citywide, comprehensive growth strategy. It is a special element of the General Plan which looks to the future as required by law and replaces Concept Los Angeles and the Citywide Plan (adopted in 1974).

The Framework provides a citywide context within which local planning takes place. Both the benefits and challenges of growth are shared. Because it is citywide, the Framework cannot anticipate every detail. Therefore, the Community Plans must be looked to for final determinations as to boundaries, land use categories, intensities and heights that fall within the ranges described by the Framework.

The Citywide General Plan Framework Element neither overrides nor supersedes the Community Plans. It guides the City's long range growth and development policy, establishing citywide standards, goals, policies and objective for citywide elements and community plans. The Framework is flexible, suggesting a range of uses within its land use definitions. Precise determinations are made in the Community Plans.

The General Plan Framework forecasts the following population, housing, and employment levels for the Wilmington-Harbor City Community Plan for the year 2010:

Population (persons):	92,168
Housing (units):	26,923
Employment (jobs):	33,507

The above population, employment, and housing numbers are provided as reference during the Community Plan Update. It needs to be recognized, however, that these figures are only best estimates and are derived from regional data which are disaggregated to the City and then the community level. Population, jobs, and housing could grow more quickly or slowly than anticipated depending on economic trends.

Regional forecasts do not always reflect the adopted community plan land use capacity or buildout estimated from planned land use. Plan capacity or buildout is also an imprecise estimate and depends on specific assumptions about future density of development and household size, which may be more, or less, than actually occur. It should also be noted that the community plan capacity does not include housing in commercial districts nor the current residential vacancy rate.

In addition to the seven State mandated elements, the City's General Plan includes a service system element, a cultural element, a major public facilities areas element and an air quality element. All the provisions and requirements of these elements apply to the Wilmington-Harbor City Community Plan.

Neighborhood plans involve the preparation of specific plans which blend both policy and implementation function for unique neighborhoods within a community. In addition to these specific plans, overlay zones also combine policy and implementation functions to address issues peculiar to a specific neighborhood.

The Community Plan includes appropriate policies and implementation measures generated from the mitigation measures listed in the environmental clearance. In many instances these measures encompass the policies contained in the General Plan Framework.

PLAN CONSISTENCY

Each plan land use category indicates the corresponding zones permitted by the Plan unless further restricted by the plan text, footnotes, adopted Specific Plans, or other specific limitations established by discretionary approvals. The Plan recognizes that the residential densities, commercial intensities, and industrial intensities depicted on the Plan map are theoretical and will not occur due to plan and zone regulations, economic conditions, and design limitations.

For each plan category, the Plan permits all identified corresponding zones, as well as those zones which are more restrictive, as referenced in Section 12.23 of the Los Angeles Municipal Code (LAMC). Any subsequent action that modifies the Plan or any monitoring review that results in changes to the Plan must make new Plan consistency findings at the time of that decision.

City actions on most discretionary projects require a finding that the action is consistent or in conformance with the General Plan. In addition to the required general finding, decision makers acting on certain projects in the Wilmington-Harbor City Community Plan Area shall refer to each of the applicable additional programs, policies or objectives which are contained in Chapter III. To further substantiate the consistency findings, decision makers may cite other programs , policies, or objectives which would be furthered by the proposed project.

PLAN MONITORING

The Plan has a land use capacity greater than the projected development likely to occur during the Plan period. During the life of the plan, growth will be monitored and reported in the City's Annual Report on Growth and Infrastructure which will be submitted to the City Planning Commission, Mayor, and City Council. In the fifth year following Plan adoption (and every five years thereafter), the Director shall report to the Commission on the relationship between population, employment, and housing growth and plan capacities. If growth has occurred faster than projected, a revised environmental analysis will be prepared and appropriate changes recommended to the Community Plan and zoning. These Plan and zoning changes shall be submitted to the Planning Commission, Mayor, and City Council as specified in the Los Angeles Municipal Code (L.A.M.C.).

Chapter III
LAND USE POLICIES AND PROGRAMS

Chapter 3 of the Plan Text contains Goals, Objectives, Policies, and Programs for all appropriate land use issues, such as residential, commercial, and industrial, as well as public and institutional service system categories. The Planning Department has responsibility for the goals, objectives, policies, and the initiation and direct implementation of the programs contained in Chapter 3.

RESIDENTIAL

The quality of life and stability of neighborhoods throughout Wilmington and Harbor City critically depends on providing infrastructure resources (i.e.: police, fire, water, sewerage, parks, traffic circulation, etc.) commensurate with the needs of its population. If population growth occurs faster than projected and without needed infrastructure improvements to keep pace with that growth, the consequences for livability within Wilmington-Harbor City could be problematic.

Accordingly, the proposed Plan has three fundamental premises. First, is limiting residential densities in various neighborhoods to the prevailing density of development in these neighborhoods. Second is the monitoring of population growth and infrastructure improvements through the City's **Annual Report on Growth and Infrastructure** with a report of the City Planning Commission every five years on the Wilmington-Harbor City Community following Plan adoption. Third, if this monitoring finds that population in the Plan area is occurring faster than projected, and that infrastructure resource capacities are threatened, particularly critical resources such as water and sewerage; and that there is not a clear commitment to at least begin the necessary improvements within twelve months; then building controls should be put into effect, for all or portions of the Wilmington-Harbor City community, until the land use designations for the Wilmington-Harbor City Community Plan and corresponding zoning are revised to limit development.

The Community Plan includes appropriate policies and implementation measures generated from the mitigation measures listed in the environmental clearance. In many instances, these measures encompass the policies contained in the General Plan Framework.

Existing residential land use patterns in the Wilmington-Harbor City Plan Area vary from low to medium density. Single-family neighborhoods are located widely throughout the north, central, and western portions of Wilmington, in south Wilmington between Fries Avenue and Wilmington Boulevard north of C Street, and in Harbor City north of Lomita Boulevard, and south of Anaheim Street.

Concentrations of multi-family residential uses are located near Anaheim Street in Wilmington, and Lomita Boulevard, Anaheim Street, Western and Normandie Avenues in Harbor City.

Sixty-seven percent of the total acreage designated for residential uses in the

Wilmington-Harbor City Community Plan Area is designated for single-family dwellings, with only 33% designated for multiple-residential development. However, 57% of the existing dwelling units in the Plan area are multiple-residential units, and at the total potential buildout for the Plan, 65% of the dwellings would be multiple-residential units. Currently 68% of the housing stock is over 30 years old, and 32% is more than 50 years old.

Because of the location of the Wilmington-Harbor City Plan Area near the Port of Los Angeles, there is a proliferation of industrial and open storage uses in these communities, with some of these uses encroaching into residential areas. The presence of these uses, and related trucks driving and parking on residential streets create noxious environmental impacts in many residential areas. The Plan seeks to eliminate non-conforming uses from residential areas, and to protect residents from related adverse impacts.

The Plan designates residential land use densities as indicated in the following table. The table depicts the reasonable expected population and dwelling unit count for the year 2010, using the mid-point range for the dwelling units per acre category. The mid-point represents a reasonable factor to use, as new development within each land use category is not likely to occur at the extremes of the range but rather throughout the entire range.

PLAN POPULATION AND DWELLING UNIT CAPACITY

Residential Land Use Category	Net Acres	Dwelling Units Per Net Acre Midpoint (Range)	Number of Dwelling Units	Persons Per Dwelling Unit (2010)	Reasonable Expected Population (2010)
Low	1,215.79	6.5 (4+ to 9)	7,903	3.75	29,636
Low Medium I	197.82	13.5 (9+ to 18)	2,671	3.46	9,242
Low Medium II	255.63	23.5 (18+ to 29)	6,007	3.46	20,784
Medium	139.36	42 (29+ to 55)	5,853	3.44	20,134
TOTALS	**1,808.60**		**22,434**		**79,796**

GOAL 1 ***A SAFE, SECURE AND HIGH QUALITY RESIDENTIAL ENVIRONMENT FOR ALL ECONOMIC, AGE AND ETHNIC SEGMENTS OF THE COMMUNITY.***

Objective 1-1 To provide for the preservation of existing housing and for the development of new housing to meet the diverse economic and physical needs of the existing residents and projected population of the Plan area to the year 2010.

Policies

1-1.1 Designate specific lands to provide for adequate multi-family

residential development.

Program: The Plan Map identifies specific areas where multi-family residential development is permitted.

1-1.2 Protect existing single family residential neighborhood from new, out-of scale development.

Program: Recent changes in the Zoning Code set height limits for new single family residential development.

1-1.3 Protect existing stable single family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses.

Program: The Plan Map identifies lands where only single family residential development is permitted; it protects these areas from encroachment by designating, where appropriate, transitional residential densities which serve as buffers (Transitional Height Ordinance); and reflects plan amendments and corresponding zone changes which are directed at minimizing incompatible uses.

1-1.4 Protect the quality of the residential environment through attention to the appearance of communities, including attention to building and site design.

Program: The Plan includes an Urban Design Chapter which is supplemented by Design Guidelines and Standards for residential development.

1-1.5 Maintain at least 67% of designated residential lands for single family uses.

Program: The Plan designates residential lands to reflect this ratio.

1-1.6 The City should promote neighborhood preservation, particularly in existing single family neighborhoods, as well as in areas with existing multiple family residences.

Program: With the implementation of the Community Plan, single family residential land use categories, all zone changes, subdivisions, parcel maps, variances, conditional uses, specific plans, community and neighborhood revitalization programs for residential projects shall provide for Plan consistency.

Program: The Neighborhood Preservation Program, administered by the Housing Authority of the City of Los Angeles and by the City's Housing Department provides financial resources to rehabilitate single family homes and multi-family rental housing.

Program: The Homeowner's Encouragement Loan Program (HELP), administered by the City's Housing Department provides rehabilitation loans to owners of small buildings (one to four units) to correct code

violations.

Program: The Residential Rehabilitation Loan Program, administered by the Community Redevelopment Agency (CRA), makes funds available for the rehabilitation of lower-income multi-family rental housing. The program is partially funded by the U. S. Department of Housing and Urban Development (HUD) and requires matching funds from a private lender with CRA as a last resort.

Objective 1-2 To locate new housing in a manner which reduces vehicular trips and makes it accessible to services and facilities.

Policies

1-2.1 Locate higher residential densities near commercial centers and major transit routes, where public service facilities, utilities, and topography will accommodate this development.

Program: The plan concentrates most of the higher residential densities near transit corridors.

Objective 1-3 To preserve and enhance the varied and distinct residential character and integrity of existing single and multi-family neighborhoods.

Policies

1-3.1 Seek a high degree of architectural compatibility and landscaping for new infill development to protect the character and scale of existing residential neighborhoods.

Program: The Plan includes Design Guidelines for residential development to implement this policy.

1-3.2 Consider factors such as neighborhood character and identity , compatibility of land uses, impact on livability, impacts on services and public facilities, and impacts on traffic levels when changes in residential densities are proposed.

Program: The decision maker should adopt a finding which addresses these factors as part of any decision relating to changes in planned residential densities.

Objective 1-4 To preserve and enhance neighborhoods with a distinctive and significant historical character.

Policies

1-4.1 Protect distinctive residential neighborhoods, such as the Banning Park Neighborhood.

Program: Develop specific plans, Community Design Overlay Zones, Historic Preservation Overlay Zones or by other means appropriate for the needs of the individual neighborhood providing for designated

housing types, height limits and possible architectural style and development design restrictions with the establishment of design review board approval for new housing development and exterior remodeling, expansion and major building modification.

Objective 1-5

To promote and insure the provision of adequate housing for all persons regardless of income, age, or ethnic background.

Policies

1-5.1 Promote greater individual choice in type, quality, price, and location of housing.

Program: The Plan promotes greater individual choice through its establishment of residential design standards and its allocation of lands for a variety of residential densities.

1-5.2 Promote housing in mixed use projects in transit corridors and pedestrian oriented areas.

Program: The Plan identifies mixed-use boulevards on Anaheim Street and Avalon Boulevard, and encourages a bonus in floor area for mixed use projects in the areas identified in this policy.

1-5.4 Provide for development of townhouses and other similar condominium type housing units to increase home ownership options.

Program: The Plan cannot require that condominium units be built instead of rental units; however the Plan encourages such type of development by designating specific areas for Low Medium residential land use categories.

1-5.5 Provide for livable family housing at higher densities.

Program: The Plan promotes that the Zoning Code be amended to provide that multiple residential densities should not be limited by the number of bedrooms per unit in order to facilitate family housing.

Objective 1-6

Eliminate incompatible and non-conforming uses from existing residential neighborhoods, to preserve the residential character of these neighborhoods and protect residents from adverse environmental impacts caused by such uses.

Policies

1-6.1 The enlargement of nonconforming, incompatible commercial and industrial uses within areas designated on the Plan map for residential land use shall be prohibited, and action shall be taken toward their removal on a scheduled basis in conformance with Section 12.23 of the Municipal Code.

Program: The Department of Building and Safety is responsible for administering the provisions of Section 12.23 of the Municipal Code

relating to non-conforming uses.

1-6.2 Compatible non-conforming uses, that are a recognized part of a neighborhood (e.g., "Mom and Pop" neighborhood stores), should be allowed to continue as legal nonconforming uses in accordance with applicable provisions of the Municipal Code.

Program: The provisions of Section 12.23 of the Municipal Code allow a Zoning Administrator to authorize the continued maintenance of such uses, if they were legally-established and are reasonably compatible and not detrimental to adjacent properties and the public welfare.

Objective 1-7 To minimize housing displacement whenever possible, and, in those cases where displacement is unavoidable, to provide housing relocation assistance and services for persons displaces as a result of public or private actions.

Policies

1-7.1 Ensure that new housing opportunities minimize displacement of the residents.

Program: In all discretionary actions, the decision maker should adopt a finding which addresses any potential displacement of residents as part of any decision relating to the construction of new housing.

Program: The City should undertake a program to provide relocation assistance for the remaining residents living in the nonconforming housing structures located in the heavy industrial area easterly of Alameda Street, between Pacific Coast Highway and Robidoux Street.

Objective 1-8 To improve the physical design, condition and security of all public housing units.

Policies

1-8.1 To rehabilitate and modernize public housing project to conform with all applicable health and safety codes.

Program: The Plan promotes that the City should substantially rehabilitate, modernize and improve the physical and social living conditions in the Normont Terrace and Dana Strand Village public of dwelling units and accessory facilities, usable open space, and the mitigation of adverse environmental conditions. Such modernization program may include the establishment of neighborhood commercial support activities along the s t r e e t frontages which bound the properties.

COMMERCIAL

The Wilmington-Harbor City Community Plan designates almost 300 acres for commercial land uses, including Community, General, and Neighborhood

Commercial designations. Mixed-use boulevards are also included in these designations.

A number of significant commercial areas are located within the community. These include central shopping districts serving area residents, and auto-oriented commercial development along major streets.

The Plan designates three of the most important commercial areas that serve as focal points in the community as *Community Centers*. These areas are briefly discussed below:

Downtown Wilmington

The Wilmington Central Business District is the historic commercial center of the Wilmington community. It has and will continue to serve as a focal point for shopping, civic, social, and recreational activities and to provide professional offices, small department stores, restaurants, and entertainment facilities.

Beginning with the founding of the Wilmington townsite in 1858, the development of community commercial activity became concentrated along Avalon Boulevard (then known as Canal Street). During the 1920's, the commercial center shifted northward from Avalon Boulevard and "B" Street to Avalon Boulevard and Anaheim Street. Also during this period, a line of palm trees was planted along Avalon Boulevard northward across Wilmington to provide a scenic gateway for cruise passengers from the Catalina Terminal, which was formerly situated at the southerly terminus of Avalon Boulevard.

Although the Wilmington Central Business District has economically and physically declined, the Plan recognizes the potential to revitalize, strengthen, and restore the Avalon Boulevard commercial corridor, which is designated for Community Commercial uses on the Plan map, as the center of Wilmington business, civic, and social life. It is expected that the outlook for reinvestment, development, and rehabilitation of the Wilmington Central Business District will continue to improve as progress is made in the development of the Wilmington Industrial Park, more improvements are made to the Ports of Los Angeles and Long Beach, measures taken toward an improved integration of the Port with the community, and with the establishment of a revitalization program.

The Foot of Avalon Boulevard

The Banning's Landing area (at the foot of Avalon Boulevard, south of Harry Bridges Boulevard) is the Wilmington community's most direct access to the waterfront, and has the potential to become a commercial and recreational center. The community has long desired a marine-oriented commercial district at this site, although the market to stimulate its development has not existed in the past. However, as the area's population increases and additional harbor improvements are built by the nearby Ports of Los Angeles and Long Beach, the Plan recognizes the potential of this site, as well as its continued importance to the community.

Central Harbor City

The commercial area surrounding the intersection of Normandie Avenue and Pacific Coast Highway is a centrally convenient location for the major retail and service needs for Harbor City residents, and is the site of Kaiser Hospital and several shopping centers. Area residents and businesspeople have indicated a desire for the area to continue to develop as the "downtown" business district of Harbor City.

In addition to the Community Centers, the Plan's commercial land use policies also reflect the need to locate new commercial uses in the community to facilitate convenient shopping and easy access to professional services. Redevelopment of existing commercial corridors and areas, and conversion of existing structures to more appropriate uses should result in the physical and aesthetic upgrading of these areas

Plan policy provides for the development of single or aggregated parcels for mixed use commercial and residential development. These structures would, normally incorporate retail office, and/or parking on lower floors and residential units on upper floors. The intent is to provide housing in close proximity to jobs, to reduce vehicular trips, congestion, and air pollution, to assure adequate sites for housing, and to stimulate pedestrian oriented areas to enhance the quality of life in the Plan area. While the Plan does not mandate mixed used projects, it encourages them in certain commercially designated areas, located along transit corridors and in pedestrian oriented districts.

GOAL 2 ***A STRONG AND COMPETITIVE COMMERCIAL SECTOR WHICH BEST SERVES THE NEEDS OF THE COMMUNITY THROUGH MAXIMUM EFFICIENCY AND ACCESSIBILITY WHILE PRESERVING THE UNIQUE COMMERCIAL AND CULTURAL CHARACTER OF THE COMMUNITY.***

Objective 2-1 To conserve, strengthen and encourage investment in all commercial districts.

Policies

The Community Plan identifies appropriate areas to encourage commercial development where design guidelines or other planning tools might be applied to enhance an area. These areas are indicated as a Community Center or Mixed Use Boulevard on the Land Use Diagram map. The intent is to show the location of future growth and the relative importance of the area, and to provide policies and standards as a guide for development to take place.

2-1.1 New commercial uses shall be located in existing established commercial areas or existing shopping centers.

Program: The Plan Map identifies specific areas where commercial development is permitted.

2-1.2 Revitalize and strengthen the Wilmington Central Business District as the historic commercial center of the community, to provide shopping, civic, social and recreational activities.

Program: The Plan designates the Wilmington Central Business District as a Community Center.

Program: The Plan recommends the establishment of an economic development and revitalization program for the Wilmington Central Business District, utilizing either a Business Improvement District, Specific Plan or Redevelopment Project Plan, which incorporates but not be limited to the following objectives and criteria:

a) Reverse the economic and physical decline and deterioration of the Central Business District.

b) Recognize the unique characteristics which distinguish the Central Business District from other commercial areas, and capitalize on its strategic location adjacent to the port of Los Angeles and the Wilmington Industrial Park.

c) Establish an effective marketing and management program.

d) Introduce new development projects which complement and maintain the overall character and scale of desirable uses.

e) Provide the physical space and amenities which make the Central Business District an attractive and active pedestrian environment.

f) Provide adequate and accessible parking.

g) Encourage new developments which can serve as strategic anchors to attract other new uses and induce the upgrading of existing structures.

h) Accommodate diversity, while providing sufficient elements to unity and give identity to the Central Business District.

i) Provide design and landscaping elements which distinguish the Central Business District from peripheral locations.

j) Provide a consistent system of directional sign age to the Central Business District.

k) Preserve and enhance significant building facades of designated structures in accordance with existing Codes.

2-1.3 Support commercial and/or recreational development at the foot of Avalon Boulevard as a focus for revitalization efforts, in coordination with Port development activities.

Program: The Plan designates a Community Center at the commercial area at the foot of Avalon Boulevard, south of Harry Bridges Boulevard

2-1.4 Encourage development of a commercial center in Harbor City to

expand the variety of goods and services, improve shopping convenience, and stimulate business and investment.

Program: The Plan designates a Community Center in Harbor City, around the intersection of Pacific Coast Highway and Normandie Avenue.

2-1.5 Encourage the use of private and public resources designed to stimulate commercial rehabilitation and new development.

Program: Support for legislation and administrative actions which adequately allow the City to encourage business development, such as taxable bonds, bond pools, historic preservation bonds, seismic rehabilitation bonds, and use of bond financing by local economic development corporations.

Program: Support for legislation and administrative actions which allow the City to continue to support small business development, including but not limited to, small business revolving loan funds and commercial corridor rehabilitation program, such as those established in the City's Commercial Area Revitalization Effort (CARE) Program.

2-1.6 Require that projects be designed and developed to achieve a high level of quality, distinctive character, and compatibility with existing uses and development.

Program: Chapter V - Urban Design, proposes policies for commercial development which address this policy.

Program: Plan footnotes which limit building height and floor area help implement this policy.

Objective 2-2 To enhance the aesthetic quality and pedestrian orientation of commercial developments.

Policies

2-2.1 New development in Community Centers and Mixed Use Boulevards shall enhance the existing pedestrian street activity.

Program: Implementation of the Design Guidelines in Chapter V for pedestrian oriented areas.

2-2.2 Ensure that commercial infill projects achieve harmony in design with the best of existing development.
Program: Implementation of the Design Guidelines in Chapter V.

2-2.3 Require that mixed use projects and development in pedestrian oriented districts be designed and developed to achieve a high level of quality, distinctive character, and compatibility with existing uses.

Program: Implementation of the Design Guidelines in Chapter V.

2-2.4 Promote mixed use projects in proximity to designated transit corridors and in community commercial centers.

Program: Through this policy and the land use diagram, the plan establishes preferred locations for mixed use projects.

Objective 2-3 To improve the design and land use compatibility of commercial uses.

Policies

2-3.1 Require urban design techniques, such as appropriate building orientation and scale, transition building heights, landscaping, buffering and increased setbacks in the development of commercial properties to improve land use compatibility with adjacent uses and to enhance the physical environment.

Program: Implement conformance with policies identified in the Design Guidelines of the Plan.

2-3.2 Preserve community character, scale, and architectural diversity.

Program: The Plan footnotes establish height limits to implement this policy; design provisions for commercial areas, included in the Design Guidelines of the Plan, implement this policy.

2-3.3 Provide adequate employee and public parking for all commercial facilities and which is screened from public view by landscaping, berms, fencing and/or walls. Locate parking areas between commercial and residential areas, where appropriate to provide a buffer, and be separated from residential uses by means of at least a solid wall and/or landscaped setback

Program: Implementation of design policies for parking areas established in the Design Guidelines of Chapter V.

2-3.4 Landscaped corridors should be created and enhanced through the planting of street trees along segments with no setbacks and through median plantings.

Program: The Design Guidelines include a section which establishes guidelines for community design and landscaping. These guidelines are intended to serve as a reference to other City Departments, public agencies, and any private entities who participate in projects which involve improvements to public spaces and rights-of-way including streetscape and landscaping.

Objective 2-4 To maintain an adequate level of commercial services and increase the commercial employment base for community residents.

Policies

2-4.1 Protect commercial plan designations so that commercial development is encouraged.

Program: The Plan maintains the current amounts of commercial land use designations to implement this policy.

2-4.2 Use of commercial properties for residential, hotel/motel and residential mixed use development shall be limited as to residential density.

Program: Plan footnotes 7 and 9 implement this policy.

INDUSTRIAL

Most of the Industrial land use designations in the Wilmington-Harbor City Community Plan Area are located in the south and east portions of the area. However, there are also some industrial areas in north and central Harbor City. The industrial character of the District is largely defined and influenced by its strategic location adjacent to the Los Angeles-Long Beach harbors. Also oil extraction and refining activities have a predominant influence on land use.

The area's industrial land reserve is both a source of problems and potential. Much of the industrial zoning, particularly in the eastern and southeastern parts of Wilmington, was superimposed on land originally subdivided into residential lots. Consequently, this created fragmented absentee ownership of small industrial parcels, leaving many scattered land sites either vacant or underutilized, and leading to difficulty in assembling usable industrial sites. In addition, lack of proper screening controls and enforcement of open storage and salvage operations and the substandard maintenance of various industrial sites and structures have been largely responsible for eroding the area's image and generating nuisance complaints from nearby residents.

To overcome these problems, the Plan places significant emphasis on improved land use regulatory controls, urban design techniques and upgrading of the area with high quality industrial development. Further, the redevelopment activity within the Wilmington Industrial Park and the Harbor Department's land acquisition program are facilitating a land consolidation process that will enable improved industrial development potential and the removal of blighting activities.

The Plan seeks to protect industrially zoned land, where it does not encroach into predominantly residential areas, to capitalize upon the District's strategic proximity to the Port of Los Angeles through the creation of new, diverse industrial activities and commensurate employment opportunities.

In portions of Harbor City and Wilmington where industrial strips or pockets of land lie adjacent to residential areas, the Plan designates Limited or Light Industrial land uses with corresponding MR restricted zoning classifications, which are intended to stabilize the industrial land reserve while assuring that industrial development be compatible with adjacent land uses.

The District's industrial sector represents an important resource in terms of City tax revenues, facilities for the production, handling and distribution of cargo, and labor-intensive industries providing employment for skilled and semi-skilled workers throughout the region. The Plan strongly supports efforts to attract new industrial development and requires that it be fully coordinated with the development of improved circulation and service systems capacities

for the overall benefit of the District.

GOAL 3 ***PROVIDE SUFFICIENT LAND FOR A VARIETY OF INDUSTRIAL USES WITH MAXIMUM EMPLOYMENT OPPORTUNITIES WHICH ARE SAFE FOR THE ENVIRONMENT AND THE WORK FORCE, AND WHICH HAVE MINIMAL ADVERSE IMPACT ON ADJACENT RESIDENTIAL USES.***

Objective 3-1 To provide locations for future industrial development and employment which are convenient to transportation facilities and compatible with surrounding land use.

Policies

3-1.1 Designate lands for the continuation of existing industry and development of new industrial parks, research and development uses, light manufacturing, and similar uses which provide employment opportunities.

Program: The Plan identifies lands which have industrial designations to accommodate the variety of uses noted above and, through corresponding zoning regulations, implements this policy.

3-1.2 Define and separate new and/or expanded industrial uses from other uses by freeways, flood control channels, arterials and other physical barriers.

Program: The Plan map implements this policy.

3-1.3 Require a transition of industrial uses, from intensive uses to less intensive uses, in those areas in proximity to residential neighborhoods.

Program: Land use designations on the Plan map, map footnotes and the corresponding zoning implement this.

3-1.4 Land use compatibility should be achieved by including environmental protection standards and health and safety requirements in the design and operation of industrial facilities, including the following measures:

- Mitigation measures for the handling, storage or transfer of dry bulk commodities for the purposes of reducing the potential of explosion or fire, and reducing the emission of dust or other particulate matter to insignificant levels.

- Strict compliance with all applicable air quality standards. These standards include that all parking areas, driveways and storage areas be paved to relieve dust.

- Measures to abate noise, odors and chemical discharges in the site design of industrial facilities.

- Small-scale, on-site treatment and disposal of industrial

hazardous wastes and mobile hazardous waste treatment services as effective alternatives to centralized treatment and disposal facilities and the inherent transportation risks associated with the latter.

- When a facility is proposed which will involve on site treatment and disposal of industrial hazardous wastes and mobile hazardous waste treatment services, and the handling, transfer of storage of commodities categorized by law as hazardous, it is the policy to require an analysis of risk problems which may arise within the facility itself and which may affect adjacent facilities or areas be made and the results used in locating, designing, constructing and regulating the operation of the proposed facility.
- Energy conservation in site and architectural designs, and internal energy management programs to minimize overall energy consumption.

Program: Environmental mitigation measures are required by responsible departments and agencies during review of discretionary projects.

3-1.5 Cargo container storage facilities shall have direct access fromarterialss or through industrial areas with no access to such facilities through residential areas. Container storage facilities shall provide landscaped buffering, height limitations and noise and view mitigation measures protecting nearby residential areas, and no container storage shall be permitted within 300 feet of any residential zone. Even though irrigation in some areas may not be feasible or allowed, it is the policy to encourage landscaping with xeriscape sensitive plants.

Program: [Q] conditions prohibit cargo container storage within 300 feet of any residential zone in most areas, and where such facilities are permitted in sensitive areas, mitigation measures such as fences or walls, landscaped buffers, and height or stacking limitations are imposed, effectuated by zone changes, with enforcement being the responsibility of the Department of Building and Safety.

Objective 3-2 To retain industrial lands for industrial use to maintain and expand the industrial employment base for the community residents.

Policies

3-2.1 Protect areas designated for Industry and proposed for the MR restricted zoning classifications on the Plan map from unrelated commercial and other non-industrial uses, and upgrade such areas with high quality industrial development that is compatible with adjacent land use.

Program: Land use designations on the District Plan map, map footnotes and the corresponding zoning.

3-2.2 Large industrially planned parcels located in predominantly industrial

area should be protected from development by other uses which do not support the industrial base of the City and community.

Program: The plan sets forth guiding statements for specific major opportunity sites which address the need to consider the preservation of industrial designations and promote development which provide a viable employment base. In addition, the Plan retains the existing industrial designations, including large industrially planned parcels.

Objective 3-3 To improve the aesthetic quality and design of industrial areas, eliminate blight and detrimental visual impact on residential areas, and establish a stable environment for quality industrial development.

Policies

3-3.1 Require urban design techniques, such as appropriate building orientation and scale, landscaping, buffering and increased setbacks in the development of new industrial properties to improve land use compatibility with adjacent uses and to enhance the physical environment.

Program: New development of industrial uses located adjacent to residential neighborhoods shall comply with the Industrial/Residential design guidelines found in the Urban Design Chapter (Chapter V, Section I. B. 1) of this Plan.

Objective 3-4 To develop and improve the Wilmington Industrial Park into a vital and thriving industrial center taking full advantage of its location near the Alameda Corridor and the Port of Los Angeles, providing a strong economic and employment base within the community.

Policies

3-4.1 Develop and protect the industrial integrity and enhance the long-term stability of the Wilmington Industrial Park in conformance with the intent and provisions set forth in this Plan.

Program: The Redevelopment Plan for the Wilmington Industrial Park (Los Angeles Harbor Industrial Center Redevelopment Project) was adopted by the City Council on July 18, 1974, with the primary objective to attract labor-intensive industries which will provide new employment opportunities for the people of the community, and to provide continued recognition and support for activities bringing about the implementation of the Plan. Owners and tenants of property located in the Wilmington Industrial Park are subject to the requirements of the Redevelopment Plan, and the Community Redevelopment Agency has responsibility for administering the Plan.

3-4.2 Create and maintain an industrial park environment which will upgrade the quality of the community and reflect a high level of concern for contemporary architectural and urban design principles.

Program: Architectural and design issues can be addressed through provisions of the Redevelopment Plan administered by the Community

Redevelopment Agency.

3-4.3 All zoning, building, health and safety codes should be strictly enforced within the Wilmington Industrial Park, including requiring all owners and tenants to keep their properties clear at all times from the illegal accumulation of junk, trash, abandoned vehicles, weeds and debris, to maintain a safe environment for industrial activities and prevent nuisances for the benefit of all property owners, employees, and the overall community.

Program: Enforcement of zoning, building, health and safety codes is the responsibility of the Departments of Building and Safety, Fire, Sanitation, and the County Department of Health.

3-4.4 Cargo container storage should be limited or prohibited within the Industrial Park, and if permitted, in no instance should operators be allowed to stack containers more than "two-high".

Program: The Community Redevelopment Agency can restrict or prohibit cargo container storage through the Redevelopment Plan for the Wilmington Industrial Park, with enforcement being the responsibility of the Department of Building and Safety.

3-4.5 In order to limit access and provide a more orderly flow of traffic, improve the visual environment for traffic entering and exiting from the Park, increase safety, reduce illegal dumping and other criminal activities, and permit the assembly of larger parcels of land that can be more effectively developed for industrial purposes, the Plan recommends that:

a) access into the Industrial Park should be primarily by the designated collector streets: Eubank Avenue, Quay Avenue, E Street and G Street, which should be fully improved to Collector Street standards, and including street lights and landscaping;

b) local streets not needed for ingress and egress to the Industrial Park should be closed off at the Park boundaries; and

c) street and alley rights-of-way that are not needed for circulation should be vacated.

Program: The Bureau of Engineering is responsible to ensure that all designated Collector Streets are adequately improved to appropriate standards.

Program: The Bureau of Engineering, with assistance from the Departments of Transportation and City Planning, should identify local streets and alleys, including unimproved rights-of-way, that are not needed for circulation or access to the Industrial Park, and should initiate proceedings for closure of such streets at the Park boundaries, or if not needed for other public purposes, for vacation of the rights-of-way.

3-4.6 Seek the consolidation of surface oil extraction operations, the landscaping or improvement of existing oil wells, and elimination of

inactive and/or unneeded wells, to free land for other uses, increase compatibility between oil operations and other land uses, and improve the aesthetics and environment within the Industrial Park.

Program: Policy 3-5.3 of this Chapter supports the initiation of an Ordinance to require that all drilling sites and oil production activities comply with rules and regulations to be provided therein, which will (a) govern the maintenance and landscaping of drilling sites and other oil production activities; and (b) provide a program for the abandonment of drilling sites that no longer serve a useful function. The Plan also recommends that petroleum operators and local government officials jointly and periodically study the feasibility of consolidating surface oilfield operations and the possible elimination of oil wells not required for the future operation of the oil field.

3-4.7 Identify areas adjacent to the Wilmington Industrial Park which are appropriate to be included within the purview of redevelopment activity.

Program: The Plan proposes that areas adjacent to the Wilmington Industrial Park be studied for inclusion into a new phase of redevelopment activity. The study should consider the upgrading of industrial properties along, but not necessarily limited to, both sides of Anaheim Street, easterly of Broad Avenue to Alameda Street.

Objective 3-5

To ensure the public health, safety and welfare while providing for reasonable utilization of the area's oil and gas resources.

Policies

3-5.1 Regulate oil extraction activities and facilities in such a manner to enhance their compatibility with the surrounding community.

Program: All oil drilling sites and operations subject to discretionary review under Sec. 13.01 of the Los Angeles Municipal Code should be considered in terms of compliance with the Plan's objectives and policies regarding oil extraction activities.

3-5.2 In residential areas, require that existing and new oil well sites observe attractively landscaped and well maintained front yard setbacks, be enclosed by fencing along the lot lines (except for the landscaped front yard portions), and have freshly painted oil equipment maintained at all times.

Program: Petroleum operators participate in a required program of beautification and maintenance of drilling sites, with priority given to wells in residential areas, followed by beautification of wells in commercial and industrial areas.

3-5.3 Require, after January 1, 2000, that all drilling sites and oil production activities comply with the rules and regulations pertaining to urbanized areas. Alternatively, in the case of drilling sites and other oil production activities within a previously established drilling district, such sites and activities shall comply by January 1, 2000 with an Ordinance to be initiated which will (a) govern the maintenance and

landscaping of drilling sites and other oil production activities; and (b) provide a program for the abandonment of drilling sites that no longer serve a useful function.

Program: The Plan supports the initiation of an ordinance to implement the above policies.

3-5.4 Seek the consolidation of surface oil extraction operations to free land for other uses, where feasible, to increase compatibility between oil operations and other land uses

Program: Petroleum operators periodically review, in association with their facility consolidation efforts, the possible elimination of oil wells not required for the future operation of the oil field. Also, petroleum operators and local government officials jointly study the feasibility of consolidating surface oilfield operations.

PUBLIC AND INSTITUTIONAL LAND USE

Public facilities such as fire stations, libraries, parks, schools, and police stations shown on the Wilmington-Harbor City Community Plan are to be developed in substantial conformance with the standards of need, site area, design, and general location identified in the Service Systems Element and the Safety Element of the General Plan. The full residential, commercial, and industrial densities proposed by the Plan are predicated upon substantial compliance with the standards contained in the Public Facilities and Service Element of the General Plan. Such development should be sequenced and timed to provide a workable, efficient and adequate balance between land use and service facilities.There is a continuing need for the modernizing of public facilities to improve services and accommodate changes in the Wilmington-Harbor City Community Plan. However, the amenities and environmental quality of the community must be adequately protected. Cost and equitable distribution are major issues in the provision of public facilities. It is essential that priorities be established and new and different sources of revenue be found. Furthermore, public and private development must be fully coordinated, in order to avoid expensive duplication and to assure a balance among needs, services, and cost.

This plan seeks to utilize the location, characteristics, and timing of public facility and utility development as a tool in achieving planned land use patterns. Further, the intent is to achieve economy and efficiency in the provision of services and facilities consistent with standards for environmental quality.

RECREATION AND PARK FACILITIES

In the Wilmington-Harbor City Community Plan area public parks and recreational areas are managed by the City of Los Angeles Recreation and Parks Department. There are three types of parks; regional, community, and neighborhood parks. The community parks serve a much wider interest range than those of a neighborhood site, and while the community parks satisfy the need of the existing population, the community is still deficient in the number of neighborhood parks. Within Harbor Regional Park, there are important ecological areas that must be preserved. Although urbanization has

destroyed much of the wildlife habitat within the City, substantial areas of various habitat types still exist within these areas, including the presence of unique and endangered species, and their continued existence is essential for wildlife protection and is a source of interest, pleasure and education to many people.

GOAL 4 ***ADEQUATE RECREATION AND PARK FACILITIES WHICH MEET THE NEEDS OF THE RESIDENTS IN THE PLAN AREA.***

Objective 4-1 To conserve, maintain and better utilize existing recreation and park facilities which promote the recreational experience.

Policies

4-1.1 Preserve and improve the existing recreational facilities and park space.

Program: The Plan preserves such recreation facilities and park space by changing the existing zone to the Open Space (OS) Zone, which provides such protection.

4-1.2 Encourage the use of other public facilities for recreational purposes.

Program: The Los Angeles Unified School District and the City Department of Recreation and Parks should develop programs to fully utilize each of their respective sites.

Objective 4-2 To provide facilities for specialized recreational needs within the Community, with consideration given to utilizing existing public lands such as flood control channels, utility easements, or Department of Water and Power property.

Policies

4-2.1 Flood control channels and other appropriate public lands should be considered for open space purposes. Bicycle trails in Wilmington-Harbor City should connect these facilities with the local and regional system.

Program: Portions of the abandoned railroad right-of-way in east Wilmington have been developed as parkland. The Plan encourages their continued maintenance, and the upgrading and expansion of these parks where possible.

Program: Implement the proposed bicycle trails shown on the Community Plan Map.

Objective 4-3 To acquire and develop properties as small parks where it is not possible to acquire sufficient acreage for neighborhood parks.

Policies

4-3.1 A small park should be approximately one-half acre in size.

Program: Park site development is the responsibility of the Department of Recreation and Parks.

4-3.2 Small parks shall be designed to meet the particular needs of the residents in the area they serve.

Program: Park site development is the responsibility of the Department of Recreation and Parks, utilizing community input and available funds.

4-3.3 Small parks shall be designed to prevent potential negative impacts on adjacent residents, and provide high visibility to prevent criminal activity.

Program: Park site development is the responsibility of the Department of Recreation and Parks, utilizing community input and available funds.

Objective 4-4

To expand and improve local parks throughout the Plan area on an accelerated basis, as funds and land become available.

Policies

4-4.1 Develop new neighborhood parks and new community parks to help offset Wilmington-Harbor City's parkland deficit for its current 1990 population and its projected year 2010 population.

Program: Park site development is the responsibility of the Department of Recreation and Parks, utilizing community input and available funds.

4-4.2 The City should encourage continuous efforts by Federal, State, and County agencies to acquire vacant land for publicly owned open space.

Program: The open space and parkland purchase programs of Federal, State, and County agencies.

4-4.3 Expand Harbor Regional Park through the acquisition of additional adjoining properties if they become available.

Program: The Plan encourages the expansion of Harbor Regional Park through the acquisition of adjoining lands designated for other uses, should those uses ever be abandoned and/or the land become available for sale.

4-4.4 All park and recreation facilities should be designed, landscaped, and maintained to promote a high quality recreational experience.

Program: Park site development is the responsibility of the Department of Recreation and Parks, utilizing community input and available funds such as Grants, Quimby Funds, and State and Local Park Bond Funds.

4-4.5 The expansion of existing facilities on sites and the acquisition of new sites should be planned and designed to minimize the displacement of housing and the relocation of residents.

Program: Park site development is the responsibility of the Department of Recreation and Parks, utilizing community input and available funds.

Objective 4-5

To ensure the accessibility, security, and safety of parks by their users, particularly families with children and senior citizens.

Policies

4-5.1 Ensure that parks are adequately illuminated for safe use at night as appropriate.

Program: Park design, construction, and maintenance is the responsibility of the Department of Recreation and Parks for City owned parks.

Objective 4-6

To preserve unique wildlife habitats and ecologically important areas within parks and recreation areas in a natural state, for the protection of plant and animal species, and for public enjoyment, health and safety.

Policies

4-6.1 Identify and preserve wildlife habitats and ecologically improved areas in a natural state, consistent with the public need, health and safety.

Program: Federal and state laws require the protection of endangered species, and for the City to identify and protect environmentally-sensitive lands. Where such areas are found on public parkland, such as within Harbor Regional Park, the Department of Recreation and Parks is responsible for compliance with these laws and management of parklands.

OPEN SPACE

Open Space is important due to its role in both physical and environmental protection. There are two classifications for Open Space, publicly owned and privately owned open space.

Open Space is broadly defined as land which is essentially free of structures and buildings and/or is natural in character and which functions in one or more of the following ways:

1. Recreational and educational opportunities.
2. Scenic, cultural, and historic values.
3. Public health and safety.
4. Preservation and creation of community identity.
5. Rights-of-way for utilities and transportation facilities.
6. Preservation of natural resources or ecologically important areas.
7. Preservation of physical resources including ridge protection.

In the Wilmington-Harbor City Community Plan Area, important open space

areas do exist separate from land under the control of the City of Los Angeles Department of Recreation and Parks. Lands which possess open space characteristics include a portion of the U.S. Naval Reservation, where the endangered Palos Verdes Blue Butterfly has been found. Such lands should be protected to conserve their open space character in accordance with development controls proposed in this Plan, the Open Space Element of the City's General Plan, and applicable provisions of the Municipal Code. Their conservation is proposed to insure the usefulness, safety and desirability of adjacent lands, and to maintain and enhance the overall health, safety, welfare and attractiveness of the District.

GOAL 5

A COMMUNITY WITH SUFFICIENT OPEN SPACE IN BALANCE WITH NEW DEVELOPMENT TO SERVE THE RECREATIONAL, ENVIRONMENTAL, HEALTH AND SAFETY NEEDS OF THE COMMUNITY AND TO PROTECT ENVIRONMENTAL AND AESTHETIC RESOURCES.

Objective 5-1

To preserve existing open space resources and where possible develop new open space.

Policies

5-1.1 Encourage the retention of passive and visual open space which provides a balance to the urban development of the community.

Program: The Plan Map designates areas to be preserved for open space.

5-1.2 Protect significant environmental resources from environmental hazards.

Program: The Plan Map designates areas, including the U.S. Naval Reservation, where the Palos Verdes Blue Butterfly has been found, for Open Space, corresponding to the OS Zone, and development on these sites is prohibited.

Program: Implementation of State and Federal environmental laws and regulations such as The California Environmental Quality Act (CEQA), the National Environmental Protection Act (NEPA), the Clean Air Quality Act, and the Clean Water Quality Act.

Program: Implementation of SCAG's and SCAQMD's Regional Air Quality Management Plan, and SCAG's Growth Management Plan.

Program:Implement the State mandated Congestion Management Program designed to reduce traffic congestion and to improve air quality.

5-1.3 Accommodate active park lands and other open space uses in areas designated and zoned as Open Space.

Program: The Plan Map designates lands for open space as appropriate.

SCHOOLS

In the Wilmington-Harbor City Plan Area, the public schools are administered by the Los Angeles Unified School District (LAUSD).

The number of LAUSD schools are: 8 elementary schools, one middle school, and two high schools. In addition, there are a number of private schools in the community, and some members of the community attend schools in other cities, such as Lomita and Carson.

GOAL 6

PUBLIC SCHOOLS THAT PROVIDE A QUALITY EDUCATION FOR ALL OF THE CITY'S CHILDREN, INCLUDING THOSE WITH SPECIAL NEEDS, AND ADEQUATE SCHOOL FACILITIES TO SERVE EVERY NEIGHBORHOOD IN THE CITY.

Objective 6-1

To site schools in locations complementary to existing land uses, recreational opportunities and community identity.

Policies

6-1.1 Encourage compatibility in school locations, site layout and architectural design with adjacent land uses and community character and, as appropriate, use schools to create a logical transition and buffer between differing uses.

Program: Require the decision-maker involved in discretionary review of proposed schools to adopt a finding which supports the application of this policy.

6-1.2 Proximity to noise sources should be avoided whenever possible or the school design should buffer classrooms from such noise.

Program: Implement appropriate provisions of the City's Noise Element.

Program: Incorporate noise mitigation measures to reduce adverse environmental impacts in order to comply with CEQA.

6-1.3 Expansion and upgrading of existing schools should be preferred over the acquisition of new sites.

Program: The Los Angeles Unified School District is the responsible agency for providing adequate school facilities.

6-1.4 Elementary schools should be located along collector streets.

Program: The Los Angeles Unified School District is the agency responsible for the siting, design, and construction of public elementary schools.

6-1.5 Encourage cooperation to provide recreation facilities for the community.

Program: The Los Angeles Unified School District and the City's Department of Recreation and Parks should work together jointly to

develop programs to fully utilize each of their respective sites.

Objective 6-2 Work constructively with LAUSD to promote the siting and construction of adequate school facilities phased with growth.

Policies

6-2.1 Explore creative alternatives for providing new school sites in the City, where appropriate.

Program: Develop plans to address issues of siting and joint use of facilities including strategies for expansion in transit-rich locations.

Program: Utilize the City's "Annual Growth Report" to monitor locations for growth and potential new school sites.

Objective 6-3 Maximize the use of local schools for community use and local open space and parks for school use.

Policies

6-3.1 Encourage the siting of community facilities (libraries, parks, schools and auditoriums) together.

Program: Formulate/update plans to address issues relating to siting and the joint use of facilities. Identify strategies for the expansion of school facilities including:

1. Siting of schools and other community facilities (libraries, parks, and auditoriums) within a transit station, center, or mixed-use area so they can complement each other and make the most efficient use of the land provided for these services.

2. Locating middle schools and high schools where possible, close to transit stations and key centers and mixed-use districts, so students can use the transit system to get to and from school.

3. Encouraging private redevelopment of existing school sites in the immediate vicinity of transit stations and centers so that the existing site (a low intensity use) would be replaced by a high intensity mixed-use development that would incorporate school facilities.

LIBRARIES The Plan Area is serviced by the new Wilmington Branch Library at 1300 North Avalon Boulevard, and the Harbor City/Harbor Gateway Branch at 1555 West Sepulveda Boulevard.

GOAL 7 ***ENSURE THAT ADEQUATE LIBRARY FACILITIES ARE PROVIDED FOR THE COMMUNITY'S RESIDENTS.***

Objective 7-1 To encourage the City's Library Department to provide adequate library service which responds to the needs of the community.

Policies

7-1.1 Support construction of new libraries and the rehabilitation and expansion of the existing library as required to meet the changing needs of the community.

Program: The existing library sites are designated as a public facility and are to be zoned Public Facilities (PF). This designation gives the libraries additional protection to retain their existing use and allows a greater certainty in obtaining the necessary City approvals when rehabilitating or expanding.

7-1.2 Encourage flexibility in siting libraries in mixed-use projects, shopping malls, pedestrian-oriented areas, office buildings, and similarly accessible facilities.

Program: Through the inclusion of this policy the Plan supports such utilization when the Library Department and decision-makers review and approve sites for new libraries.

7-1.3 To encourage bookmobile service to socially or geographically isolated residents as a complementary service of community branch libraries.

Program: The Plan recommends the use of bookmobile service to the Community.

POLICE PROTECTION

Police protection is provided by the Los Angeles Police Department. The Wilmington-Harbor City Community Plan Area is serviced by Harbor Division police station, which is located at 2175 John S. Gibson Boulevard, San Pedro.

GOAL 8

A COMMUNITY WITH ADEQUATE POLICE FACILITIES AND SERVICES TO PROTECT THE COMMUNITY'S RESIDENTS FROM CRIMINAL ACTIVITY, REDUCE THE INCIDENCE OF CRIME, AND PROVIDE OTHER NECESSARY LAW ENFORCEMENT SERVICES.

Objective 8-1

To provide adequate police facilities and personnel to correspond with population and service demands in order to provide adequate police protection.

Policies

8-1.1 Consult with the Police Department as part of the review of new development projects and proposed land use changes to determine law enforcement needs and demands.

Program: The decision-maker shall include a finding as to the impact on police protection service demands of the proposed project or land use change. Currently, the Police Department is consulted with regard to the impacts of plan amendments on law enforcement needs and demands by the plan amendment review process of General Plan Advisory Board, of which the Police Department is a member.

Objective 8-2

To increase the community's and the Police Department's ability to minimize crime and provide security for all residents, buildings, sites, and open spaces.

Policies

8-2.1 Support and encourage community-based crime prevention efforts (such as Neighborhood Watch), through regular interaction and coordination with existing community-based policing, foot and bicycle patrols, watch programs, and regular communication with neighborhood and civic organizations.

Program: Community-oriented law enforcement programs administered by the Los Angeles Police Department.

8-2.2 Insure that landscaping around buildings be placed so as not to impede visibility.

Program: This issue shall be considered in discretionary land use reviews and approvals by the Department of City Planning, with consultation from the Los Angeles Police Department.

8-2.3 Insure adequate lighting around residential, commercial, and industrial buildings in order to improve security.

Program: This issue shall be considered in discretionary land use reviews and approvals by the Department of City Planning, with consultation from the Los Angeles Police Department.

8-2.4 Insure that recreational facilities in multiple-family residential complexes are designed to provide adequate visibility security.

Program: This issue shall be considered in discretionary land use reviews and approvals by the Department of City Planning, with consultation from the Los Angeles Police Department.

FIRE PROTECTION

The Los Angeles City Fire Department provides fire protection service to the community, including fire prevention, fire suppression, and life safety services. The City Fire Department operates two facilities within the community, located at 124 East I Street in Wilmington, and 1331 West 253rd Street in Harbor City. In addition, another station located at 400 Yacht Street, Berth 194 in the Port of Los Angeles could provide service to the community.

The Fire Protection and Prevention Plan of the City of Los Angeles provides an official guide to City Departments, other governmental agencies, developers, and interested citizen for the construction maintenance and operation of fire facilities. It is intended to promote fire prevention by maximizing fire safety education and minimizing loss of life through fire prevention programs. Pursuant to their plan it may be necessary to expand or relocate existing facilities as land patterns change.

The adequacy of fire protection is based on the required fire-flow (measured in gallon per minute), response distance from existing fire stations and the Fire Department's judgement for the need in the area. The Los Angeles Fire Department currently considers portions of the Wilmington-Harbor City

Community Plan Area inadequate in terms of existing staffing and response distances form existing facilities.

GOAL 9 ***PROTECT THE COMMUNITY THROUGH A COMPREHENSIVE FIRE AND LIFE SAFETY PROGRAM.***

Objective 9-1 Ensure that fire facilities and protective services are sufficient for the existing and future population and land uses.

Policies

9-1.1 Coordinate with the Fire Department as part of the review of significant development projects and General Plan Amendments affecting land use to determine the impact on service demands.

Program: Require a decision maker to include a finding as to the impact on fire service demands of the proposed project or land uses plan change.

This coordination with the Fire Department is currently in effect for projects which are subject to the subdivision process and for plan amendments which must be reviewed by the General Plan Advisory Board which includes representation from the Fire Department.

Program: The Plan recommends the upgrading or replacement of Fire Station No. 38 (124 East I Street) as land and/or funds become available.

9-1.2 Encourage the Fire Department to locate fire services facilities in appropriate locations throughout the community in order to maintain safety.

Program: The Plan Map identifies general locations for the establishment of fire services facilities in the community.

Program: The Plan recommends the development of a new fire station facility in the vicinity of Anaheim Street, Alameda Street and Henry Ford Avenue, as land and funds become available.

TRANSPORTATION

TRANSPORTATION IMPROVEMENT AND MITIGATION PROGRAM [TIMP]

The Transportation Improvement and Mitigation Program (TIMP), was prepared for the Wilmington-Harbor City Community Plan through an analysis of the land use impacts on transportation. The TIMP establishes a program of specific measures which are recommended to be undertaken during the life of the Community Plan. Due consideration should be given to individual recommendations regarding any potential adverse impacts on existing commercial activities in the immediate area. Any proposed capital improvements, specifically street widenings, signing and striping improvements and prohibitions on peak hour parking, should be weighed

against the preservation of the commercial viability of the immediate areas impacted by the proposed mitigation measures.

The TIMP document provides an implementation program for the circulation needs of the Plan area. For each of the following programs in the plan text where implementation measures are taken from the TIMP, these measures will be identified in brackets [ ] as follows: [TIMP]

The TIMP consists generally of an analysis of the following types of measures: transit improvements, transportation system management improvements, neighborhood traffic control plans, transportation demand management program which includes creating bikeways, forming transportation management associations, a trip reduction ordinance, and continued participation by the City in regional transportation management programs and arterial infrastructure improvements.

PUBLIC TRANSPORTATION

Opportunities exist within Wilmington-Harbor City to increase the use of public transportation.

While it is anticipated that the private automobile will remain a primary mode of transportation within the time frame of the Wilmington-Harbor City Community Plan (to the year 2010), bus service, the Blue Line, and paratransit services will be the primary public transportation modes through the year 2010.

GOAL 10

DEVELOP A PUBLIC TRANSIT SYSTEM THAT IMPROVES MOBILITY WITH CONVENIENT ALTERNATIVES TO AUTOMOBILE TRAVEL.

Objective 10-1

To encourage improved local and express bus service through the Wilmington-Harbor City community, and encourage park-and-ride facilities to interface with freeways, high occupancy vehicle (HOV) facilities, and transit routes.

Policies

10-1.1 Coordinate with the Metropolitan Transit Authority (MTA), LADOT, Long Beach Transit and Torrance Transit to improve local bus service to and within the Wilmington-Harbor City area.

Program: Transit improvements [TIMP]: Implement the South Bay Transit Restructuring Study, which will recommend public transit improvements.

10-1.2 Encourage the provision of safe, attractive and clearly identifiable transit stops with user friendly design amenities.

Program: The Plan includes an Urban Design chapter that outlines design guidelines for transit stops.

10-1.3 Encourage the expansion, wherever feasible, of programs aimed at enhancing the mobility of senior citizens, disabled persons, and the transit-dependent population.

Program: Implementation of the South Bay Transit Restructuring Study proposals. [TIMP]

Objective 10-2

To increase the work trips and non-work trips made on public transit.

Policies

10-2.1 Transit service should be made more comprehensive, convenient and reliable.

Program: Promote programs to reduce travel time, maintain low transit fares and improve adherence to schedule.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

To the extent feasible and appropriate in light of the Mobility Plan's and the Community Plans' policies promoting multi-modal transportation and safety, it is the City's objective that the traffic level of service (LOS) on the street system in the community not exceed LOS E. Although studies indicate that most of Wilmington-Harbor City's major street intersections are in compliance with this City policy, the level of trips generated by future development in Wilmington-Harbor City and in the surrounding South Bay areas require the implementation of a Transportation Demand Management (TDM) Program and other improvements to enhance safety and mobility. .

TDM is a program designed to encourage people to change their mode of travel from single occupancy vehicles to more efficient transportation modes. People are given incentives to utilize TDM measures such as public transit, ridesharing, modified work schedules, van pools, telecommuting, and non-motorized transportation modes such as the bicycle.

A Transportation Demand Management (TDM) Program shall include the following:

1. Transportation Management Association Formation/Coordination.

   The City should encourage the formation of Transportation Management Associations (TMA's) in order to assist employers in creating and managing trip reduction programs.

2. Participation in Regional Transportation Management Programs.

   The City will continue to participate in local and regional TDM programs being implemented by the City, other agencies and adjacent jurisdictions and coordinate its TDM program with those of other communities, agencies and jurisdictions.

3. TDM Ordinance. The Citywide Ordinance on TDM and trip reduction measures will continue to be implemented for the Wilmington-Harbor City area. This ordinance calls for several measures to be taken in developments to achieve trip reduction targets. The City of Los Angeles Department of Transportation (LADOT) is responsible for monitoring the current Citywide TDM Ordinance.

4. Bikeways. The City should implement the Mobility Plan 2035's recommendations for the area

5. Telecommuting. Support facilities such as "local work centers" to encourage telecommuting.

6. Pedestrian Oriented Areas. The City should encourage the development of pedestrian oriented areas as identified in this Plan.

7. Parking Management. The City should develop a parking management strategy.

GOAL 11 ***ENCOURAGE ALTERNATIVE MODES OF TRANSPORTATION TO THE USE OF SINGLE OCCUPANT VEHICLES (SOV) IN ORDER TO REDUCE VEHICULAR TRIPS.***

Objective 11-1 To pursue transportation management strategies that can maximize vehicle occupancy, minimize average trip length, and reduce the number of vehicle trips.

Policies

11-1.1 Encourage non-residential development to provide employee incentives for utilizing alternatives to the automobile (i.e., carpools, vanpools, buses, flex time, bicycles, and walking, etc.).

Program: TDM Ordinance [TIMP]:

The Citywide Ordinance on TDM and trip reduction measures will continue to be implemented for the Wilmington-Harbor City area. This Ordinance calls for several measures to be taken by non-resident developments to achieve necessary trip reduction targets.

11-1.2 Require that proposals for major new non-residential development projects include submission of a TDM Plan to the City.

Program: Citywide ordinances on TDM and trip reduction measures will continue to be implemented and monitored by LADOT to address this policy.

TRANSPORTATION SYSTEM MANAGEMENT (TSM)

Transportation System Management (TSM) is the manipulation of the transportation system in order to improve the flow of traffic with low capital cost projects and minor construction that can be implemented in a short time frame. TSM incorporates features such as computer based traffic signal timing facilities, intersection improvements, the implementation of Smart Corridor technologies, preferential parking areas for high occupancy vehicles, park and ride facilities, anti-gridlock measures, and parking management programs.

GOAL 12 ***A WELL-MAINTAINED, SAFE, EFFICIENT FREEWAY AND STREET NETWORK.***

Objective 12-1 Increase capacity on existing transportation systems through minor physical improvements.

Policies

12-1.1 That Wilmington-Harbor City's signalized intersections are integrated with the City's ATSAC system by the year 2010.

Program: Accelerated installation of Automated Traffic Surveillance and Control (ATSAC) equipment when funding becomes available [TIMP]. ATSAC is a computerized system that directs traffic control operations based on the data collected at each signalized intersection, is recommended to be installed by the year 2010 at the arterialintersections.

12-1.2 Implement peak-hour parking restrictions and striping for additional lanes where feasible and warranted. [TIMP]

Program: Additional PM parking restrictions and striping for an additional lane are proposed on:

- Anaheim Street between Alameda Street and east of Dominguez Channel [TIMP]
- Western Avenue between Sepulveda Boulevard and Capitol Avenue [TIMP]

12-1.3 Provide additional funds for maintenance and rehabilitation of roadways [TIMP].

Program: LADOT shall program additional funds and develop priorities to implement this program. [TIMP]

NON-MOTORIZED TRANSPORTATION

The Plan provides for various modes of non-motorized transportation/circulation such as walking and bicycle riding. The Mobility Plan 2035 identifies a backbone bicycle network and support routes through Wilmington-Harbor City. The networks indicated on the Plan map. The Community Plan establishes policies and standards to facilitate the development of a bicycle route system which is intended to compliment other transportation modes.

GOAL 13 ***A SYSTEM OF SAFE, EFFICIENT AND ATTRACTIVE BICYCLE AND PEDESTRIAN FACILITIES.***

Objective 13-1 To promote an adequate system of safe bikeways for commuter, school and recreational use.

Policies

13-1.1 Plan for and encourage funding and construction of bicycle facilities connecting residential neighborhoods to schools, open space areas and employment centers.

Program: The Plan map identifies existing and proposed bicycle facilities. The Mobility Plan addresses concerns regarding bicycle use issues.

13-1.2 Identify bicycle facilities along arterial streets in the community.

Program: Bikeways - The City should implement the proposed bicycle network in the Mobility Plan for the Wilmington-Harbor City area, which includes the following proposed bikeways [TIMP]:

- Class I bike paths through Harbor Regional Park;
- Class II bike lanes along Anaheim Street from Gaffey Street to the eastern City limits, and along Avalon Boulevard from Harry Bridges Boulevard to the northern City limits.

13-1.3 Assure that local bicycle facilities are linked with the facilities of neighboring areas of the City.

Program: The Plan map identifies bicycle facilities which link with the bicycle facilities adjacent communities.

Program: The Plan recommends the development of a new bicycle facility along Figueroa Street between Harry Bridges Boulevard and Anaheim Street, or in that vicinity, to provide an important linkage in the existing bicycle network between Wilmington, Harbor City, the Port of Los Angeles, and San Pedro.

13-1.4 Encourage the provision of changing rooms, showers, and bicycle storage at new and existing and non-residential developments and public places.

Program: Through the inclusion of this policy in the Plan text, the Plan supports the provision of bicycle facilities particularly in pedestrian oriented areas. The Plan recommends that this policy be considered by decision-makers when reviewing projects requiring discretionary action.

Objective 13-2 To promote pedestrian-oriented access and routes that are safe, efficient and attractive for commuter, school, recreational use, economic activity, and access to transit facilities.

Policies

13-2.1 Encourage the safe utilization of easements and/or rights-of-way along flood control channels, public utilities, railroad rights-of-way and streets wherever feasible for the use of bicycles and/or pedestrians.

Program: Implementation of the Citywide Land Use/Transportation Policy and the City's discretionary project approval process.

13-2.2 Require the installation of sidewalks with all new roadway construction and significant reconstruction of existing roadways.

Program: The City's Capital Improvement Program, public works construction projects, and the City's discretionary project approval process.

PARKING

The Plan supports the City's continuing efforts to develop City owned (off-street) parking facilities in Wilmington-Harbor City so that an adequate supply of parking can be provided to meet the demand. City-owned parking lots should be located in or near commercial areas.

GOAL 14

A SUFFICIENT SYSTEM OF WELL-DESIGNED AND CONVENIENT ON-STREET AND OFF-STREET PARKING FACILITIES THROUGHOUT THE PLAN AREA.

Objective 14-1

To provide parking in appropriate locations in accord with Citywide standards and community needs.

Policies

14-1.1 Consolidate parking, where appropriate, to eliminate the number of ingress and egress points onto arterials.

Program: The LADOT should develop a parking management strategy to address this policy.

14-1.3 New parking lots and garages shall be developed in accordance with design standards.

Program: The Plan contains an Urban Design Chapter which outlines guidelines for parking facilities.

FREEWAYS AND STREETS

The Wilmington-Harbor City Community Plan area is served by the Harbor Freeway (I-110) and the Terminal Island Freeway (SR-103),both of which run north and south, and the San Diego Freeway (I-405) which runs northwest to southeast.

Arterial streets in the Plan area include Sepulveda Boulevard, Lomita Boulevard, Pacific Coast Highway, Anaheim Street, Palos Verdes Drive North, Harry Bridges Boulevard, Alameda Street, Avalon Boulevard, Wilmington Boulevard, Figueroa Street, Vermont Avenue, Normandie Avenue, Gaffey Street, and Western Avenue.

Streets shall be developed in accordance with standards and criteria contained in the Mobility Plan, an element of the General Plan and the City's Standard Street Dimensions except where environmental issues and planning practices warrant alternate standards consistent with street capacity requirement.

The full residential, commercial, and industrial densities and intensities

proposed in the plan are predicated upon the eventual development of the designated infrastructure. No increase in density shall be allowed by zone change or subdivision unless it is determined that the transportation infrastructure serving the property can accommodate the traffic generated.

GOAL 15

TO THE EXTENT FEASIBLE AND CONSISTENT WITH THE MOBILITY PLAN 2035'S AND COMMUNITY PLANS' POLICIES PROMOTING MULTI-MODAL TRANSPORTATION AND SAFETY, A SYSTEM OF FREEWAYS, AND STREETS THAT PROVIDES A CIRCULATION SYSTEM WHICH SUPPORTS EXISTING, APPROVED, AND PLANNED LAND USES WHILE MAINTAINING A DESIRED LEVEL OF SERVICE AT INTERSECTIONS.

Objective 15-1

To the extent feasible and consistent with the Mobility Plan 2035's and the Community Plans' policies promoting multi-modal transportation and safety, comply with Citywide performance standards for acceptable levels of service (LOS) and insure that necessary road access and street improvements are provided to accommodate traffic generated by new development.

Policies

15-1.1 To the extent feasible and consistent with the Mobility Plan 2035's and the Community Plans' policies promoting multi-modal transportation (e.g., walking, bicycling, driving, and taking public transit) and safety, maintain a satisfactory LOS for streets that should not exceed LOS "D" for Boulevards, Avenues, and Collector Streets. If existing levels of service are LOS "E" or LOS "F" on a portion of a arterial or collector street, then the level of service for future growth should be maintained at LOS "E" where feasible and consistent with the Mobility Plan.

Program: Improve, to their designated standard specifications, substandard segments of those arterials which are expected to experience heavy traffic congestion by the year 2010.

Program: Funded Capital Improvements. The following capital improvements are planned for the area, to the extent that they are feasible and consistent with the policies of the Mobility Plan:

- Widen Alameda Street to provide three lanes per direction form I-10 to Henry Ford Avenue
- Provide grade separated intersections along Alameda Street at Del Amo Boulevard, Carson Street, Sepulveda Boulevard and Pacific Coast Highway with full interchanges (Alameda Corridor)
- Widen Henry Ford Avenue to provide three lanes per direction from Alameda Street to Terminal Island Freeway (Alameda Corridor)
- Widen Anaheim Street between Cushing and I Streets to provide three lanes eastbound and 2 lanes westbound
- Widen and realign Harry Bridges Boulevard (B Street) to provide three lanes per direction from I-110 freeway to Alameda Street with limited access.

The new roadway alignment of Harry Bridges Boulevard will have access to I-110 freeway at existing C Street ramps. Access to I-110 freeway from C Street will be eliminated.

C Street will be terminated at Mar Vista Avenue east of the I-110 freeway. Avalon Boulevard and Fries Avenue will be the only north-

south roadways intersecting Harry Bridges Boulevard (between Figueroa Street and Avalon Boulevard). There will be no changes in the existing alignment of Harry Bridges Boulevard east of Avalon Boulevard.

Program: Recommended Capital Improvements [TIMP]

1. Proposed roadway extensions [TIMP]:

   Improvement of Lomita Boulevard, as an Avenu, east of Eubank Avenue to Alameda Street, with an at-grade intersection at Alameda. [TIMP]

15-1.2 Street dedications shall be developed in accordance with standards and criteria contained in the Mobility Plan, an element of the General Plan and the City's Standard Street Dimensions, except where environmental issues and planning practices warrant alternate standards consistent with capacity requirements.

Program: Implementation of the Mobility Plan supports this policy.

15-1.3 New development projects should be designed to minimize disturbance to existing flow with proper ingress and egress to parking.

Program: Require that new development projects incorporate adequate driveway access to prevent auto queuing.

Objective 15-2

To ensure that the location, intensity and timing of development is consistent with the provision of adequate transportation infrastructure utilizing the City's streets standards.

Policies

15-2.1 No increase in density and intensity shall be effectuated by zone change, variance, conditional use, parcel map or subdivision unless it is determined that the transportation system can accommodate the increased traffic generated by the project.

Program: In all discretionary actions, the decision-maker shall adopt a finding which addresses this factor as part of any decision.

Program: Require that new development projects incorporate TSM and/or TDM programs and/or transit improvements consistent with Citywide Land Use-Transportation Policy.

15-2.2 Driveway access points onto arterial, and collector streets should be limited in number and be located to insure the smooth and safe flow of vehicles and bicycles.

Program: Require that new development projects incorporate such considerations.

NEIGHBORHOOD TRAFFIC CONTROL

A variety of neighborhood traffic controls exist which can be utilized to regulate, warn and guide movement of pedestrians and vehicular traffic in a safe, efficient and compatible manner. They include stop signs, speed humps, semi-traffic diverters, truck prohibition signs, and right or left turn only lanes. In order for these traffic control measures to be effective, they should be clearly understood by motorists and pedestrians. To assure this, traffic control measures need to: (a) convey clear and unambiguous messages; (b) be justified; (c) be enforced; and (d) regulate the traffic for which they are applied and intended.

Successful implementation of a neighborhood protection plan which would include traffic controls requires that residents participate in the process, to articulate their priorities and values, respond to proposed plans and designs and offer alternatives of their own.

GOAL 16

DISCOURAGE NON-RESIDENTIAL TRAFFIC FLOW ON RESIDENTIAL STREETS AND ENCOURAGE COMMUNITY INVOLVEMENT IN DETERMINING NEIGHBORHOOD TRAFFIC CONTROLS.

Objective 16-1

To initiate neighborhood based traffic and parking mitigation plans in the Community Plan's neighborhoods.

Policies

16-1.1 Discourage non-residential traffic flow for streets designated to serve residential areas only by use of traffic control measures.

Program: Develop neighborhood protection plans on an areawide basis. The City should initiate a series of neighborhood outreach meetings to identify and discuss existing and anticipated "cut-through" traffic and spillover parking from adjacent commercial areas. Through these neighborhood/community meetings, strategies and programs would be developed for an effective neighborhood protection plan. Availability of funding to pay for implementation of programs would also be discussed at these meetings.

Program: Strict enforcement of posted signs restricting truck traffic on residential streets.

HISTORIC AND CULTURAL RESOURCES

HISTORY

For thousands of years, the shoreline of what is currently Wilmington and San Pedro was home to Indian communities. A shoreline subsistence economy was firmly in place by 7,000 B.C. A westward movement of people from the Southwest between 6,000 and 1,500 B.C. brought the Gabrielinos (a Shoshonean group) into the area. The Gabrielinos thrived in established communities and developed an artistic and religious tradition unusual in hunter-gatherer societies.

The first European contact with the Gabrielinos was by Juan Rodriguez

Cabrillo in October of 1542. The founding of the San Gabriel Mission in 1771, and the founding of Los Angeles in 1781, brought disease, poor diet, and apartheid-like conditions to the Gabrielinos, and by 1800 most of them were dead, in missions, or had fled outside the Los Angeles area.

Rancho San Pedro, which included Wilmington, was a Spanish land grant owned by the Dominguez family in 1784. In 1854, General Phineas Banning headed a group which bought 24,000 acres bordering the shallow inner bay protected by a long curving spit of sand called Rattlesnake Island. Banning laid out a town site (originally called New San Pedro) and renamed it Wilmington after his Delaware hometown. Banning dug a channel, built a wharf, and soon monopolized the shipping business in the area, since his new harbor was five miles closer than San Pedro to the pueblo of Los Angeles, reducing overland travel. In 1861, the first oceangoing ship unloaded in Wilmington. In 1863, a post office was established.

In 1859, Banning and B. D. Wilson donated 60 acres to the U.S. government for Camp Drum, established to discourage slavery and related discord in the area, and Wilmington grew as thousands of soldiers were assigned to the Drum Barracks. By 1869, the area's first railroad ran directly from Los Angeles to Banning's Wharf.

After the harbor's main channel was deepened, the wharves in San Pedro became more convenient. Banning's Wharf became the point of departure to Hawaii and Catalina Island, which attracted many tourists and well-known Angelinos from the 1890s until the 1960s, when the landing was moved to San Pedro. It was also the main gateway for competitors in the 1932 Olympics.

The Harbor City area, originally part of the Rancho San Pedro land grant, was decreed to the Sepulveda family as a part of the Rancho Palos Verdes grant in 1834 by Governor Figueroa. Jose Antonio Machado married the Sepulveda widow and managed the ranch for the family. Their adobe sat high on a bluff overlooking the lake at "five points", now the intersection of Palos Verdes Drive North, Gaffey, Anaheim, Normandie and Vermont Avenues, which were Indian trails at the time. The lake soon came to be known as Machado Lake.

To obtain access to San Pedro harbor, in 1906 Los Angeles annexed the Harbor City area, including the lake, which it renamed Harbor Lake. A plan was formulated to dredge a channel from the West Basin in Wilmington to the newly annexed Harbor Lake, thereby allowing ocean-going vessels to come directly into Harbor City, the proposed Port of Los Angeles.

However, instead the City of Los Angeles acquired Wilmington (and San Pedro) by a vote of the residents in 1909. In 1913, the City voted the first bonds for harbor improvement. In 1921, oil was discovered, and the oil industry began to take hold. The harbor and its many industries (fishing, canning, shipping, etc.) kept the area somewhat insulated and growing, even through the Great Depression. During World War II the area boomed, and the fishing and canning industry continued to be a mainstay until the 1960s.

The City has designated nine sites in the Wilmington-Harbor City Community Plan Area as Historic-Cultural Monuments. These include the Drum Barracks and Officers' Quarters, General Phineas Banning residence, St. John's Episcopal Church, Memory Chapel, the Powder Magazine-Camp Drum, former

Wilmington Branch Library, Camphor Trees, Masonic Temple, and the Wilmington Cemetery, which are identified on the Plan map.

GOAL 17 ***PRESERVATION AND RESTORATION OF CULTURAL RESOURCES, NEIGHBORHOODS AND LANDMARKS WHICH HAVE HISTORICAL AND/OR CULTURAL SIGNIFICANCE.***

Objective 17-1 To ensure that the community's historically significant resources are protected, preserved, and/or enhanced.

Policies

17-1.1 Encourage the preservation, maintenance, enhancement, and reuse of existing historically significant buildings and the restoration of original facades.

Program: The Plan promotes continuing identification of appropriate City designated historic and cultural monuments and preservation of those existing. The 1990 Plan identifies the following sites for consideration:

a) Private home
Frigate and M Street

b) Palm trees along Avalon Boulevard

c) Paske Home

Objective 17-2 To encourage private owners of historic properties/resources to conserve the integrity of such resources.

Policies

17-2.1 Assist private owners of existing and future historic resources to maintain and/or enhance their properties in a manner that will preserve the integrity of such resources in the best possible condition.

Program: Adherence to the City's historic properties preservation ordinances and Cultural Heritage Board requirements for preservation and design. Implementation of design standards.

17-2.2 Revitalization of the Wilmington Central Business District should seek to protect architecturally and historically significant buildings and provide for their renovation and reuse.

Program: The Plan encourages the utilization of City historic properties restoration programs which provide funding for renovating and/or reusing historic structures.

RELATIONSHIP TO THE PORT OF LOS ANGELES

The Wilmington community has played an important and historic role along with the San Pedro community in the development of the Port of Los Angeles. Commonly referred to as the "The Heart of the Harbor", Wilmington maintains

a proud harbor heritage which dates back to 1858 when the Wilmington township was founded by Phineas Banning.

In the present era, both Wilmington and Harbor City are heavily dependent on the Port and related industries for their economic development and livelihood. In turn, the Port has become heavily reliant upon Wilmington as a vital corridor for the intermodal transportation of cargoes. Also, changing technologies in modes of waterborne commerce are necessitating the Port to acquire new land to meet the demands of expanding marine and land transport systems.

The Plan recognizes that the Port is undertaking a land acquisition program consisting of approximately 30 acres in the area generally located between "B" and "C" Streets, from Figueroa Street to Island Avenue.

The Plan seeks to coordinate Port related land use development and the circulation system with those of adjoining areas by providing adequate buffers and transitional uses between the Wilmington Community and Port. The Plan also seeks to better integrate the planning and development of Wilmington with the Port in order to help stimulate the revitalization and rehabilitation of the Wilmington Central Business District and provide opportunities for community access to recreational waterfront activities. Toward this end, the Plan recommends the following for consideration by the City Council, Board of Harbor Commissioners and other decision making bodies having jurisdiction over the Port.

GOAL 18

COORDINATE THE DEVELOPMENT OF THE PORT OF LOS ANGELES WITH SURROUNDING COMMUNITIES TO IMPROVE THE EFFICIENCY AND OPERATIONAL CAPABILITIES OF THE PORT TO BETTER SERVE THE ECONOMIC NEEDS OF LOS ANGELES AND THE REGION, WHILE MINIMIZING ADVERSE ENVIRONMENTAL IMPACTS TO NEIGHBORING COMMUNITIES FROM PORT-RELATED ACTIVITIES.

Objective 18-1

To coordinate the future development of the Port with all adopted City Plans, the Wilmington Industrial Park Redevelopment Project and the Enterprise Zone.

Policies

18-1.1 Strengthen governmental inter-agency coordination in the planning and implementation of Port projects for the purpose of facilitating greater efficiency in Port operations and better serving the interest of adjacent communities.

Program: In all discretionary actions within the Wilmington-Harbor City Plan Area, the decision-maker shall consider the effects of the action relative to the Port of Los Angeles in making a finding of consistency with this Plan.

Program: Various State and Federal laws, including the California Environmental Quality Act and the National Environmental Protection Act, provide for inter-agency review of plans for new projects adjacent to other communities.

Program: The Port of Los Angeles Plan remains a part of the City's General Plan, and the City Planning Department and Port of Los Angeles are responsible for administering it, as it relates to the Port and the neighboring communities within the City.

Objective 18-2 To continue to develop and operate the Port of Los Angeles to provide economic, employment, and recreational benefits to neighboring communities.

Policies

18-2.1 The Port should continue to provide employment opportunities for workers residing in the Wilmington-Harbor City communities.

Program: Continued development by the Port should result in employment opportunities and generate the need for other industrial and commercial development in nearby communities located convenient to the Port, creating additional employment.

18-2.2 The Port should commit resources toward providing public amenities (commercial, recreational and service-oriented) that will benefit the Wilmington community, consistent with the State Tidelands Grant, the California Coastal Act of 1976 and the City Charter.

Program: The "Banning's Landing" community building at the foot of Avalon Boulevard provides a location for community activities.

Program: A substantial portion of the Cerritos Channel area of the Port shall continue to be reserved for recreational uses. Approximately 40 acres of land and water area are currently developed for marina-related activities, and 40 adjacent acres east of the marina are designated for recreational uses under the Port of Los Angeles Plan, when oil extraction at this location has ceased.

Objective 18-3 To assure that Port programs for land acquisition and circulation improvements will be compatible with and beneficial in reducing environmental impacts to surrounding communities caused by Port-related activities, as well as beneficial to the Port.

Policies

18-3.1 The Port's Wilmington land acquisition program should develop adequate buffers, landscaping and transitional uses between the Port and the community.

Program: The Port is acquiring the area located between B and C Streets, from Figueroa Street to Neptune Avenue. In order to separate residential from industrial traffic, minimize traffic noise and improve the aesthetics of the area, a landscaped noise buffer is to be constructed south of C Street, with a new arterial for industrial traffic to be constructed south of the noise buffer.

18-3.2 Upgrade the circulation system both internal and external to the Port to promote efficient transportation routes to employment, waterborne commerce, and commercial and recreational areas, and to divert Port-

related traffic away from adjacent residential and commercial areas.

Program: The Port has plans to construct a new east/west boulevard for industrial traffic, south of a landscaped noise buffer below C Street, replacing the existing B Street, and the Harbor Freeway on-and off-ramp at C Street will be reconfigured to link with the proposed new boulevard alignment in order to handle traffic movements more efficiently and safely and to divert industrial traffic away from the community.

Program: The "Alameda Corridor"/Port Area Demonstration projects will improve both rail and truck access to the Port.

18-3.3 Port land acquisitions and development in Wilmington should bring about the timely removal of blighting activities and their replacement with uses consistent with Port development objectives and which enhance the physical, visual and economic environment of the community.

Program: The Port acquisition of the area located between B and C Streets, from Figueroa Street to Neptune Avenue is approximately 80% complete. Port development of the area should begin in 1998, for an expansion of the existing container terminal serving the Berths 136-139.

Program: The Port is in the process of selling parcels of land it owns in the Wilmington-Harbor City Plan Area that are not needed for Port-related purposes.

18-3.4 Encourage the Port to consider the accommodation of those Port-related industrial land uses, which due to their existing location in or adjacent to residential areas, are proposed by the Plan to be relocated to sites more remote from inhabited areas.

Program: This policy is implemented through the ongoing Port land acquisition and expansion program, and the periodic revision of the Port of Los Angeles Master Plan. In addition, renewal of Port leases should comply with this policy.

COASTAL RESOURCES

In accordance with the California Coastal Act of 1976, the portions of the Wilmington-Harbor City community that are located within the Coastal Zone must be planned and developed with particular attention to possible impacts to the marine environment and the ability of the public to access and use the waterfront and its various resources.

GOAL 19 ***MAINTENANCE OF THE COASTAL ZONE WITHIN WILMINGTON IN AN ENVIRONMENTALLY-SENSITIVE MANNER, TO ALLOW MAXIMUM USE FOR PUBLIC ACCESS AND RECREATIONAL ACTIVITIES, AS WELL AS BY OTHER COASTAL-DEPENDENT ACTIVITIES, IN ACCORDANCE WITH THE POLICIES OF THE CALIFORNIA COASTAL ACT OF 1976.***

Objective 19-1

To implement the policies of the California Coastal Act of 1976 in the areas of Wilmington designated within Coastal Zone, allowing for maximum opportunities for public access and recreational/educational activities, and to encourage coastal-dependent activities and facilities to locate in the Coastal Zone.

Policies

19-1.1 This Community Plan constitutes the Land Use portion of the City's Local Coastal Program for Wilmington; the policy is to require development within the Coastal Zone to conform to all applicable Objectives and Policies set forth in this Plan.

19-1.2 The policy is to not permit the development of new or expanded industrial facilities involved in the handling, transfer, or storage of commodities categorized by law as hazardous if it is found that such facilities would adversely affect the general welfare or community development.

19-1.3 Oil and gas development is permitted, provided it is performed safely and consistent with the geologic conditions of the well site, and new, expanded or recharging facilities related to such development shall be consolidated to the maximum extent feasible.

19-1.4 New and/or expanded industrial facilities to be sited to provide a sufficient open space, landscaped and maintained buffer area to minimize adverse impacts on surrounding property.

19-1.5 Provide public access and viewing areas for the public enjoyment and education of the Coastal Zone environment, including access to and viewing of recreational and industrial activities in the Port of Los Angeles consistent with public safety, efficient Port operation and the California Coastal Act. (See Relationship to the Port of Los Angeles)

Program: The Plan identifies the area bounded by C Street on the north, Broad Avenue on the east, Fries Avenue on the west, and the Port of Los Angeles on the south, including the commercial area at the foot of Avalon Boulevard, as a special study area for improved integration and linkage of Port activities with the Wilmington community. Allowance by variance for additional building height may be considered for developments which provide public viewing of the harbor (e.g. restaurants, observation decks, etc.).

Chapter IV
COORDINATION OPPORTUNITIES FOR PUBLIC AGENCIES

Chapter 4 identifies actions which are recommended to be promoted by the City through the appropriate city departments and through other agencies including Federal, State, and private sector entities to further the goals of the Plan. These are objectives or goals that the Planning Department does not have control over, but which involve issues that should be identified in the community plan and which help to reinforce the intent of the goals and objectives found in Chapter 3.

RECREATION AND PARK FACILITIES AND OPEN SPACE

1. The City Department of Recreation and Parks should work with the Los Angeles Unified School District to develop a program for shared use of school sites for both educational and recreation and park opportunities.

2. Encourage continuing efforts by County, State, and Federal agencies to acquire vacant land for publicly-owned open space.

3. Ensure that parks are adequately illuminated and secured for safe use at night, as appropriate.

4. Coordinate with the Department of Recreation and Parks and the Police Department to insure adequate police patrols and the utilization of "defensible space", where feasible, in the design of recreation and park facilities.

5. Promote the supervision of park activities and enforcement of codes restricting illegal activity.

6. Improve the utilization and development of recreational facilities at existing parks, as needed, and as funds become available.

7. Protect and preserve the habitat of the unique and/or endangered species of animals and plants that reside in Harbor Regional Park and U.S. Defense Fuel Depot.

8. Coordinate with City Departments, neighboring cities, and County, State, and Federal agencies to utilize existing public lands such as flood control channels, utility easements, and Department of Water and Power properties for such recreational uses as hiking, biking, and horseback riding where possible

9. Plan and design the expansion of existing facilities and the acquisition of new sites to minimize the displacement of housing and the relocation of the residents.

10. Target the provisions of park and recreation facilities in areas with the greatest deficiencies.

11. Pursue resources to activate land that could be used for public recreation.

SCHOOLS

Consider large vacant parcels as a first alternative to accommodate the demand for new schools, if they are needed, prior to the displacement of existing uses.

LIBRARIES

1. Support the efforts of the Library Department and the Wilmington-Harbor City communities to increase the service levels of the libraries so they are appropriate for the Wilmington-Harbor City population.

2. Seek additional resources to maintain and expand library services to satisfy service demands to the Year 2010.

3. Develop a Citywide policy for locating non-English language permanent collections.

POLICE PROTECTION

Support and encourage community-based crime prevention efforts such as Neighborhood Watch Programs, regular interaction and coordination with existing community based policing, foot and bicycle patrols, and regular communication with neighborhood and civic organizations

FIRE PROTECTION

Ensure that an adequate number and type of fire station and fire service personnel are maintained by periodically evaluating population growth, level of service (response time and staffing) and fire hazards in the City.

HISTORIC PRESERVATION

1. Assist private owners of historic properties/ resources to maintain and/or enhance their properties in a manner that will conserve the integrity of such resources in the best possible condition.

2. Seek programs and implementing actions to revitalize the Wilmington Central Business District, and to protect architecturally and historically significant buildings and provide for their renovation and reuse.

HOUSING

1. Locate senior citizen housing projects in neighborhoods within reasonable walking distance of health and community facilities, services, and public transportation.

2. Maintain and preserve the character and integrity of existing neighborhoods and encourage participation in self-help preventive maintenance to promote neighborhood conservation, beautification, and rehabilitation.

3. Strengthen Department of Building and Safety efforts by allocating sufficient staff resources to arrest blight and conserve the housing stock by monitoring and investigating zoning and building code violations and issuing Orders to Comply with such codes.

4. Improve the coordination of public services to support neighborhood conservation activities.

5. Ensure that the location of low and moderate income housing is equitably distributed throughout the Plan area predicated on a fair share basis in relationship to all other planning areas.

6. Substantially rehabilitate, modernize and improve the physical and social living conditions in the Normont Terrace and Dana Strand Village public of dwelling units and accessory facilities, usable open space, and the mitigation of adverse environmental conditions. Such modernization program may include the establishment of neighborhood commercial support activities along the highway frontages which bound the properties.

7. Encourage new and alternative housing concepts, as well as alternative materials and methods of construction, which are found to be compatible with City codes.

8. Encourage reuse of the existing U.S. Navy housing areas at the John Montgomery and Palos Verdes sites, in a manner that will provide needed housing in the community without adversely impacting the surrounding area.

9. Allow for the assembly and trade of public land in order to encourage the construction of housing in appropriate locations within the Plan area.

10. Ensure that the development of transitional housing units and emergency shelters is appropriately located.

11. Encourage the development of housing types intended to meet the special needs of senior citizens and the physically challenged.

INDUSTRIAL

1. Encourage and assist economic revitalization and reuse of older industrial properties for industrial uses through City, State, and Federal programs.

2. Assist in the aggregation of smaller, older sites to facilitate revitalization or reuse, where appropriate.

3. Require strict compliance by local industry with all applicable air quality standards and to encourage vigorous enforcement by the appropriate regulatory agencies. These standards include that all parking areas, driveways and storage areas be paved to relieve dust. It is also the policy to pave all existing areas within five years of the adoption of this Plan in accordance with the fugitive dust control measures include in the Regional Air Quality Management Plan being promulgated by the South Coast Air Quality Management District.

4. Include measures to abate noise, odors and chemical discharges in the site design of industrial facilities to minimize such potential impacts on surrounding properties.

5. Expand existing clean-up program for industrial lands, streets and alleys which are beset by the illegal accumulation of junk, trash, abandoned vehicles, weeds or debris, and devising other appropriate remedies to discourage the further spread of such deterioration and blight.

6. Establish a local government task force to coordinate code enforcement action in the blighted area generally easterly of Alameda Street and northerly of Anaheim Street, and to study improved land use potential and circulation needs, including opening or closing of rights-of-way, to facilitate improved development.

7. Landscape Beautification Design Plans be developed by the Community Redevelopment Agency for the Industrial Park setting forth the objectives, policies and programs incorporated as part of this District Plan and that landscaping plans be a part of any industrial design standards ordinance developed.

8. The City Department of Transportation and the Bureau of Engineering should investigate potential street openings and closures and consider alternative traffic control measures which would facilitate the consolidation of industrial land for improved industrial development potential, improve vehicular access and circulation to industrial sites, and protect residential neighborhoods from the adverse impact of industrial-related traffic.

UTILITIES

Install utilities underground through assessment districts or other funding, when feasible.

EMPLOYMENT

1. Encourage businesses to participate in job training programs for local residents

2. Develop employment opportunities for a wide range of jobs, skills, and wages.

3. Encourage and assist economic revitalization and the reuse of older industrial properties for industrial uses through City, State and Federal programs.

PUBLIC TRANSPORTATION

1. Coordinate with the Metropolitan Transit Authority (MTA), Long Beach Transit, and Torrance Transit to improve local bus service to and within the Wilmington-Harbor City Plan area.

2. Encourage the expansion of transit programs, wherever feasible, aimed at enhancing the mobility of senior citizens, disabled persons, and the transit-dependent population.

3. Encourage the Metropolitan Transit Authority, Long Beach Transit, Torrance Transit, and the City's Department of Transportation to establish local bus service to connect public schools, and private schools to the community's major focal points, and to the existing bus routes that serve Wilmington-Harbor City and the surrounding communities.

4. Develop an intermodal mass transportation plan to promote the linkage of transportation facilities, routes, and services, including the Blue Line.

NON-MOTORIZED TRANSPORTATION

Encourage funding and construction of bicycle facilities connecting residential neighborhoods to schools, open space areas and employment centers.

Chapter V
URBAN DESIGN

The Wilmington-Harbor City Community Plan is made up of neighborhoods with distinctive characteristics. The purpose of this chapter is to lay out policies and standards for multiple residential, commercial and industrial projects, and for community design. This chapter identifies general Design Standards directed at individual projects. In addition, there is a Community Design and Landscaping section which is directed at the community's use of streetscape improvements and landscaping in public spaces and rights-of-way.

The Design Policies in this chapter establish the minimum level of design that shall be observed in multiple-residential, commercial and industrial projects within the entire Plan Area. They also address design issues for parking and landscaping.

Policies found in this Chapter shall be accomplished with the establishment of a Community Design Overlay Districts (CDO's), per the Supplemental Use District Section of the Zoning Code LAIC (Section 13.00). Projects subject to discretionary review should also implement the applicable policies.

GOALS AND PURPOSES

These design policies and standards are to ensure that residential, commercial and industrial projects and public spaces and rights-of-way incorporate specific elements of good design. The intent is to promote a stable and pleasant environment. In commercial corridors, the emphasis is on the provision and maintenance of the visual continuity of streetscapes and the creation of an environment that encourages pedestrian and economic activity. In multiple-family residential areas, the emphasis is on the promotion of architectural design that enhances the quality-of-life, living conditions and neighborhood pride of the residents. In industrial areas, the intent is to improve compatibility with the non-industrial areas and encourage quality industrial development.

DESIGN POLICIES FOR INDIVIDUAL PROJECTS

COMMERCIAL

Site Planning

Structures shall be oriented toward the main commercial street where a parcel is located and shall avoid pedestrian/ vehicular conflicts by:

1. Locating surface parking areas between commercial and residential areas, where appropriate to provide a buffer, and separated from residential uses by means of at least a solid wall and/or landscaped setback.

2. Minimizing the number of driveways providing access from arterials.

3. Maximizing retail and commercial service uses along street level frontages of commercial developments.

4. Providing front pedestrian entrances for businesses fronting on main commercial streets.

5. Providing through arcades from the front of buildings to rear parking for projects within wide frontages.

6. Providing landscaping strips between driveways and walkways which access the rear of properties.

7. Providing speed bumps for driveways paralleling walkways for more than 50 linear feet.

8. Providing, where feasible, the undergrounding of new utility service.

9. Screening of mechanical and electrical equipment from public view.

10. Screening of all rooftop equipment and building appurtenances from public view.

11. Requiring the enclosure of trash areas for all projects.

Pedestrian-oriented, Height and Building Design

In Community Centers and mixed-use districts, the mass, proportion and scale of all new buildings and remodels shall be at a pedestrian scale. The design of all proposed projects shall be articulated to provide variation and visual interest, and enhance the streetscape by providing continuity and avoiding opportunities for graffiti.

Building materials shall be employed to provide relief to untreated portions of exterior building facades. The purpose of these provisions is to ensure that a project does not result in large sterile expanses of building walls, is designed in harmony with the surrounding neighborhood, and creates a stable environment with a pleasant and desirable character. Accordingly, the following policies are proposed:

1. No structures should exceed three stories or 45 feet in height.

2. Requiring the use of articulations, recesses, surface perforations, or porticoes to break up long, flat building facades and free standing walls.

3. Maximizing for front facades and facades facing rear parking, the area devoted to doors, windows and transparent elements.

4. Providing accenting, complementary building materials to building facades.

5. Maximizing the applications of architectural features or articulations to

building facades.

6. Locating surface parking to the rear of structures.

Parking Structures

Parking structures shall be integrated with the design of the buildings they serve through:

1. Designing parking structure exteriors to match the style, materials and color of the main building.

2. Landscaping to screen parking structures not architecturally integrated with the main building(s).

3. Utilizing decorative walls and landscaping to buffer residential uses from parking structures.

4. Surface Parking/Landscaping

5. Devoting 7% of total area of surface parking lots to landscaping.

6. Providing a landscaped buffer along public streets and/or adjoining residential uses.

Light and Glare

1. Installing on-site lighting along all pedestrian walkways and vehicular access ways.

2. Shielding and directing on-site lighting onto driveways and walkways, directed away from adjacent residential uses.

Mixed Use

Maximize commercial uses on the ground floor by requiring 10% of commercial development to serve needs of the residential portion of the building.

MULTIPLE RESIDENTIAL

Site Planning

All multiple residential projects of five or more units shall be designed around a landscaped focal point or courtyard to serve as an amenity for residents. Toward that goal the following policies are proposed:

1. Providing a pedestrian entrance at the front of each project.

2. Requiring useable open space for outdoor activities, especially for children.

Design

The design of all buildings shall be of a quality and character that improves

community appearances by avoiding excessive variety or monotonous repetition. Achievement of this can be accomplished through:

1. Requiring the use of articulations, recesses, surface perforations and/or porticoes to break up long, flat building facades.

2. complementary building materials on building facades.

3. Incorporating varying design to provide definition for each floor.

4. Integrating building fixtures, awnings, or security gates, into the design of building(s).

5. Screening of all roof top equipment and building appurtenances from adjacent properties.

6. Requiring decorative, masonry walls to enclose trash.

Parking Structures

Parking structures shall be integrated with the design of the buildings they serve through:

1. Designing parking structure exteriors to match the style, materials and color of the main building.

2. Maximizing commercial uses on ground floors.

3. to screen parking structures not architecturally integrated with the main building.

4. Utilizing decorative walls and/or landscaping to buffer residential uses from parking structures.

INDUSTRIAL

Structures

The purpose is to create attractive buffers along street frontages of industrial sites, and to serve such practical purposes as security, sound attenuation, the separation of functional areas, and the screening of unsightly nuisances, by:

1. Designing the site and building(s) to convey visual interest and to be visually compatible with adjacent uses.

2. Treating large expanses of blank walls and tilt-up concrete walls visible from the public right-of-way with contrasting complementary colors, building plane variation, murals, planters and/or other landscape elements to create visual interest.

3. Screening of mechanical and electrical equipment from public view.

4. Screening of all rooftop equipment and building appurtenances from

public view.

5. Requiring the enclosure of trash areas for all projects.

6. Screening of open storage areas from public view.

7. Requiring freestanding walls to use articulations, surface perforations or other elements, and to include plantings of vines or tall shrubs or trees on exterior faces, to relieve long monotonous expanses and mitigate graffiti.

8. Using landscaping effectively to screen parking and loading areas from roadways, as a surface treatment adjacent to building walls, and to screen from public view storage areas, trash containers and utility equipment.

9. Locating loading facilities at the rear of industrial sites, or alternately, in areas where they can function efficiently yet be screened from the street (or adjacent non-industrial uses) by landscaping and offsite from driveway and accessways.

10. Providing on-site parking in areas not interfering with other site activities and which are screened from public view by landscaping, berms, fencing and/or walls.

11. New and/or expanded industrial sites have the capability of handling all parking needs, including having adequate on-site areas for trucks awaiting loading or unloading of goods, where applicable, in order to prevent the use of public street for such purposes.

Lighting

Integrating exterior lighting with site design and directing exterior lighting onto the project site and locating flood lighting so as not to impact any surrounding residential uses.

DESIGN GUIDELINES FOR INDUSTRIAL/ RESIDENTIAL INTERFACE AREAS

In order to mitigate potential negative impacts generated by manufacturing uses when they are located adjacent to residentially zoned neighborhoods, new development of industrial uses shall incorporate the following design guidelines:

Loading Areas

1. New development of industrial uses located across a local or collector street from a residentially zoned area shall be designed in such a manner that truck loading/unloading shall be restricted to the rear portion of the lot, and/or separated from the street by the structure housing the industrial use.

2. New development adjacent to (abutting) residentially zoned areas shall locate facilities for loading and unloading or open storage of material and finished products on the project site and/or the street frontage furthest from the residential development.

Walls/Landscaping

1. Where vehicle parking, loading, or open storage for a new industrial development is located within 50 feet of a public street which the industrial and residential uses, a minimum 3-1/2 foot high solid decorative masonry shall be provided in a front yard, or a minimum 5 foot, 9 inch to 8 foot solid decorative masonry wall in a side or rear yard. That a minimum 5-foot landscaped setback buffer with an automatic sprinkler system shall be located in front of said wall, along the street frontage.

2. New industrial development located directly across a local or collector street from a residential neighborhood shall provide a minimum 5-foot landscaped setback along any portion of the frontage not required for driveways, facing the residential use. Said landscaping shall contain a minimum of one 24-inch box tree (with a minimum trunk diameter of two inches, a height of eight feet at the time of planting, and with an installed automatic sprinkler system) for every 20 feet of frontage.

Architectural Guidelines

1. New industrial development located directly across a local or collector street, or with a lot line adjoining a residentially zoned area shall have outdoor, on-site lighting designed and installed with shielding, such that the light source cannot be seen from adjacent residential properties.

2. New industrial development on local or collector streets fronting onto residentially zoned areas shall be designed with articulated facades (for example, facades that have architectural details, wall breaks, or other architectural features which provide at least 5 feet of relief to a minimum depth of 8 inches every 20 feet of the building wall) facing the residential development.

3. New industrial development adjacent to residentially zoned areas shall be designed with no window openings facing residential properties and the construction of a 5 foot 9 inch to 8 foot high solid decorative masonry wall adjacent to these properties if no such wall exists. There shall be no window openings higher than the adjacent wall.

4. All exhaust fans and exterior or rooftop mechanical equipment shall be enclosed and sound absorbing and shielding provisions shall be incorporated in the design of the project. Such equipment shall be set back as far as possible from residential property lines.

COMMUNITY DESIGN AND LANDSCAPING GUILDELINES

In addition to the establishment of Design Standards for individual projects, a community's identity can be enhanced through improvements to the streetscape and landscaping in public spaces and rights-of-way. It is the intent of this section to establish a set of guidelines that will serve to improve the environment, both aesthetically and physically, as opportunities in the Wilmington-Harbor City Community Plan area occur which involve public improvements or other public and/or private projects that affect public spaces

and rights-of-way.

A sense of entry should be created for the Wilmington and Harbor City communities from adjacent cities and communities that serves to define the boundaries and the edges of the City and the unique attributes of the community. Public spaces and rights- of-way should capitalize on existing physical access to differentiate the community as a unique place in the City.

The presence or absence of street trees is an important ingredient in the aesthetic quality of an area. Consistent use of appropriate street trees provides shade during hot summer months, emphasizes sidewalk activity by separating vehicle and pedestrian traffic, and creates an area-wide identity which distinguishes neighborhoods within Wilmington-Harbor City from each other.

The following improvements are recommended:

ENTRYWAY IMPROVEMENTS

Provide improvements along principal streets and at major identified intersections and edges which clearly distinguish these locations as major streetscapes and entries. Such improvements may include elements such as signage, landscaping, vertical pylons and/or other distinctive treatments.

STREETSCAPE

1. Provide for a coordinated streetscape design at identified entries to the Plan Area that includes street lighting, street furniture, and sidewalk/ crosswalk improvements in the public right-of-way.

2. Establish a comprehensive streetscape and landscape improvement program for identified corridors and districts for the selection and installation of the following:

    a. Street trees

    b. Street lighting

    c. Streetscape elements sidewalk/ crosswalk paving, street furniture)

    d. Public signage

3. Identify locations for, and develop landscaped median strips within commercial streets, provided that there is adequate space, traffic flow, site access, and the proper street cross section to insert the medians.

STREET TREES

1. Select species which:

    a. Enhance the pedestrian character, and convey a distinctive high quality visual image.

    b. Are drought and smog tolerant, and fire-resistant.

    c. Complement the existing street trees.

2. Establish a hierarchy for street trees which shall include:

a. Major Accent Trees. These trees should be located at entry locations, intersections, and activity centers.

b. Street Trees. Select specific species to be the common tree for street frontages. A single flowering species may be selected for all residential neighborhoods and commercial districts or different species selected to distinguish one neighborhood, district, or street from another. In residential neighborhoods, the trees should be full, to provide shade and color. In commercial districts, the trees should provide shade, but be more transparent to promote views of store fronts and signs.

c. Ornamental or Special Plantings. At special areas along street frontages, such as linkages to pedestrian walkways and plazas and outdoor dining areas, ornamental trees providing shade and color should be utilized to emphasize and focus attention on those places.

STREET FURNITURE

Install street furniture that encourages pedestrian activity or physical and visual access to buildings and which is aesthetically pleasing, functional and comfortable. Street furniture may include such elements as bus and pedestrian benches, bus shelters, kiosks, trash receptacles, newspaper racks, bicycle racks, public telephones, landscaped planters, drinking fountains, and bollards. Priority should be given to pedestrian-oriented areas.

STREET LIGHTING

1. Install new street lights in commercial districts which are attractively designed, and compatible with facades and other street furniture, to provide adequate visibility, security, and a festive night time environment.

2. Establish a consistent street lighting type utilizing a light standard that is compatible with the overall street furniture and graphics/ signage program.

3. Any new street lighting or pedestrian lighting system built in the public right-or way must be designed to currently adopted City standards. Equipment must be tested and approved by the Bureau of Street Lighting.
4. New lighting systems will be designed to minimize glare and "light trespass".

5. No new or replacement street tree shall be planted closer than 20 feet from an existing or proposed streetlight. Exceptions will be considered by the Bureau of Street Lighting after reviewing mature tree characteristics.

6. All new or replacement lighting systems require due process. Street lighting is installed through the formation of special assessment districts. Where any increase in special assessment is anticipated, public hearings are required.

7. Ornamental or historic poles can not be removed without the prior approval of the City's Cultural Affairs Commission.

SIDEWALKS/PAVING

1. Repave existing sidewalks and crosswalks in the Central Business District with brick pavers, concrete, or other safe, non-slip materials to create a distinctive pedestrian environment and, for crosswalks, to visually and physically differentiate these from vehicle travel lanes and promote continuity between pedestrian sidewalks.

2. Develop sidewalk "pull-outs" at intersections, where they do not adversely impact traffic flow or safety, by extending the sidewalk to the depth of a parking stall to accommodate landscaping and street furniture and reduce the crosswalk width.

SIGNAGE

1. Establish a consistent design for all public signage, including fixture type, lettering, colors, symbols, and logos designed for specific areas or path-ways.

2. Provide for distinctive signage which identifies principal entries to unique neighborhoods, historic structures, and public buildings and parks.

3. Ensure that public signage complements and does not detract from adjacent commercial and residential uses.

4. Provide for signage which uniquely identifies principal commercial areas.

PUBLIC OPEN SPACE AND PLAZAS

Establish public open space standards that will guide the design of new public plazas and open spaces. These standards should include the following:

1. Consideration of the siting of open space to maximize pedestrian accessibility and circulation.

2. Solar exposure or protection.

3. Adjacent to pedestrian routes and other open spaces.

4. Appropriate plant and hardscape materials.

RICHARD RIORDAN, Mayor
James Kenneth Hahn, City Attorney
Rick Tuttle, Controller

CITY COUNCIL

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Con Howe, Director of Planning
Franklin Eberhard, Deputy Director
Gordon B. Hamilton, Deputy Director
Robert H. Sutton, Deputy Director

COMMUNITY PLAN UPDATE

COMMUNITY PLANNING

Jack Sedwick, Principal City Planner
Merryl Edelstein, Senior City Planner
James Yoshinaga, City Planner
Jeff Pool, City Planning Associate

GEOGRAPHIC INFORMATION SYSTEMS

John Butcher, GIS Supervisor II
Paul Burns, GIS Supervisor I
Carmen Miraflor, GIS Supervisor I
Louie Angeles, GIS Specialist

PUBLICATION

Gary Booher, City Planner
Jae H. Kim, City Planning Associate

DEPARTMENT OF
CITY PLANNING
200 N. SPRING STREET, ROOM 525
LOS ANGELES, CA 90012-4801
CITY PLANNING COMMISSION

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THOMAS E. SCHIFF

GABRIELE WILLIAMS
COMMISSION EXECUTIVE ASSISTANT
(213) 978-1300

CITY OF LOS ANGELES
CALIFORNIA

JAMES K. HAHN
MAYOR

EXECUTIVE OFFICES

CON HOWE
DIRECTOR
(213) 978-1271
FRANKLIN P. EBERHARD
DEPUTY DIRECTOR
(213) 978-1273
GORDON B. HAMILTON
DEPUTY DIRECTOR
(213) 978-1272
ROBERT H. SUTTON
DEPUTY DIRECTOR
(213) 978-1274
FAX: (213) 978-1275
INFORMATION
(213) 978-1270
www.lacity.org/PLN

April 21, 2005

All Interested Parties:

RAS INTERPRETATION TO COMMUNITY PLAN FOOTNOTES
DIRECTOR'S INTERPRETATION

Attached is a copy of the Department of City Planning's interpretation of Ordinance 174,999, effective January 15, 2003, which established the RAS Zones. This published interpretation becomes final and effective 20-days from the date of this communication unless an appeal to the City Planning Commission is filed within this time period. Appeals shall be filed in duplicate on forms provided at any of the following public offices of the Department of City Planning, along with the required filing fee:

Planning Department – Public Counter
201 North Figueroa Street, 3rd Floor
Los Angeles, CA 90012
Phone: (213) 482-7077

San Fernando Valley Office
6262 Van Nuys Boulevard
Van Nuys, CA 91401
Phone: (818) 374-5050

If you have any questions regarding this case, please contact Jane Blumenfeld at (213) 978-1372 of myself at (213) 978-1274.

Sincerely,

CON HOWE
Director of Planning

ROBERT H. SUTTON
Deputy Director

CH/RHS:hkt

Attachment

cc: Council Planning Deputies
Ray Chan, Building and Safety Department
David Kabashima, Department of City Planning
Jane Blumenfeld, Department of City Planning

Recyclable and made from recycled waste.

April 21, 2005

RAS RELATIONSHIP TO COMMUNITY PLAN FOOTNOTES
DIRECTOR'S INTERPRETATION

All Interested Parties:

SUBJECT:

Inquiries have been made regarding potential conflicts between Footnotes on the Community Plans and the RAS 3 and RAS 4 (hereafter referred to as RAS) Zones.

BACKGROUND:

The Residential/Accessory Services Zones (RAS) allow a greater floor area than commercial zones and greater height than otherwise allowed in height district 1VL.

> "An example is:
> Where a traditional C2-1VL with a Commercial plan designation is limited to a 1.5:1 FAR and a 45 height limit, the RAS 3-1VL and RAS 4-1VL shall not exceed a 3:1 FAR and 50 feet in height in accordance with the LAMC 12.10.5, 12.11.5 and 12.21.1."

The Community Plans as recommend by the City Planning Commission and adopted by City Council are a general guide to development for the community and city as a whole. Rarely do the Community Plans specify special planning rights or restrictions for particular parcels.

Some community plan maps contain footnotes regarding height and floor area. Footnotes appear on the map legend next to the commercial land use categories or in some cases on specific properties or areas. The footnotes that are attached to the commercial land use categories generally relate in a broad-brushed manner to all areas of the plan designated for that particular use. Typically such footnotes are not site specific, and as such, do not relate to specific locations, blocks, or parcels within the community plan area.

> "An example of such a footnote which appears in most Community Plans reads:
> Footnote 1: 'Height District 1VL'
> This means all properties within the commercial land use category that have this footnote are limited to an FAR of 1.5:1 with a 45-foot height limit."

DISCUSSION:

When the City Council adopted the RAS Zones in 2002, their purpose was to promote mixed use development in the city's commercial zones, particularly in the commercial corridors which provide the greatest access to transit. In their adoption of the RAS Zones, the City Council recognized that

the additional floor area and height allowed by the RAS zones are necessary to make such primarily residential projects viable. However to protect the integrity of the Community Plans, the Council limited the residential density permitted in the RAS 3 and RAS 4 Zones to correspond to the residential densities permitted in the R3 and R4 Zones, respectively. Thus, they permitted RAS 3 and RAS 4 Zones in Plans that permit R4 and higher zoning but only permitted the RAS 3 Zone (and not RAS 4) in Plans that previously had R3 as the highest zoning category.

In one particular plan, the Plan Footnote on a Neighborhood Commercial area states:

"Floor Area Ratio 1:1."

In this specific situation it cannot be the intent of Council to allow a 3:1 FAR since they knowingly restricted the property to a 1:1 FAR.

INTERPRETATION:

It is hereby interpreted that the RAS Zones can exceed a Community Plan Footnote when that footnote is general in nature and generally refers to all parcels under that plan category. Where there is a specific footnote that refers to (a) specific parcel(s) that is more restrictive, the RAS Zone would not be permitted without a corresponding Plan Amendment.

EXHIBIT E
ENVIRONMENTAL DOCUMENTS
ENV-2022-6860-ND

E1 – Negative Declaration:
https://planning.lacity.gov/odocument/e1530a49-43ec-49de-9db4-95396a173b68/ENV-2022-6860.pdf

E2 – ND Appendix A- Air Quality:
https://planning.lacity.gov/odocument/cae21f4d-71ce-4555-a1fe-ff8daa4c50a9/ENV-2022-6860-A.pdf

E3 - ND Appendix B- Tree Report:
https://planning.lacity.gov/odocument/532cac03-bd65-4bee-af76-5121dcc77562/ENV-2022-6860-B.pdf

E4 - ND Appendix C.1- Tribal Initiation:
https://planning.lacity.gov/odocument/600ac4af-e504-44c2-8a25-ddc5147f3bd1/ENV-2022-6860-C.1.pdf

E5 - ND Appendix C.2- Cultural Resource Records:
https://planning.lacity.gov/odocument/27a9604b-b37c-4167-a04e-6490be90bc09/ENV-2022-6860-C.2.pdf

E6 - ND Appendix D – Table 1:
https://planning.lacity.gov/odocument/694fce71-7ad5-405a-965f-bb959034c6cb/ENV-2022-6860-D.pdf

E7 – ND Appendix E.1- Phase 1:
https://planning.lacity.gov/odocument/443e025a-25c0-40c1-8f9e-f2fe1a5756c7/ENV-2022-6860-E1.pdf

E8 – ND Appendix E.2- Well Finder Map:
https://planning.lacity.gov/odocument/dc78ca50-7827-4d5a-bac9-6b0db6401d67/ENV-2022-6860-E2.pdf

E9 – ND Appendix E.3-CalGEM:
https://planning.lacity.gov/odocument/a1483087-6bd9-466a-81c1-23cb460bdc7d/ENV-2022-6860-E3.pdf

E10 – ND Appendix E. 4-Asbestos Survey Report:
https://planning.lacity.gov/odocument/02c4d958-3726-4a2a-a0a5-6dab01bd36a3/ENV-2022-6860-E4.pdf

E11 – ND Appendix E.5- Site Testing for Methane:
https://planning.lacity.gov/odocument/179ed9ff-5a60-41ce-9db6-d1b26f4e9b57/ENV-2022-6860-E5.pdf

E12 – ND Appendix E.6- Limited Phase II:
https://planning.lacity.gov/odocument/eeee557c-7e74-47f5-b4b0-711f88ed82c8/ENV-2022-6860-E6.pdf

E13 – ND Appendix F- Noise Study:
https://planning.lacity.gov/odocument/c7180279-b0e7-4b68-aee9-c8f919d2cf08/ENV-2022-6860-F.pdf

E14 – ND Appendix G.1-VMT Calculator:
https://planning.lacity.gov/odocument/6be7a557-bbd2-4a38-a5ca-c05f999bb659/ENV-2022-6860-G1.pdf

E 15 – ND Appendix G2.1- Transportation Referral Form:
https://planning.lacity.gov/odocument/d4188164-a6f5-4a0e-af05-dcfd6e619f1d/ENV-2022-6860-G2.1.pdf

E16 – ND Appendix G2 – Transportation Evaluation:
https://planning.lacity.gov/odocument/003416e4-64fd-4b96-a8c4-e0122414e179/ENV-2022-6860-G2.pdf

E17 – ND Appendix H – Native American Heritage Commission:
https://planning.lacity.gov/odocument/b586d26f-b6af-4b51-b04b-8d833f6cda68/ENV-2022-6860-H.pdf

E18 - California Department of Transportation (Caltrans)

E19 - Well Abandonment Report

E20 – Meridian Consultants ND Comment Response

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 269-1124
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

May 2, 2025

Norali Martinez
City of Los Angeles
200 N. Spring Street, Room 721
Los Angeles, CA 90012

RE: KPAC Coil Avenue Freezer Expansion
SCH # 2025041295
Vic. LA-1/PM 9.45, LA-47/PM 9.26
GTS # LA-2025-04805-ND

Dear Norali Martinez:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-referenced environmental document. The project involves the improvement and expansion of an existing one-story, 42-foot tall, 221,496 square-foot cold storage facility, resulting in a two-story, 65-foot tall, 281,899 square foot facility, with a total 0.38:1 Floor Area Ratio ("FAR"). The expansion includes the demolition and alteration of 27,157 square foot existing cold dock for a new 71,331 square feet freezer, resulting in a net addition of 44,174 square feet of new floor area. The improvements include 13,939 square feet of new office space, and 2,290 square feet of a new engine/mechanical room, electrical room, and fire pump room. The project also involves new automated racking system, other interior improvements, and decreasing the length of the existing double rail spur. The project will provide 119 parking spaces, with no (0) trees to be removed, and with an import of 7,000 cubic yards of soil.

The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. Senate Bill 743 (2013) has codified into CEQA law and mandated that CEQA review of transportation impacts of proposed development be modified by using Vehicle Miles Traveled (VMT) as the primary metric in identifying transportation impacts for all future development projects. As a reminder, all environmental document should include Vehicle Miles Traveled. You may reference the Governor's Office of Planning and Research (OPR) for more information:

https://opr.ca.gov/ceqa/#guidelines-updates

The new expanded facility would add approximately a maximum of 30 employees and cars per day and a maximum of 40 trucks/containers per day, resulting in a total of 160 trucks/containers per day. The warehouse would result in 448 daily trips and 3,371 vehicle-miles travelled (VMT). The Project would add 125 net trips and 1,092 net daily VMT. These values do not take into account credits for Project Transportation Demand Management (TDM) features, such as 30 percent of the workforce at the current facility use carpool or public transportation. The Project would not exceed the Harbor Area Planning Commission (APC) household VMT threshold of 9.2 and work VMT threshold of 12.3. As such, Caltrans concurs that the proposed Project is not anticipated to cause a significant VMT impact based on the City's VMT criteria for the Central APC area. Impacts would be less than significant.

Any transportation of heavy construction equipment and/or materials that require the use of oversized transport vehicles on State highways will need a Caltrans transportation permit. Any large-size truck trips be limited to off-peak commute periods for the construction phase and operation phase. Construction truck loads should be covered with a tarpaulin cover.

Storm water run-off is a sensitive issue for Los Angeles County. Please be mindful that projects should be designed to discharge clean run-off water. Additionally, discharge of storm water run-off is not permitted onto State highway facilities without any storm water management plan.

If you have any questions, please feel free to contact Mr. Alan Lin, the project coordinator, at (213) 269-1124 and refer to GTS # LA-2025-04805-ND.

Sincerely,

Miya Edmonson

MIYA EDMONSON
LDR/CEQA Branch Chief

email: State Clearinghouse

RESOURCES AGENCY OF CALIFORN
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Long Beach, California
March 12, 1990

_Gregg E. Martin, Agent_____
_KELT CALIFORNIA, INC._____
_3878 Carson St. Ste 200_____
_TORRANCE CA 90503

Your supplementary report of abandonment of well Konoike Transport & Engineering (USA) Inc "Great Lakes" 1, API No. 037-22599, Section 28 4S. 13W., S.B. B. & M., Wilmington, Los Angeles County, dated 7-19-89, received 7-26-89, has been examined in conjunction with records filed in this office, and we have determined that all of the requirements of this Division have been fulfilled.

DS:df

cc: Update; Conservation Committee;
LA County Planning Comm.;
LA County Fire Prevention Bureau;
LA County Assessor; Dept. Bldg & Sfty;
Dept. Oil Properties; Konoike Transport

M. G. Mefferd
State Oil and Gas Supervisor

By David Sanchez
Deputy Supervisor

For R. K. Baker

OG159

DIVISION OF OIL AND GAS

CHECK LIST - RECORDS RECEIVED AND WELL STATUS

Company KONOIKE TRANSPORT & ENGINEERING (USA) INC Well No. "GREAT LAKES" 1

API No. 037-22599 Sec. 28, T. 4S, R. 13W, S.B. B.&M.

County LOS ANGELES Field WILMINGTON

RECORDS RECEIVED	DATE
Well Summary (Form OG100)	
History (Form OG103)	4-26-89 (2)
Core Record (Form OG101)	
Directional Survey	
Sidewall Samples	
Other	
Date final records received	
Electric logs:	

STATUS		STATUS	
Producing - Oil	___	Water Disposal	___
Idle - Oil	___	Waterflood	___
Abandoned - Oil	6/89	Steamflood	___
Drilling - Idle	___	Fire Flood	___
Abandoned - Dry Hole	___	Air Injection	___
Producing - Gas	___	Gas Injection	___
Idle - Gas	___	CO_2 Injection	___
Abandoned - Gas	___	LPG Injection	___
Gas-Open to Oil Zone	___	Observation	___
Gas Storage	___	Waterflood Source	___

DATE _____ "E" well Yes ☐ No ☐

RECOMPLETED _____

REMARKS _____

ENGINEER'S CHECK LIST

1. Summary, History, & Core record (dupl.) ✓
2. Electric Log ✓
3. Operator's Name ✓
4. Signature ✓
5. Well Designation
6. Location
7. Elevation
8. Notices ✓
9. "T" Reports ✓
10. Casing Record ✓
11. Plugs
12. Surface Inspection 2/27/90 EP
13. Production
14. E Well on Prod., enter EDP
15. Directional Survey

CLERICAL CHECK LIST

1. Location change ___ (F-OGD165) ___
2. Elevation change ___ (F-OGD165) ___
3. Form OGD121 fe
4. Form OG159 (Final Letter) 3-12-90
5. Form OGD150b (Release of Bond) ___
6. Duplicate logs to archives ___
7. Notice of Records due (F-OGD170) ___
8. EDP (F-OGD42A-1, 2) OK

SURF INSP OK 2/27/90 EP

Type FINAL LETTER after surf insp & map work are signed off

UPDATE CENTER 4-18-90

RECORDS NOT APPROVED

Reason: _____

RECORDS APPROVED DB 2-15-90

RELEASE BOND _____

Date Eligible _____

(Use date last needed records were received.)

MAP AND MAP BOOK + F.I.G. 3.12-90

128

LONG BEACH OFFICE - USE REVERSE SIDE

SUBMIT IN DUPLICATE

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

History of Oil or Gas Well

KONDIKE TRANSPORT & ENGINEERING (USA) INC.

Operator ~~Kelt Oil & Gas, Inc.~~ Field Wilmington County Los Angeles
Well GLP #1, Sec. 28, T 045, R 13W, SB B. & M.
A.P.I. No. 03722599 Name Gregg Martin (Person submitting report) Title V.P. Operations (President, Secretary or Agent)
Date July 19, 1989

Signature Gregg Martin

3520 Torrance Blvd., Torrance, CA 90503 (Address) (213) 543-1311 (Telephone Number)

History must be complete in all detail. Use this form to report all operations during drilling and testing of the well or during redrilling or altering the casing, plugging, or abandonment with the dates thereof. Include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests and initial production data.

Date	
	Plug & Abandonment
	All measurements are mat (KB to mat - 12')
6-26-89	BOPE installed. TIH & tag for fill. Measure out of hole with tubing. Tagged bottom at 3754' (TD @ 3754'). SDFN.
6-27-89	TIH w/ open ended tbg to 3744'. Mix & pump 120 cu ft (105 sx) of API class 'G' cement w/ 2% $CaCl_2$. POOH 10 stands. Change hole over with 200 bbls of 75 pcf abandonment mud. Tag cement plug @ 3343'. BOP, mudding of the hole & location & hardness of cement plug witnessed & approved by Burt Ellison, Division of Oil & Gas. Pull tbg to 1797'. Mix & pump 45 cu ft (40 sx) of API class 'G' cement. POOH w/ 27 stands. SDFN.
6-28-89	Tag top of cement plug @ 1685'. Location & hardness of cement plug witnessed & approved by Burt Ellison, Division of Oil & Gas. Verbal approval was obtained from Mike Kratovil, Division of Oil & Gas, not to shoot @ 60' & to go ahead w/ surface plug. Verbal approval also obtained for surface plug from Ron Smith, L.A. City Fire Department. With open ended tbg at 93', mix & pump 59 cu ft (52 sx) of API class 'G' cement, took cement returns. Wait on cement to harden. RDMO.
7-13-89	Verbal approval was obtained from Mike Kratovil, Division of Oil & Gas, and Vern Woodward, Los Angeles City Fire Department, to cut & cap the well. Cut off 13 3/8", 45# casing 10' below surface grade. Cement was at the surface. A steel plate was welded on. The plate stated the well name "GLP #1", LAFD #"2988", & the date "7-13-89". The plate was inspected by Los Angeles Fire Department. Abandonment of the well GLP #1 completed.

Ryan O'Neal
Production Engineer
July 18, 1989

RECEIVED
89 JUL 26 PM 2:02
DIVISION OF OIL & GAS
LONG BEACH, CA

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT OF PROPERTY AND WELL TRANSFER

Field or county	District
Wilmington	1
Former owner	**Date**
GREAT LAKES PROPERTIES, INC. (KELT OIL & GAS, INC.)	July 6, 1989

Name and location of well(s)

Sec. 28-4S-13W S.B. B&M

"Great Lakes" 1 (037-22599)

Description of the land upon which the well(s) is (are) located

See above.

Date of transfer, sale, assignment, conveyance, or exchange	New owner	Type of organization
May 31, 1989	KONOIKE TRANSPORT & ENGINEERING (USA) INC.	Corporation
	Address: 420 Boyd St., #501, LOS ANGELES, CA 90013	Telephone No. 213/680-9560

Reported by: Kelt Oil & Gas, OG30A received June 13, 1989

Confirmed by: Konoike Transport & Engineering (USA), INC. OG30A received June 13, 1989

New operator new status (status abbreviation)	Request designation of agent
Ab	Tadashi Aoki (OG134A received July 5, 1989)
Old operator new status (status abbreviation)	**Remarks**
Ab	See "Great Lakes" 1 (037-22599) for transfer details.

Deputy Supervisor	Signature
R. K. Baker	David Sanchez Dave Sanchez, Operating Eng.

OPERATOR STATUS ABBREVIATIONS

PA – Producing Active
NPA – No Potential, Active
PI – Potential Inactive
NPI – No Potential, Inactive
Ab – Abandoned or No More Wells

EDP Update
Conservation Committee
Dept Oil Properties

FORM AND RECORD CHECK LIST

Form or record	Initials	Date	Form or record	Initials	Date
Form OGD121	est	7-17-89	Map and book	F.J.G. 128	7-19-89
Form ODG140	est	7-17-89	Notice to be cancelled	N/A	
New well cards	est	7-17-89	Bond status	NONE	
Well records	est	7-17-89	EDP files	If ab. eff 7-89	
Electric logs	est	7-17-89			
Production reports					

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS No. T 190-207

Report on Operations

SEC. 3606 WELL

Christian Deleris, Agent
KELT OIL AND GAS, INC.
3870 Carson Street, Suite B-200
Torrance, CA 90503

Long Beach Calif.
January 19, 1990

Your operations at well Konoike Transport & Engineering (USA) Inc. "Great Lakes" 1, API No. 037-22599,
Sec. 28, T. 4S, R. 13W, S.B. B. & M. Wilmington
Field, in Los Angeles County,
were witnessed on 6-27-89. B. Ellison, representative of
the supervisor, was present from 1430 to 1530.
There were also present Ryan O'Neil, Production Engineer for Kelt Oil Co.
Present condition of well: 20"cem 40'; 13-3/8"cem 476'; 8-5/8"cem 3574', perf 3566' WSO; 6-5/8"ld 3517'-3754', perf 3524'-3754'. TD 3766'. Plugged w/cem 3744'-3343', 1797'-1685', & 93'-10'.

The operations were performed for the purpose of witnessing the plugging operations in the process of abandonment.

DECISION: APPROVED.

NOTE: The required Class II2M blowout prevention equipment was inspected and approved on 6-27-89.

DEFICIENCIES: NONE

CONTRACTOR: Tech Drill

BE:lc

cc: Update
Konoike Transport & Engineering (USA) Inc.

Surf. Insp. ok 2/27/90 EP

M. G. MEFFERD
State Oil and Gas Supervisor

By _____
Deputy Supervisor

for: R. K. Baker

OG109 (10/88/DWRR/5M)

EDP 11-Dec-89

190-207 DS 9/1/89

DIVISION OF OIL AND GAS
Cementing/Plugging Memo

Operator Great Lakes Properties, Inc. Well No. "Great Lakes" 1
API No. 037-22599 Sec. 28, T. 4S, R. 13W, SB B&M
Field Wilmington, County Los Angeles. On 6/27/89,
Mr. Burton Ellison, representative of the supervisor was present from 1430 to 1530.
There were also present Ryan Oneil Production Engineer for Kelt Oil Co.
Casing record of well: 20" cem 40'; 13 3/8" cem 476'; 8 5/8" cem 3574', perf 3566' WSO; 6 5/8" ld 3517-3754', perf 3524'-3754'. TD 3766'. Plugged w/cem 3744'-3343', 1797'-1685', & 93'-10' WEB.
The operations were performed for the purpose of (2)

☒ The plugging/~~cementing~~ operations as witnessed and reported are approved.

☐ The location and hardness of the cement plug @_____' is approved.

Hole size:_____" fr._____' to_____', _____" to_____' & _____" to_____'

Casing				Cemented			Top of Fill		Squeezed Away	Final Press.	Perfs.
Size	Wt.	Top	Bottom	Date	MO-Depth	Volume	Annulus	Casing			

Casing/tubing recovered:_____" shot/cut at_____', _____', _____' pulled fr._____';
_____" shot/cut at_____', _____', _____' pulled fr._____'.

Junk (in hole):

Hole fluid (bailed to) at_____'. Witnessed by

Mudding	Date	Bbls.	Displaced	Poured	Fill	Engr.
75# 25#/100ft	6/27/89	200 bbls	Tbg @ 3285'	—	Tbg @ 3285'	B. Ellison

Cement Plugs		Placing	Placing Witnessed		Top Witnessed			
Date	Sx./cf	MO & Depth	Time	Engr.	Depth	Wt/Sample	Date & Time	Engr.
6/26/89	120 cf	Tbg @ 3744'	1200	reported by R. Oneil	3343'	2000#	6/27/89 1530	B. Ellison
6/27/89	40 cf	Tbg @ 1797'	1700	"	1685'	5000#	6/28/89 0730	B. Ellison
6/28	525x	Tbg @ 93'	Rept by	R. O'neal	10'	—	Rept by	R. Oneal

C/O 3754'

-02-JP1

DEFICIENCIES NOTED AND CORRECTED:

None

DEFICIENCIES NOTED AND TO BE CORRECTED:

NONE

UNCORRECTABLE DEFICIENCIES:

NONE

CONTRACTOR:

Tech Drill

DIVISION OF OIL AND GAS

BLOWOUT PREVENTION EQUIPMENT MEMO

T _____

Operator Great Lakes Properties Inc. Well "Great Lakes" 1 Field Wilmington County Los Angeles

VISITS:	Date	Engineer	Time	Operator's Rep.	Title
1st	6/27/89	Burton Ellison	1430 to 1530	Ryan Oneil	Production Engineer
2nd			to		

Casing record of well: 20" cem 40'; 13 3/8 cem 476'; 8 5/8" cem 3574', perf 3566' WSO; 6 5/8" ld 3517'-3754', perf 3524'-3754'. TD 3766'.

OPERATION: ~~Testing~~ (inspecting) the blowout prevention equipment and installation.
DECISION: The blowout prevention equipment and its installation on the 8 5/8 "casing are approved.

REQUIRED BOPE CLASS: II 2M

Proposed Well Opns: (L) MPSP: _____ psi
Hole size: _____" fr. _____' to _____', _____" to _____' & _____" to _____

CASING RECORD (BOPE ANCHOR STRING ONLY)					Cement Details	Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at		Casing	Annulus

BOP STACK							a	b	a/b	TEST DATA			
API Symb.	Ram Sz.	Mfr.	Model or Type	Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Rec.Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
Rd	2 7/8	Shaffer	E	9"	3000	—							
Rd	CSO	Shaffer	E	9"	3000	—							

ACTUATING SYSTEM

Accum. Unit(s) Wkg. Press. _____ psi
Total Rated Pump Output _____ gpm
Distance From Well Bore _____ ft.

	Mfr.	Accum. Cap.	Precharge
1		gal.	psi
2		gal.	psi

CONTROL STATIONS	Elec.	Hyd.
Manif. at accum. unit		
Remote at Drlr's. stn.		
X Other: Hand wheels		

EMERG. BACKUP SYST.	Press.	Wkg. Pl.
N2 Cyl No: Type:	1	gal.
Other:	2	gal.
	3	gal.
	4	gal.
	5	gal.
	6	gal.

AUXILIARY EQUIPMENT

		No.	Sz. (in.)	Rated Press.	Connections: Weld	Flan.	Thrd.
	Fill-Up Line						
X	Kill Line below rams		2"	2000			X
X	Control Valve(s)	1		2000			X
	Check Valve(s)						
	Auxil. Pump Connec.						
	Choke Line						
	Control Valve(s)						
	Pressure Gauge						
	Adjustable Choke(s)						
	Bleed Line						
	Upper Kelly Cock						
	Lower Kelly Cock						
	Standpipe Valve						
	Standpipe Pressure Ga.						
X	Pipe Safety Valve		2 7/8"	3000			
	Internal Preventer						

HOLE FLUID MONITORING EQUIPMENT	Alarm Aud.	Alarm Vis.	Class
Calibrated Mud Pit			A
Pit Level Indicator			B
Pump Stroke Counter			
Pit Level Recorder			
Flow Sensor			C
Mud Totalizer			
Calibrated Trip Tank			
Other:			

REMARKS:

Hole Fluid Type	Weight	Storage Pits
Clay Base Mud	75 #	—

OGD9 (2/88/DWRR/2M)

DEFICIENCIES NOTED AND CORRECTED:

None

DEFICIENCIES NOTED AND TO BE CORRECTED:

None

UNCORRECTABLE DEFICIENCIES:

None

CONTRACTOR:

Tech Drill

KELT

KELT OIL & GAS, INC.
3878 Carson Street, Suite B 200
Torrance, California 90503 USA
Tel:(213)316-3707 Telex:271102
Telecopier: (213)316-8668

RECEIVED
89 JUL -3
LONG BEACH, CA

June 27, 1989

Mr. Donald French
Division of Oil and Gas
245 West Broadway, Suite 475
Long Beach, CA. 90802-4455

Dear Mr. French,

Pursuant to a telephone conversation on June 16, 1989 between yourself and Dan Kelly, Kelt's Production Manager, please be advised of the following regarding that well known as Great Lakes Properties #1, Wilmington, California. On November 3, 1987 Great Lakes Properties, Inc., and all of its subsidiaries, including Del Amo Energy Company, was acquired through a merger with Kelt. The interests in subject well (which were part of this merger) were in turn assigned to Konoike Transportation and Engineering (USA), Inc. on June 1, 1989. Konoike has since contracted Kelt to perform the subsurface abandonment of the well.

Please do not hesitate to contact me should you require any additional information.

Sincerely,

Gregg E. Martin
Vice President-Pacific Division
GEM/sw

RECEIVED
89 JUL -3 PM 12:45
DIVISION OF OIL & GAS
LONG BEACH, CA

KELT

KELT OIL & GAS, INC.
3878 Carson Street, Suite B 200
Torrance, California 90503 USA
Tel:(213)316-3707 Telex:271102
Telecopier: (213)316-8668

543-1311
Dan

June 12, 1989

STATE OF CALIFORNIA
Department of Conservation
DIVISION OF OIL AND GAS
245 W. Broadway Suite 475
Long Beach, CA. 90802-4455

Dear Sirs:

Enclosed please find an executed Report of Property/Well Transfer or Acquisition form for former Kelt California, Inc. well Great Lakes Properties #1, Wilmington, California.

Please contact me if you require any additional information on this matter.

Sincerely,

Gregg E. Martin
Vice President - Pacific Division
GEM/sw
enclosure:

RECEIVED
89 JUN 13 PM 2:06
DIVISION OF OIL & GAS
LONG BEACH, CA

REPORT OF
PROPERTY/WELL TRANSFER OR ACQUISITION

We have been informed that you have Acquired/Transferred wells.
Please complete and return the following to the :

Division of Oil and Gas

June 1, 19 89

Effective May 31, 1989 (date),

Kelt California, Inc. (old operator) transferred ownership of

the following described property to Kondike Transport and Engineering (USA), Inc. (new operator)

1. Lots 1 and 3 to Tract No. 12257, in the City of Los Angeles, (legal description of property)
County of Los Angeles, State of California, as per map recorded in Book 229, Pages 29 and 30 of Maps, in the office of The County Recorder of Said County.

Sec. 28, T. 45, R. 13W, SB B. & M., Wilmington (field or county)
"GREAT LAKES" 1 (037-22599)

2. G.L.P. #1 (list of wells)

(If additional space is needed, use back of form.)

GREAT LAKES PROPERTIES, INC.
(Kelt California, Inc. Oil & Gas)
(name of old operator)

3878 Carson Street, Ste. B-200
(address)

Torrance, CA 90503

Phone (213) 316-3707

By Gregg Martin Pacific Operations V.P.
(signature) (title)

KONDIKE
KONDIKE TRANSPORT AND ENGINEERING (USA), INC.
(name of new operator)

420 Boyd St., #501
(address)

Los Angeles, CA 90013

Phone (213) 680-9560

By [signature] Director
(signature) (title)

OG30A (7/85/DWRR/1M)

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89 JUN 13 PM 2:04
DIVISION OF OIL & GAS
LONG BEACH, CA

SOURCES AGENCY OF CALIFORNIA
PARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

No. P 189-436

849 (field code)
06 (area code)
20 (new pool code)
20 (old pool code)

PERMIT TO CONDUCT WELL OPERATIONS

SEC. 3606 WELL

Christian Deleris, Agent
KELT OIL AND GAS, INC.
3870 Carson Street, Suite B-200
Torrance, CA 90503

Long Beach, California
June 8, 1989

Your proposal to abandon well "Great Lakes" 1 Great Lakes Properties, Inc./,
A.P.I. No. 037-22599, Section 28, T. 4S, R. 13W, S.B. B. & M.,
Wilmington field, Fault Block II area, Ranger pool,
Los Angeles County, dated 5-18-89, received 5-24-89 has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED:

1. Blowout prevention equipment, equivalent to this division's Class II2M requirements, or better, shall be installed and maintained in operating condition.
2. All portions of the hole not plugged with cement shall be filled with clay base mud having a minimum density of 72 lb/cu ft and a minimum gel-shear strength of 25 lb/100 sq ft.
3. The hole shall be plugged with cement from 3754' to 3417', 1810' to 1710' and 60' to surface.
4. The proposed surface plug shall not contain rock or gravel.
5. This division shall be consulted and a Supplementary Notice may be required before making any changes in the proposed program.
6. THIS DIVISION SHALL BE NOTIFIED TO:
   a. Inspect the installed blowout prevention equipment prior to commencing downhole operations.
   b. Witness the location and hardness of the cement plug at 3417'.
   c. Witness the mudding of the hole.
   d. Witness the location and hardness of the cement plug at 1710'.
   e. Witness the placing of the cement plug from 60' to surface.
   f. Inspect and approve the cleanup of the well site.

NOTE: Base of fresh water at 1810'± M.D.

6/28/89
M. Kratovil / Ryan O'neil
Not necessary to shoot 8 5/8" csg @ 60' & squeeze

DGS:mh

cc: Update
Great Lakes Properties, Inc.

BRE

NO BOND REQUIRED

Engineer David G. Sanchez

Phone (213) 590-5311

M. G. MEFFERD, State Oil and Gas Supervisor

By R. C. Maxwell
for R. K. Baker, *Deputy Supervisor*

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

OG111 (7/88/DWRR/5M)

OGa

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to Abandon Well

This notice must be given at least five days before work is to begin.

FOR DIVISION USE ONLY			
CARDS	BOND	FORMS	
		OGD114	OGD121
5-25-89 et	NONE	5-25-89 et	5-25-89 et

DIVISION OF OIL AND GAS

In compliance with Section 3229, Division 3, Public Resources Code, notice is hereby given that it is our intention to abandon well GREAT LAKES PROPERTIES, INC./ (GLP #1) "GREAT LAKES" /, API No. 03722599, Sec. 28, T. 4S, R. 13W, SB B. & M., Wilmington Field, Los Angeles County, commencing work on June, 19 89.

The present condition of the well is: Mat Depths

1. Total depth 3754'

2. Complete casing record, including plugs and perforations
   13-3/8", 48#, surf-464: cmtd w/450 sx
   8-5/8", 32#, surf-3562': cmtd w/125 sx
   6-5/8", 24#, 3517-3754'
   slotted liner: 3524-3754'

3. Last produced 3/89 (Date) 0 (Oil, B/D) 0 (Gas, Mcf/D) 90 (Water, B/D)

or

4. Last injected N/A (Date) (Water, B/D) (Gas, Mcf/D) (Surface pressure)

Additional data for dry hole (show depths):

5. Oil or gas shows

6. Stratigraphic markers

7. Formation and age at total depth

8. Base of fresh water sands

The proposed work is as follows:

As per attached program

It is understood that if changes in this plan become necessary, we are to notify you immediately.

Address 3520 Torrance Blvd. (Street)
Torrance, California 90503 (City) (State) (Zip)
Telephone Number (213) 543-1311 (Area Code) (Number)

Kelt Oil and Gas, Inc. (Name of Operator)
By Ryan O'Neal (Print Name)
(Signature) 5/18/89 (Date)

RECEIVED
89 MAY 24 PM 2:16
DIVISION OF OIL & GAS
LONG BEACH, CA

Proposed Abandonment Program

GLP #1

1. MIRU. POOH rods & pump. Nipple up BOPE. Division of Oil and Gas to inspect BOP installation.

2. Release tbg anchor & slowly tag for fill. Measure tbg out of hole. If fill above 3745', pick up & RIH 3-1/2" bailer, testing tbg to 5000 PSI. Clean out to bottom (3754'). POOH.

3. TIH to 3750'. Rig up cementers. Mix & pump 120 ft^3 (104 sx) of class 'G' neat cement. Theoretical equalization point at ±3281'. Displace with 107 ft^3 of water to lay a balanced plug. Pull 10 stands. Wait on cement to harden.

4. Tag top of cement. Division of Oil and Gas to witness location and hardness of plug. If top of cement is below 3417', recement as needed.

5. Change hole over to 9.6 PPG mud with a minimum gel shear strength of 25#/100 sq ft. Division of Oil and Gas to witness mudding of hole.

6. Rig up shooters & shoot 4-1/2" holes at 1700'. With tbg at 1700', mix and pump 95 ft^3 (83 sx) of class 'G' neat cement. Theoretical equalization point at ± 1412'. Displace with 46 ft^3 of water to lay a balanced plug. Pull 10 stands and squeeze with 42 ft^3 of water. Wait on cement to harden.

7. Tag top of cement. Division of Oil and Gas to witness location and hardness of plug. If top of cement is below 1600', recement as needed.

8. Cut and recover 8-5/8", 32# casing from ±100'. With tbg at 200', mix and pump 155 ft^3 (135 sx) of class 'G' neat cement. RDMO.

9. Division of Oil and Gas to witness the location of plug. Break out cellar. Cut pipe off 8' below grade. Weld on 1/2" steel plate with GLP #1 and the date clearly welded on top. Division of Oil and Gas and City of Wilmington inspector to witness capping.

RO'N 5/18/89

Ryan O'Neal
Production Engineer

RECEIVED
89 MAY 24 PM 2:17
DIVISION OF OIL & GAS
LONG BEACH, CA

AFE #: _____
DOG APPROVAL REQUIRED: _____
RECIEVED: _____

WELL WORK PROGRAM

DATE: 8/15/88 LEASE: GLP WELL: GLP #1

LOCATION: WILMINGTON

PRESENT STATUS: PUMPING X INJECTING _____ DOWN _____

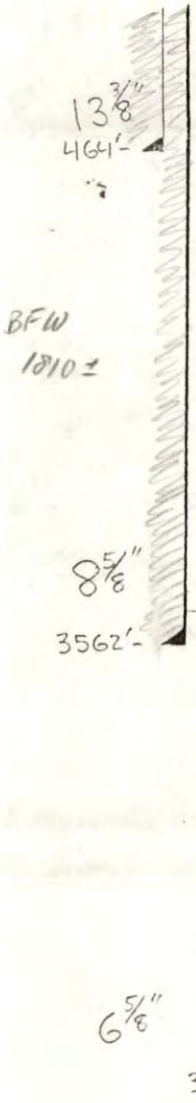
± 100 B/D GROSS/INJECTION

90 % CUT

± 10 B/D NET OIL

KB TO MAT MEASUREMENT: 12'

MEASUREMENTS REFER TO: MAT X KB _____



PROPOSED WORK:

CASING: 13 3/8", 48#, H-40, SURF - 464'
8 5/8", 32#, J-55, SURF - 3562' p 3554 CASO

LINER: 6 5/8", 24#, K-55, 3517 - 3754'

COMPLETION DETAIL: 3524 - 3578': 2" x 30M, 8R, 6"C
3578 - 3754': 2" x 30M, 24R, 6"C

TUBING DETAIL:

109 JTS 2 7/8" TBG	-	3435.8'
8 5/8" BAKER TENSION ANCHOR	-	3.4
6 JTS 2 7/8" TBG	-	189.1
SHOE	-	.5
GAR	-	62.3
		± 3702'

ROD DETAIL: 115 s/ 7/8" RODS
6 s/ 1 1/2" KBARS

PUMP: 2 1/2 x 2 x 48 x 12 RWA

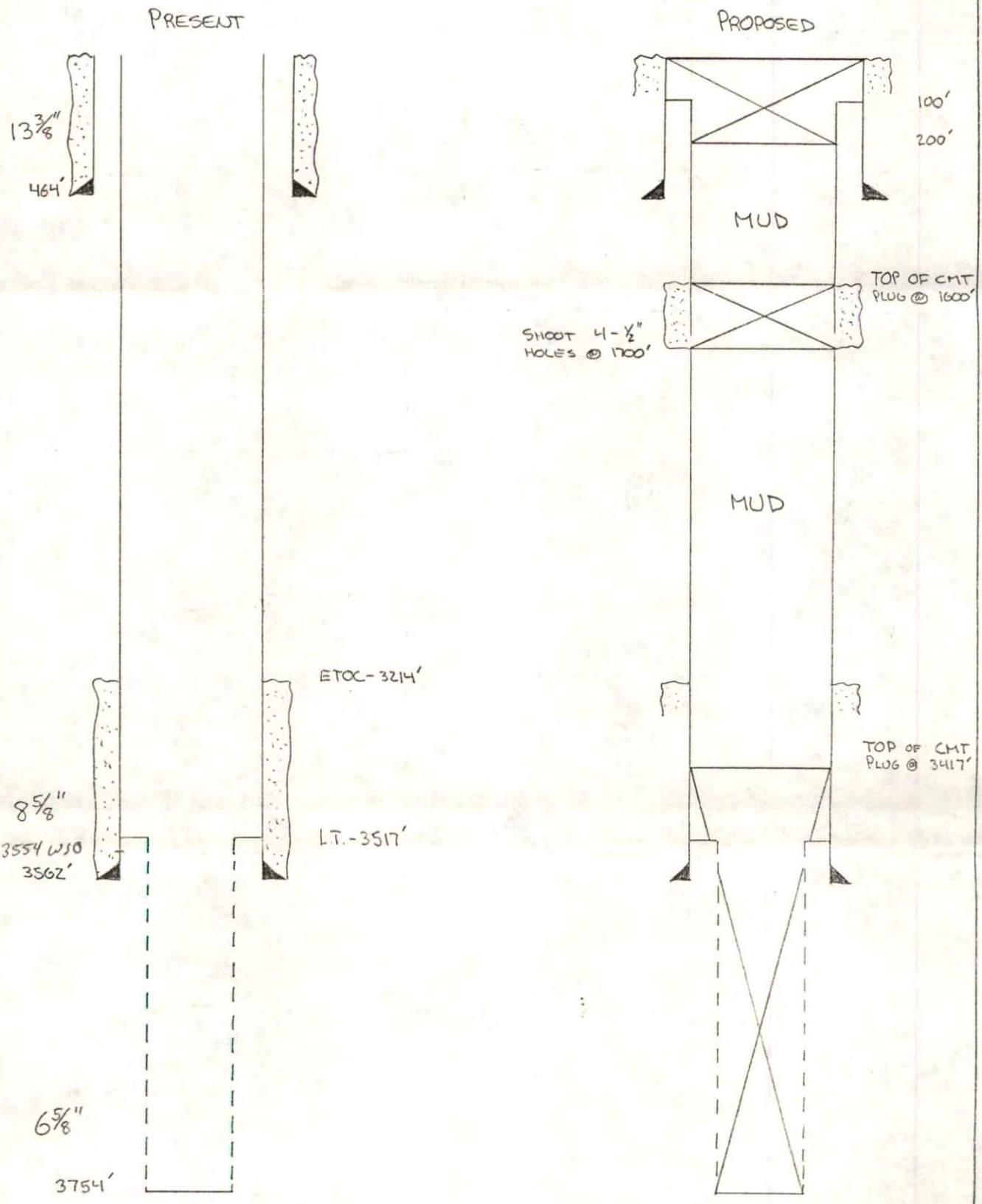
DIRECTIONAL DATA: MAX ANGLE OF 17° @ ± 1200'.

SPECIAL NOTES:

RECEIVED
89 MAY 24 PM 2:16
DIVISION OF OIL & GAS
LONG BEACH, CA

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

GLP#1 - PROPOSED ABANDONMENT



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89 MAY 24 PM 2:17
DIVISION OF OIL & GAS
LONG BEACH, CA

DIVISION OF OIL AND GAS

CHECK LIST - RECORDS RECEIVED AND WELL STATUS

Company Great Lakes Prop. Well No. "Great Lakes" 1

API No. 037-22599 Sec. 28, T. 4S, R. 13W, S.B. B.&M.

County L.A. Field Wilmington

RECORDS RECEIVED	DATE	
Well Summary (Form OG100)	11/9/82	(2)
History (Form OG103)	11/9/82	(2)
Core Record (Form OG101)		
Directional Survey	11/9/82	(2)
Sidewall Samples		
Other		
Date final records received		
Electric logs:		
Photon Log	11/9/82	(2)
Dual Ind.	11/9/82	(2)

STATUS		STATUS	
Producing - Oil	✓	Water Disposal	
Idle - Oil		Water Flood	
Abandoned - Oil		Steam Flood	
Drilling - Idle		Fire Flood	
Abandoned - Dry Hole		Air Injection	
Producing - Gas		Gas Injection	
Idle - Gas		CO_2 Injection	
Abandoned - Gas		LPG Injection	
Gas-Open to Oil Zone		Observation	
Water Flood Source			

DATE 6-27-82

RECOMPLETED

REMARKS

ENGINEER'S CHECK LIST

1. Summary, History, & Core record (dupl.) ✓ ✓
2. Electric Log ✓
3. Operator's Name ✓
4. Signature
5. Well Designation
6. Location
7. Elevation
8. Notices ✓
9. "T" Reports ✓
10. Casing Record
11. Plugs
12. Surface Inspection
13. Production
14. E Well on Prod. Dir. Sur. ✓

CLERICAL CHECK LIST

1. Location change ____ (F-OGD165)
2. Elevation change ____ (F-OGD165)
3. Form OGD121
4. Form OG159 (Final Letter)
5. Form OGD150b (Release of Bond)
6. Duplicate logs to archives
7. Notice of Records due (F-OGD170)

UPDATE CENTER 1/14/83

Individual Bond. 9565824

RECORDS NOT APPROVED

Reason:

RECORDS APPROVED TJ 12-1-82

RELEASE BOND Yes

Date Eligible 1/0/84

(Use date last needed records were received.)

MAP AND MAP BOOK 128 12/11/82

LONG BEACH OFFICE - USE REVERSE SIDE

OGD2 (12/80/DWRR/5M)

Form OG100 (7/79)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

API No. 037-22599

WELL SUMMARY REPORT

Operator	Well				
GREAT LAKES PROPERTIES	Great Lakes #1				
Field	**County**	**Sec.**	**T.**	**R.**	**B.&M.**
Wilmington	Los Angeles	28	4S	13W	S.B.

Location (Give surface location from property or section corner, street center line and/or California coordinates)
135.0' E'ly & 120.0' S'ly @ Rt. Angles from intersection of center lines of "Q" St. and Drumm Avenue

Elevation of ground above sea level: 39.9'

Commenced drilling (date): 2-18-82

Completed drilling (date): 9-8-82

Commenced producing (date):

☐ Flowing ☒ Pumping
☐ Gas lift

Name of producing zone(s): Ranger Zone

Total depth: (1st hole) 3766' (2nd) (3rd)

Present effective depth: 3766'

Junk: None

Depth measurements taken from top of: ☐ Derrick Floor ☐ Rotary Table ☒ Kelly Bushing
Which is 12.0 feet above ground

GEOLOGICAL MARKERS	DEPTH
Ranger Zone	3573'

Formation and age at total depth: Miocene

	Clean Oil (bbl per day)	Gravity Clean Oil	Percent Water including emulsion	Gas (Mcf per day)	Tubing Pressure	Casing Pressure
Initial Production	1.0	14.5°	99.0	2	40 psi	15 psi
Production After 30 days	13.0	14.5°	90.0	3	40 psi	15 psi

CASING RECORD (Present Hole)

Size of Casing (API)	Top of Casing	Depth of Shoe	Weight of Casing	Grade and Type of Casing	New or Second Hand	Size of Hole Drilled	Number of Sacks or Cubic Feet of Cement	Depth of Cementing (if through perforations)
13-3/8"	Surface	476'	48#	H-40	New	17-1/2"	450	-
8-5/8"	Surface	3574'	32#	J-55	New	12-1/4"	125	-
6-5/8"	3529'	3766'	24#	K-55	New	14"	-	Landed

PERFORATED CASING (Size, top, bottom, perforated intervals, size and spacing of perforation and method.)

2" x 30M 8R 6"C 3536'-3580'
2" x 30M 24R 6"C 3580'-3766'

Was the well directionally drilled? If yes, show coordinates at total depth
☒ Yes ☐ No 593.56' S & 96.32' E from surface location.

Electrical log depths: 3576'-475'; 3764'-3574'

Other surveys: Photon Log 3755'-3420'

In compliance with Sec. 3215, Division 3 of the Public Resources Code, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Name	Title	
Great Lakes Properties	Agent	
Address	**City**	**Zip Code**
3838 Carson Street Suite 220	Torrance	90503
Telephone Number	**Signature**	**Date**
(213) 543-1312	John W Parker	October 17, 1982

SUBMIT IN DUPLICATE

RECEIVED
Nov 9 1 45 PM '82
DIV. OF OIL AND GAS
LONG BEACH, CA.

SUBMIT IN DUPLICATE

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

History of Oil or Gas Well

Operator Great Lakes Properties Field Wilmington County Los Angeles
Well Great Lakes #1 Sec. 28, T 4S, R 13W S.B. B. & M.
A.P.I. No. 037-22599 Name John W. Parkin (Person submitting report) Title Agent (President, Secretary or Agent)
Date October 17, 1982

Signature

3838 Carson St. Suite 220 Torrance, CA 90503 (Address) (213) 543-1312 (Telephone Number)

History must be complete in all detail. Use this form to report all operations during drilling and testing of the well or during redrilling or altering the casing, plugging, or abandonment with the dates thereof. Include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests and initial production data.

Date	
	NOTE: All work reported on a 24 hour day basis ending at 6:00 A.M. on the date shown.
2-17-82	Moved in and rigged up California Production Service D-7 rig.
2-18-82	Rigged up and spudded in at 3:00 A.M., 2-18-82. Drilled from surface to 97'.
2-19-82	Drilled 12-1/4" hole from 97' to 482'. Pulled out of hole. Made up 17-1/2" hole opener and stab-in tool. Opened 12-1/4" hole to 17-1/2" from surface to 482'. Pulled out of hole. Ran 12 joints of 13-3/8", 48# ST&C, H-40 casing with shoe at 476' and stab-in float collar at 433'. Ran in hole with B&W stab-in tool. Using Halliburton equipment pumped 100 ft^3 dyed water ahead of 450 sacks of API Class "G" cement. Cement displaced with 21 ft^3 water. Cement in place at 2:12 A.M. Had 21 ft^3 cement returns to surface. Pulled out of hole. Installed 13-3/8" slip on well head.
2-20-82	Installed Blow Out Equipment. Ran in hole to top of cement at 423'. Drilled to 458'. Circulated conditioned mud. Tested Blow Out Equipment for Division of Oil and Gas. Test witnessed and approved by W.E. Brannon of Division of Oil and Gas pending installation of a pump stroke counter and increasing the precharge to 750 psi by Monday, 2-22-82.
2-21-82	Drilled from 458' to 650'. Pulled out of hole. Made up Dyna-Drill. Ran in hole with Dyna-Drill. Oriented Dyna-Drill and drilled from 650' to 802'. Pulled up to 476'. Cleaned gravel out of circulating pits. Ran in hole and Dyna-Drilled from 802' to 1022'. Built up weight on mud from 85# to 115#. Gravel running.
2-22-82	Continued to Dyna-Drill from 1022' to 1239'. Pulled out of hole. Made up locked drilling assembly. Ran in hole and drilled and surveyed from 1239' to 1984'.
2-23-82	Continued to drill from 1984' to 2100'. Pulled out of hole. Changed drilling assembly. Ran in hole and drilled and surveyed from 2100' to 2649'.

RECEIVED
Nov 9 1 45 PM '82
DIV. OF OIL AND GAS
LONG BEACH, CA

Well Summary Report
Great Lakes #1

2-24-82 Continued to drill from 2649' to 2669'. Pulled out of hole. Changed drilling assembly and bit. Ran in hole and drilled and surveyed from 2669' to 3060'.

2-25-82 Continued to drill and survey from 3060' to 3097'. Pulled out of hole. Changed drilling assembly and bit. Ran in hole. Drilled from 3097' to 3351'. Pulled out of hole. Changed drilling assembly. Ran in hole and drilled from 3351' to 3383'.

2-26-82 Continued to drill from 3383' to 3471'. Drilling operation suspended pending final approval of permit by Los Angeles Fire Department. Pulled out of hole and laid down drill pipe and drill collar. Ran in hole with Baker Model "C" bridge plug at 320'. Tested to 500 psi. Held OK. Finished laying down drill pipe.

2-27-82 Tore out Blow Out Equipment. Put plate on well. Rigged down and loaded out rig.

5-27-82 Moved in California Production Service rig D-3. Rigging up at 6:00 A.M., 5-27-82.

5-28-82 Continued rigging up until 4:00 P.M. (Location and rig inspected by N. Balcaem - LA Fire Inspector) Blow Out Equipment inspected and approved pending installation of the fill up line and replacement of pressure gauge on nitro tanks by Steve Mulqueen of Division of Oil and Gas. Started rig time at 4:00 P.M. Picked up Baker retrieving tool and drill pipe. Ran in hole. Tested Blow Out Equipment. Continued in hole to 320'. Latch on and released Baker B/P. Pulled out of hole with same. Laid down Baker tools. Measured and picked up pilot hole opener, drill collars and drill pipe to bridge at 486'. Circulated through bridge to 516'. Circulated hole clean. (Partial returns through 13-3/8" x 20" annulus). While circulating at 516' clutch went out on mud pump. Pulled inside shoe. Rig shut down at 4:00 A.M. for repairs.

5-29-82 Continued to repair rig to 4:00 P.M. Ran in hole and reamed from 516' to 1140' at 6:00 A.M.

5-30-82 Continued reaming from 1140' to 1167'. Circulated hole clean. Pulled out of hole. Laid down hole opener. Picked up bit and ran in hole to 475'. Repaired P-Y7 pump. (2 hours) Ran in hole to 1167'. (No fill) Reamed from 1167' to 1663'. Wiped hole to 1153'. Reamed from 1663' to 1991' at 6:00 A.M.

5-31-82 Continued reaming 12-1/4" hole from 1994' to 2147'. Circulated hole clean. Pulled inside 13-3/8" casing. Changed out Kelly and Bushings (2-1/2 hrs.). Ran in hole and reamed from 2148' to 2793'.

6-1-82 Circulated hole clean. Made wiper trip to 434'. Ran in hole to 2788' (5' fill) Reamed hole from 2788' to 2856'. Circulated hole clean. Pulled out of hole. Drill pipe torqued. Had welder cut tool joints. Laid down 14 joints. Laid down Kelly. Reworked pitcher nipple. (2-1/2 hrs. down time) Made up and ran in hole with drilling assembly. Reset rotary table. Picked up singles to 2856'. Circulated

hole clean. Replaced 2 heads. (1 hour) Reamed from 2856' to 2921' at 6:00 A.M.

6-2-82 Continued to ream 12-1/4" hole from 2921' to 3355'. Circulated hole clean. Made 6 stand wiper run. Ran in hole. Circulated hole clean. Mud pump went down. Took single shot. Pulled out of hole for repairs and Dyna-Drill. Repairing rig at 6:00 A.M. (out of hole at 12:30 A.M.)

6-3-82 Continued repairing PY7 pump. Made up and ran in hole with Dyna-Drill to 3354' (1' fill) Broke circulation. Cleaned out to 3358'. Oriented Dyna-Drill. Dyna-Drilled from 3358' to 3370'. PY7 pump went down at 2:00 P.M. Pulled out of hole for repairs. Rigged down until 3:00 A.M. Making up drilling assembly at 6:00 A.M.

6-4-82 Ran in hole with drilling assembly to 3370'. Cleaned out old hole to 3468'. (3' difference in K.B. of rigs) Circulated hole clean. Pulled out of hole for Dyna-Drill. Made up and ran in hole with Dyna-Drill. Oriented Dyna-Drill. Dyna-Drilled and surveyed from 3468' to 3555' at 6:00 A.M. Rig down from:

6:30 P.M.-8:00 P.M.	1-1/2 hrs. wash out 2" on stand pipe
9:00 P.M.-10:00 P.M.	1 hour-change head
11:00 P.M.-12:30 A.M.	1-1/2 hrs. - loss of pressure bleeder valve leak - change head
1:00 A.M.-2:00 A.M.	1 hr. change head
3:00 A.M.-4:00 A.M.	1 hr. change head

6-5-82 Continued to Dyna-Drill to 3575'. Circulated hole clean. Surveyed and measured out. 3' difference. Total depth 3578'. Laid down Dyna-Drill. Made up and ran in hole with drilling assembly. Hit bridge at 1511'. Cleaned out bridge. Ran in hole to 3468'. Reamed to 3578'. Circulated for loggers. Pulled out of hole. Rigged up Dresser Atlas. Ran Dresser Atlas Dual Induction Log. Rigged down loggers. Rigged up to run casing. Ran 89 joints of 8-5/8", 32# casing with shoe at 3574' and float collar at 3490'. Circulated hole clean. Using B.J. equipment pumped 100 ft^3 mud flush ahead of 662 sacks of 1:1 Perlite + 4% gel followed by 125 sacks of API Class "G" cement mixed with 2% $CaCl_2$. Had full circulation throughout job with 20 ft^3 of returns to surface. Bumped plug with 1250 psi at 6:50 A.M. Released pressure. Float held.

6-6-82 Nippled down Blow Out Equipment. Cut and landed 8-5/8" casing with 70,000#. Welded on 8-5/8" well head. Reinstalled and tested Blow Out Equipment. Made up 7-5/8" bit and 8-5/8" casing scraper. Ran in hole to cement at 3486'. Circulated hole clean. Tested casing with 1000 psi. Held OK. Pulled out of hole. Waited on test tools (2 hours). Made up and ran in hole with Halliburton combination gun and testor. Shot 4-1/2" holes at 3566'. Set pakcer at 3541' with tail to 3561'. Tool opened at 6:02 A.M. Had medium hard blow to light in 10 minutes to faint blow for 3 minutes to dead for balance of 1 hour test.

6-7-82 Finished WSO tools. Pulled tool at 7:02 A.M. Chained out of hole. Broke down test tools. Test witnessed and approved by Division of

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DIV. OF OIL AND GAS
LONG BEACH, CA

Oil and Gas. Made up and ran in hole with drilling assembly to cement plug at 3569'. Changed over to polymer. Cleaned pits. Fill pits. Drilled out shoe. Drilled 7-5/8" hole to 3769'. Circulated hole clean. Wiped hole. Circulated for loggers. Pulled out of hole. Rigged up Dresser Atlas. Ran Dual Induction Log. Rigged down loggers. Ran in hole with hole opener at 6:00 A.M.

6-8-82 Finished running in hole with hole opener to 3574'. Opened 7-5/8" hole to 14" from 3574' to 3769' (total depth) Circulated hole clean. Pulled to 3574' and rescraped to 3769'. Circulated hole clean. Pulled to shoe. Circulated hole clean. Pulled out of hole. Rigged up to run liner. Ran 6 joints of 6-5/8" 24# K liner (243') with shoe at 3766', Baker port collar at 3529' and Baker Lead Seal Hanger at 3524'. Rigged up Baker Sand Control. Gravel Pack #1: Pumped in 60 ft^3. Pressure tested to 750 psi. Backscuttled 5 ft^3 leaving 55 ft^3 in place. Circulated at 7:00 A.M. with 500 psi.

6-9-82 Closed port collar and tested with 750 psi. Chained out of hole. Laid down gravel packing tools. Ran in hole with washer. Washed perforations from 3582' to 3766'. Chained out of hole. Laid down washer. Picked up and ran in hole with gravel packing tools. Located port collar. Opened port collar. Gravel pack #2: Pumped in 90 ft^3. Backscuttled 2 ft^3 leaving 99 ft^3 in place. Total gravel in place: 143 ft^3 (84%) Closed and tested port collar. Pulled out of hole. Laid down gravel packing tools. Picked up and ran in hole with washer. Washing perforations at 6:00 A.M.

6-10-82 Finished washing perforations. Chained out of hole. Laid down washer. Picked up and ran in hole with gravel packing tools. Located port collar at 3524'. Opened port collar. Circulated hole clean. Gravel pack #3" Pumped in 10 ft^3. Backscuttled 1 ft^3 leaving 152 ft^3 total in place. Closed and tested port collar with 750 psi. Chained out of hole and laid down drill pipe. Broke out Kelly and drill collars and laid down same. Measured and picked up tubing with 45° collar at 3736' K.B. or 3725" mat measurement. Released rig at 7:00 A.M. Prepared rig to move to yard.

6-11-82 Finished tearing out and loading equipment. Rig off location at 1:00 P.M. and in California Production Service yard at 2:00 P.M.

6-12-82 Moved in Whll Tech., Inc. production hoist. Tied rig down. Bled well down. Installed Blow Out Equipment and working platform. Measured out of hole with pipe. Secured rig.

6-13-82 Laid down 10 joints of 2-7/8" tubing. Rigged up Hydro-test truck. Tested tubing in hole. All tubing tested good at 5000 psi. Tore out Hydro-Test. Took off Blow Out Equipment. Set Baker 8-5/8" tension anchor with 16,000# tension. Landed tubing. Installed well head. Rigged for rods. Picked up pump, 6 1-1/2" K bars, L/H release o/o tool, 113 7/8" rods and 26' of 7/8" subs. Made up Polished rod. Seated pump. Stroked pump. Well pumped OK. Spaced well out. Clamped off Polished rod. Closed well in. Loaded out Blow Out Equipment. Laid down mast. Hauled excess rods and tubing. Cleaned location. Moved out rig.

Well Summary Report
Great Lakes #1

6-25-82 Moved in and rigged up. Secured rig. Pulled out of hole with rods and pump. Installed Blow Out Equipment. Pulled out of hole with tubing. Ran sinker bar to 3763', bottom at 3766'. Made up sawtooth collar. Ran in hole with tubing. Hauled 6 joints of tubing from Torrance to well. Closed well in until A.M.

6-27-82 Continued running in hole with tubing. Hauled 6 joints from Torrance. Tagged bottom at 3766'. Hooked up B.J. equipment. Filled casing with 120 Bbls of lease water. Changed hole over. Pumped 700 gallons of 15% HCL, with 3000 gallons 12.3 HCL + HF + 600 gallons 7-1/2% HCL. Squeezed with 20.5 Bbls lease water. Rigged down B.J. Pulled out of hole with tubing. Laid down excess tubing. Made up G.A. Ran in hole with tubing. Removed Blow Out Equipment. Set tubing anchor 19,000# over weight of tubing. Hooked up production head. Ran in hole with rods and acid pump. Respaced pump. Returned well to production. Loaded out equipment. Cleaned location. Rigged down and moved out. Tubing detail as follows:

K.B.	11.00'
109 jts. 2-7/8" tubing	3435.77'
8-5/8" Baker Tension Anchor	3.38'
6joints 2-7/8" tubing	189.07'
2-1/2" API T/L Shoe & G.A.	62.72'
	3701.94'

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LONG BEACH, CA

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

No. T 182-509

DIVISION OF OIL AND GAS

Report on Operations

SEC. 3606 WELL

John Parkin, Agent
GREAT LAKES PROPERTIES, INC.
3838 Carson St., Suite 220
Torrance, CA 90503

Long Beach, Calif.
June 10, 1982

Your operations at well "Great Lakes" 1, API No. 037-22599, Sec. 28, T. 4S, R. 13W, S.B.B.& M. Wilmington Field, in Los Angeles County, were witnessed on 6-6-82. R. Navia, Engineer, representative of the supervisor, was present from 1000 to 1100. There were also present Fred Gair, Drilling Foreman.
Present condition of well: 20" cem 40'; 13-3/8" cem 476'; 8-5/8" cem 3574', perf 3566' WSO. TD 3574' (drilling).

The operations were performed for the purpose of testing the 8-5/8" shut-Off at 3566' with a formation tester.

DECISION: APPROVED

NOTE: DEFICIENCIES TO BE CORRECTED
NONE

DEFICIENCIES CORRECTED
NONE

CONTRACTOR: California Production Service, Inc.

RN:sac

cc: Update

M. G. MEFFERD
State Oil and Gas Supervisor

By _____
Deputy Supervisor
J. L. HARDOIN

OG109(12-80-15M)

Form OGD8 (8/80)

DIVISION OF OIL AND GAS

Formation WATER SHUTOFF TEST

No. T 182-509

Operator Great Lakes Properties, Inc

Well designation "Great Lakes" #1 Sec. 28, T. 4S, R. 13W, SB B.&M.

Field Wilmington, County LA was tested for water shutoff on 6/6/82. (Name) R. Navis, representative of the supervisor, was present from 1000 to 1100. Also present were Fred Gair, DF

Casing record of well: 20" cem 40'; 13 3/8" cem 476; 8 5/8" cem 3574, perf 3566 WSO

TD 3574 (drilling)

The operations were performed for the purpose of (D-1) 8 5/8" 3566'.

☒ The 8 5/8" shutoff at 3566' is approved.

☐ The seal between the _____" and _____" casings is approved.

☐ The operations are approved as indicating that all of the injection fluid is confined to the formations below _____' at this time.

Hole size: 17 1/2" fr. 40' to 482'; 12 1/4" to 3574';& _____" to _____'

Casing				Cemented			Top of Fill		Sqd. Away	Final Press	Test psi/min. Perfs.
Size	Wt.	Top	Bottom	Date	MO-Depth	Volume	Annulus	Casing			
8 5/8"	32	0	3574	6/5	Bumped plug	787 Sx	Sfc	3486		1250	

Depth or interval tested (4) 1/2" holes @ 3566'

The hole was open to 3570' for test.

FORMATION TEST:

Packer(s) 3541' & _____' Tail 3561' Bean size 3/4" Cushion None

IHP 1820 IFP 22 FFP 150 FHP 1820

Blow Med. hard to light for 10 min to faint blow for 3 hrs dead

Open for test 1 Hr. _____ min. Fluid entry 25' (drilling mud) 9.9 ppg

BAILING TEST:

The hole fluid was bailed to _____', at _____ on _____ 19__.

The hole fluid was found at _____', at _____ on _____ 19__.
(time)

PRODUCTION TEST:

Gauge/meter reading _____ on _____ 19__, at _____ pump depth _____' Engr. _____

Gauge/meter reading _____ on _____ 19__, at _____ Engr. _____

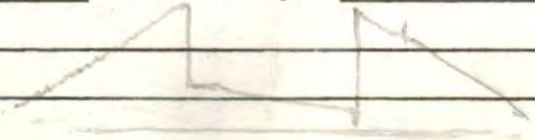
Fluid level _____' surveyed on _____ 19__, reviewed (witnessed) by _____

Total fluid produced, Bbls. _____ Net oil _____ Water _____

Rate: _____ B/D oil, _____ B/D water, _____ % water cut

INJECTION SURVEY:

RA/Spinner/Temperature survey run at _____ B/D & _____ psi on _____ 19__, fluid confined below _____' (Packer depth _____')



DEFICIENCIES—TO BE CORRECTED

None

DEFICIENCIES—CORRECTED

None

CONTRACTOR

California Production Service, Inc.

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

No. T 182-571

DIVISION OF OIL AND GAS

Report on Operations

SEC. 3606 WELL

John W. Parkin, Agent
GREAT LAKES PROPERTIES, INC.
3838 Carson St., Suite 220
Torrance, CA 90503

Long Beach Calif.
June 28, 1982

Your operations at well "Great Lakes" 1, API No. 037-22599, Sec. 28, T. 4S, R. 13W S.B.B.& M. Wilmington Field, in Los Angeles County, were witnessed on 5/27/82. S. Mulqueen, Engineer, representative of the supervisor, was present from 1530 to 1630. There were also present Fred Gain, Drilling Foreman

Present condition of well: 20" cem 40'; 13-3/8"cem 476'. TD 3471' (Drilling)

The operations were performed for the purpose of testing the blowout prevention equipment and installation.

DECISION: APPROVED

NOTE: DEFICIENCIES TO BE CORRECTED
NONE

DEFICIENCIES CORRECTED
1. Pressure gauge on N_2 bottles replaced.
2. Fill up line connected

CONTRACTOR - California Production Service, Inc.

SM:csw

cc: Update

M.G. MEFFERD
State Oil and Gas Supervisor

By [signature]
Deputy Supervisor
J.L. HARDOIN

OG109(12-80-15M)

DIVISION OF OIL AND GAS
BLOWOUT PREVENTION EQUIPMENT MEMO

Rig 6-23-82

T 182-571

Operator GREAT LAKES PROPERTIES, INC. Well "GREAT LAKES" # 1 Field WILMINGTON County LOS ANGELES

VISITS:	Date	Engineer	Time	Operator's Rep.	Title
1st	5-27-82	S. MULQUEEN	1530 to 1630	FRED GAIN	D.F.
2nd			to		

Casing record of well: 20" CEM 40'; 13 3/8" CEM 476'. TD 3471' (DRILLING)

OPERATION: Testing (~~inspecting~~) the blowout prevention equipment and installation.
DECISION: The blowout prevention equipment and installation are approved.

Proposed Well Opns: DRILL MPSP: _____ psi

REQUIRED BOPE CLASS: III-B-3M

Hole size: 17 1/2" fr. 40' to 482', 12 1/2" to 3471' & _____" to _____'

CASING RECORD (BOPE ANCHOR STRING ONLY)					Cement Details	Top of Cement	
Size	Weight(s)	Grade (s)	Shoe at	CP at		Casing	Annulus
13 3/8	48#	H-40	476'	—	CEM W/ 450 SX, CLASS "G" W/ FLOAT COLLAR @ 423' ON 2-19-82 @ 0230	423'	SURFACE

BOP STACK							a	b	a/b	TEST DATA			
API Symb.	Ram Sz.	Mfr.	Model or Type	Size In.	Press. Rtg.	Date Last Overhaul	Gal. to Close	Rec.Time Min.	Calc.GPM Output	psi Drop to Close	Secs.to Close	Test Date	Test Press.
A	12	HYDRIL	GK	12	3000	—						5-27	1000
Rd	3 1/2	SHAFFER	E	12	3000	—						5-27	1000
Rd	CSO	"	"	"	"	—		REPORTED BY		FRED GAIN		5-27	1000

ACTUATING SYSTEM

Accum.Unit(s) Wkg.Press. 3000 psi
Total Rated Pump Output _____ gpm
Distance From Well Bore 75 ft.

	Mfr.	Accum. Cap.	Precharge
1	KOOMEY	80 gal.	1000 psi
2		gal.	psi

CONTROL STATIONS	Elec.	Hyd.
X Manif. at accum.unit		✓
X Remote at Drlr's stn.	—	
~~Other:~~ (PNEUMATIC)		

EMERG. BACKUP SYST.			Press.	Wkg.Fl.
X	N2 Cyl	No: 3 Tpe: J	1 2000	8.5 gal
	Other:		2 2150	9.5 gal
			3 2400	11.4 gal
			4	gal
			5	gal
			6	gal

AUXILIARY EQUIPMENT

		No.	Sz. (in)	Rated Press.	Connections Weld	Flan.	Thrd.	
X	Fill-Up Line	X	X	X	X	X	X	X
X	Kill Line	X	2	3000		✓		1000
X	Control Valve(s)	1	X	3000		✓		—
X	Check Valve(s)	1	X	3000		✓		1000
X	Auxil. Pump Connec.	X	X	3000		✓		1000
X	Choke Line	X	2	3000			✓	1000
X	Control Valve(s)	5	X	3000			✓	1000
X	Pressure Gauge	X	X	X			✓	X
X	Adjustable Choke(s)	1	2	3000			✓	1000
X	Bleed Line	X	2	X			✓	X
X	Upper Kelly Cock	X	X	X	X	X	X	—
X	Lower Kelly Cock	X	3 1/2	5000				1000
X	Standpipe Valve	X	X	X	X	X	X	—
X	Standpipe Pressure Ga.	X	X	X	X	X	X	X
X	Pipe Safety Valve	X	3 1/2	5000	X	X	X	—
X	Internal Preventer	X	3 1/2	5000	X	X	X	—

HOLE FLUID MONITORING EQUIPMENT		Alarm		Class
		Aud.	Vis.	
X	Calibrated Mud Pit			A
X	Pit Level Indicator		✓	B
X	Pump Stroke Counter		✓	
	Pit Level Recorder			C
	Flow Sensor			
	Mud Totalizer			
	Calibrated Trip Tank			
	Other:			

REMARKS: Due to problems with the city, the rig was moved off location & then moved back on.

Hole Fluid Type	Weight	Storage-Pits
CLAY BASE	86#/CF	324 BBL

DEFICIENCIES—TO BE CORRECTED

NONE

DEFICIENCIES—CORRECTED

PRESSURE GAUGE ON N_2 BOTTLES REPLACED

FILL-UP LINE CONNECTED

CONTRACTOR

CALIFORNIA PRODUCTION SERVICE, INC.

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

No. T 182-206

DIVISION OF OIL AND GAS

Report on Operations

Sec. 3606

John W. Parkin, Agent
GREAT LAKES PROPERTIES, INC.
3838 Carson St., Suite 220
Torrance, CA 90503

Long Beach Calif.
April 20, 1982

Your operations at well "Great Lakes" 1, API No. 037-22599,
Sec. 28, T. 4S, R. 13W, S.B.B.& M. Wilmington Field, in Los Angeles County,
were witnessed on 2-20-82. W.E. Brannon, Engineer, representative of
the supervisor, was present from 0200 to 0600. There were also present J. Dayton,
Drilling Foreman

Present condition of well: 20" cem 40'; 13-3/8" cem 475. TD 482' (drilling)

The operations were performed for the purpose of Testing the blowout prevention equipment and installation.

DECISION: APPROVED

NOTE: DEFICIENCIES TO BE CORRECTED
NONE

DEFICIENCIES CORRECTED
1. Precharge low

CONTRACTOR: California Production Service, Inc.

WEB:csw

cc: Update

Individual Bond No. 9565824
Dated January 15, 1982

M.G. MEFFERD
State Oil and Gas Supervisor

By _____
Deputy Supervisor

J. L. HARDOIN

OG109(12-80-15M)

DIVISION OF OIL AND GAS
BLOWOUT PREVENTION EQUIPMENT MEMO

Rm 2-25-82

T 182-206

Operator Great Lakes Properties Inc. Well "Great Lakes" 1 Field Wilmington County Los Angeles

VISITS:	Date	Engineer	Time	Operator's Rep.	Title
1st	2-20-82	W.E. Brannon	0200 to 0600	J. Dayton	DF
2nd			to		

Casing record of well: 20" cem 40'; 13 3/8" cem 476. TD 482' (drlling).

OPERATION: Testing (~~inspecting~~) the blowout prevention equipment and installation.
DECISION: The blowout prevention equipment and installation are approved.

Proposed Well Opns: drill MPSP: _____ psi
REQUIRED BOPE CLASS: III B 3M
Hole size: 17 1/2 " fr. 40 ' to 482 ', _____ " to _____ ' & _____ " to _____ '

CASING RECORD (BOPE ANCHOR STRING ONLY)					Cement Details	Top of Cement	
Size	Weight(s)	Grade (s)	Shoe at	CP at		Casing	Annulus
13 3/8	48#	J55	476		Stab in FC 450 sx	423	0

BOP STACK							a	b	a/b	TEST DATA			
API Symb.	Ram Sz.	Mfr.	Model or Type	Size In.	Press. Rtg.	Date Last Overhaul	Gal. to Close	Rec. Time Min.	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press
A	12	Hydril	GK	12	3000	—						2/20	1000
Rd	4 1/2	Shaffer	E	12	3000	—						2/20	1000
Rd	CSO	Shaffer	E	12	3000	—				Rpt by J.D.			1000

ACTUATING SYSTEM

Accum. Unit(s) Wkg. Press. 1500 psi
Total Rated Pump Output _____ gpm
Distance From Well Bore 50 ft.

	Mfr.	Accum. Cap.	Precharge
1	Hydril	80 gal.	750 psi
2		gal.	psi

CONTROL STATIONS	Elec.	Hyd.
X Manif. at accum. unit		X
X Remote at Drlr's stn.	X	
Other:		

EMERG. BACKUP SYST.	Press.	Wkg. Fl.
X N2 Cyl No: 3 Tpe: G	1 2500	gal
Other:	2 2500	gal
	3 2500	gal
	4	gal
	5	gal
	6	gal

AUXILIARY EQUIPMENT

		No.	Sz. (in)	Rated Press.	Connections Weld	Flan.	Thrd.	
X	Fill-Up Line							
X	Kill Line		2"	3000			X	1000
X	Control Valve(s)	1		3000			X	—
X	Check Valve(s)	1		3000			X	1000
X	Auxil. Pump Connec.			3000			X	1000
X	Choke Line		2"	3000			X	1000
X	Control Valve(s)	5		3000			X	1000
X	Pressure Gauge						X	
X	Adjustable Choke(s)	2	2"	3000			X	1000
X	Bleed Line		2"				X	
X	Upper Kelly Cock							1000
—	Lower Kelly Cock		—	—				—
X	Standpipe Valve							—
X	Standpipe Pressure Ga.							
X	Pipe Safety Valve		4 1/2	3000				1000
X	Internal Preventer		4 1/2	3000				—

HOLE FLUID MONITORING EQUIPMENT	Alarm		Class
	Aud.	Vis.	
X Calibrated Mud Pit			A
X Pit Level Indicator		X	B
X Pump Stroke Counter		X	
Pit Level Recorder		X	C
Flow Sensor			
Mud Totalizer			
Calibrated Trip Tank			
Other:			

REMARKS: _____

Hole Fluid Type	Weight	Storage-Pits
Clay base mud	75#	650 Bbl

OGD 9 (10/80/3M)

DEFICIENCIES—TO BE CORRECTED NONE

DEFICIENCIES—CORRECTED 1- Precharge low

CONTRACTOR California Production Service, Inc

FORM OGTTT(10/81/DWRN/5M)

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

No. P 182-105

848
(field code)
06
(area code)
00
(new pool code)
00
(old pool code)

REPORT ON PROPOSED OPERATIONS

SEC. 3606 WELL

Mr. John Parkin, Agent
GREAT LAKES PROPERTIES, INC.
3838 Carson St., Suite 220
Torrance, CA 90503

Long Beach, California
February 17, 1982

Your _____ proposal to Drill well "Great Lakes" 1, A.P.I. No. 037-22599, Section 28, T. 4S, R. 13W, S.B. B. & M., Wilmington field, Fault Block II, Onshore area, Ranger pool, Los Angeles County, dated 2-5-82, received 2-5-82 has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used while drilling.
2. Blowout prevention equipment, equivalent to this division's Class III-B-3M requirements, or better, shall be installed and maintained in operating condition.
3. All oil, gas or fresh water sands behind the 8-5/8" casing shall be protected by either lifting cement or by multiple stage cementing.
4. This division shall be consulted and a supplementary notice may be required before making any changes in the proposed program.
5. The provisions of Sec. 3606 relating to derricks and subsurface spacing shall be followed.
6. A directional survey shall be made and filed with this division.
7. THIS DIVISION SHALL BE NOTIFIED:
   a. To witness a test of the installed blowout prevention equipment prior to drilling out cement in the shoe of the 13-3/8" casing.
   b. To witness a test of the effectiveness of the 8-5/8" shut-off above the Ranger zone.

RM:da

cc: Update
EDP

Individual Bond No. 9565824
Dated January 15, 1982

M. G. MEFFERD, State Oil and Gas Supervisor

By [signature]
for J. L. HARDOIN, Deputy Supervisor

A copy of this report and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well

O & G
Sec. 3606

C.E.Q.A. INFORMATION			
EXEMPT [X] CLASS____	NEG. DEC. [ ] S.C.H. NO.____	E.I.R. [ ] S.C.H. NO.____	DOCUMENT NOT REQUIRED BY LOCAL JURISDICTION [ ]
See Reverse Side			

FOR DIVISION USE ONLY					
MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121
128		2-8-82 CP	INDIVIDUAL NO. 956824 1-15-82	2-8-82 CP	2-8-82

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to commence drilling well "Great Lakes" # 1, API No. 037-22599 (Assigned by Division),

Sec. 28, T. 4S, R. 13W, S.B. B. & M., Wilmington Field, Los Angeles County.

Legal description of mineral-right lease, consisting of 10.0 acres, is as follows: Lots 1 & 3 of (Attach map or plat to scale)
Tract 12257, in the City of Los Angeles, Los Angeles County as per map recorded
in Book 229, Pages 20 & 30, Office of County Recorder.

Do mineral and surface leases coincide? Yes xx No____. If answer is no, attach legal description of both surface and mineral leases, and map or plat to scale.

Location of well 135.0 feet Easterly (Direction) ~~along section/property line~~ and 120' feet Southerly (Direction)
at right angles to said line from the intersection of centerlines ~~corner of section/property~~ (Cross out one) or
of "Q" Street and Drumm Avenue.

Is this a critical well according to the definition on the reverse side of this form? Yes [ ] No [X]

If well is to be directionally drilled, show proposed coordinates (from surface location) at total depth:
600' feet South (Direction) and 140' feet East of (Direction) surface location.

Elevation of ground above sea level 46.0 feet.

All depth measurements taken from top of Kelly Bushing (Derrick Floor, Rotary Table, or Kelly Bushing) that is 12 feet above ground.

PROPOSED CASING PROGRAM

SIZE OF CASING INCHES API	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS	CALCULATED FILL BEHIND CASING (Linear Feet)
13-3/8"	48.0#	H-40	Surface	450'	450'	500 Sacks
8-5/8"	32.0#	J-55	Surface	3608'	3608'	1100 Sacks
6-5/8"	24.0#	K-55	3758'	3508'	Landed	

(A complete drilling program is preferred and may be submitted in lieu of the above program.)

Intended zone(s) of completion Ranger Zone (500 psi) (Name, depth, and expected pressure) Estimated total depth 3758'

It is understood that if changes in this plan become necessary we are to notify you immediately.

Name of Operator	Type of Organization (Corporation, Partnership, Individual, etc.)	
Great Lakes Properties, Inc.	Incorporated	
Address	**City**	**Zip Code**
3838 Carson St. Suite 220 Torrance, CA	Torrance	90503
Telephone Number / **Name of Person Filing Notice**	**Signature**	**Date**
543-1311 / John W. Parkin	John W. Parkin	2-5-82

This notice and indemnity or cash bond shall be filed, and approval given, before drilling begins. If operations have not commenced within one year of receipt of the notice, this notice will be considered cancelled.

OG105 (1/82/DWRR/5M)

Information for compliance with the California Environmental Quality Act of 1970 (C.E.Q.A.).

If an environmental document has been prepared by the lead agency, please submit a copy of the document with this notice *or* supply the following information:

Lead Agency: City of Los Angeles

Lead Agency Contact Person: ~~Exempt~~ Jeff Druyan

Address: 200 N. Main St. Room 300

City Hall East Los Angeles, Ca. 90012

Phone: (213) 485-3156

FOR DIVISION USE ONLY
District review of environmental document (if applicable)? Yes ☐ No ☐
Remarks:

CRITICAL WELL

As defined in the California Administrative Code, Title 14, Section 1720(a), "Critical well" means a well within:

(1) 300 feet of the following:
(A) Any building intended for human occupancy that is not necessary to the operation of the well; or
(B) Any airport runway.
(2) 100 feet of the following:
(A) Any dedicated public street, highway, or nearest rail of an operating railway that is in general use;
(B) Any navigable body of water or watercourse perennially covered by water;
(C) Any public recreational facility such as a golf course, amusement park, picnic ground, campground, or any other area of periodic high-density population; or
(D) Any officially recognized wildlife preserve.

Exceptions or additions to this definition may be established by the supervisor upon his own judgment or upon written request of an operator. This written request shall contain justification for such an exception.

DIV. OF OIL AND GAS
SAN BERNARDINO, CA.
FEB 5 1 37 PM '82
RECEIVED

CABLE: WORLDPROP

GREAT LAKES PROPERTIES, INC.
REPLY TO: P. O. BOX 2031 · TORRANCE, CALIFORNIA 90510

PRODUCTION WELL GREAT LAKES #1

DRILLING PROGRAM

February 3, 1982

135.0' E'ly & 120.0' S'ly at Right Angles from the Intersection
of the Centerlines of "Q" Street & Drumm Avenue
Mat Elevation 46 Feet
K. B. Elevation 58 Feet

1. Move in CPS. rig No. 7.

2. Drill 12-1/4" hole to 460'±. Open hole to 17-1/2".

3. Run and cement 460'± of 13-3/8", 48#, H-40, ST & C casing with float shoe and stab-in float collar. Bottom two collars to be tack welded and thread locked with sealant. Run drill pipe with stab-in adapter and centralizer (cementing company will furnish). Cement to surface with ±500 sacks of Class "G" cement at 117#/cu. ft. slurry. Flush with 50 cu. ft. fresh water ahead of cement. Bring cement to surface.

4. Land casing and install Class III Blowout preventers as follows: (Division of Oil & Gas to approve BOPE test.)
   13-5/8" Shaffer API 3000 psi BOPE with one set of drillpipe rams and one set of blind rams 13-5/8" Hydril API 3000 psi Annular preventer.

5. Run in with 12-1/4" bit, drill out top rubber plug. Pressure test BOPE and casing to 1000 psig. Drill out shoe and record

SUITE 220, DEL AMO EXECUTIVE PLAZA | 3838 CARSON STREET | TORRANCE, CALIFORNIA 90503 | (213) 540-5515 OR (213) 772-7741
A WHOLLY OWNED SUBSIDIARY OF GREAT LAKES CARBON CORPORATION

depth. Bypass floculated mud to the cuttings tank while drilling out cement.

6. Drill 12-1/4" directional hole to a logging point at 3608'± M.D. (3533' V.D.). Exact logging depth to be determined after drilling commences.

7. Run DIL electrical survey to determine casing point.

8. Drill additional 12-1/4" hole if required and condition hole for casing.

9. Rig up and run 3608'± of 8-5/8", 32#, ST & C ERW casing.

10. Cement 8-5/8" casing at 3608'± with ±900 sacks of Class "G" Cement mixed 1:1 with perlite and 4% gel to an 80#/cu. ft. slurry followed by 100 sacks of Class "G" mixed to 110-112# slurry (bring cement to shoe of surface pipe). Flush with 100 cu. ft. fresh water ahead of cement. Use plug insert head and use one top plug. Displace cement with approximately 1200 cu. ft. of drilling fluid at rates to give turbulent flow around shoe. Bump top plug on float collar.

11. Land casing and replace BOPE on 8-5/8".

12. Run in with 7-5/8" bit and clean out to top of rubber plug. Pressure test casing to 1000 psi. Clean out to 10' above shoe and retest. If pressure test fails, clean out to above shoe and recement as required.

13. After 8-5/8" pressure test holds, shoot four 1/2" holes 12-15 feet above shoe and test for water shut-off. Division of Oil and Gas to witness and approve water shut-off.

14. After successful WSO, drill out casing shoe and change over to low solids polymer completion fluid.

15. Drill 7-5-8" hole to 3758'± (3683' V.D.). Exact depth to be determined from top log (step 7).

16. Run Dual Induction-Laterlog as directed.

17. Open 7-5/8" hole to 14". Run centrifuge and mud cleaner while opening hole.

18. Run 6-5/8", 24# K-55 F. J. & T & C perforated liner with 70± lap. Liner detail to be prepared after review of log.

19. Gravel pack with polymer mud system and then change over to formation water. Repack if necessary.

20. Run tubing, rods and pump.

21. Release drilling rig and place well on production.

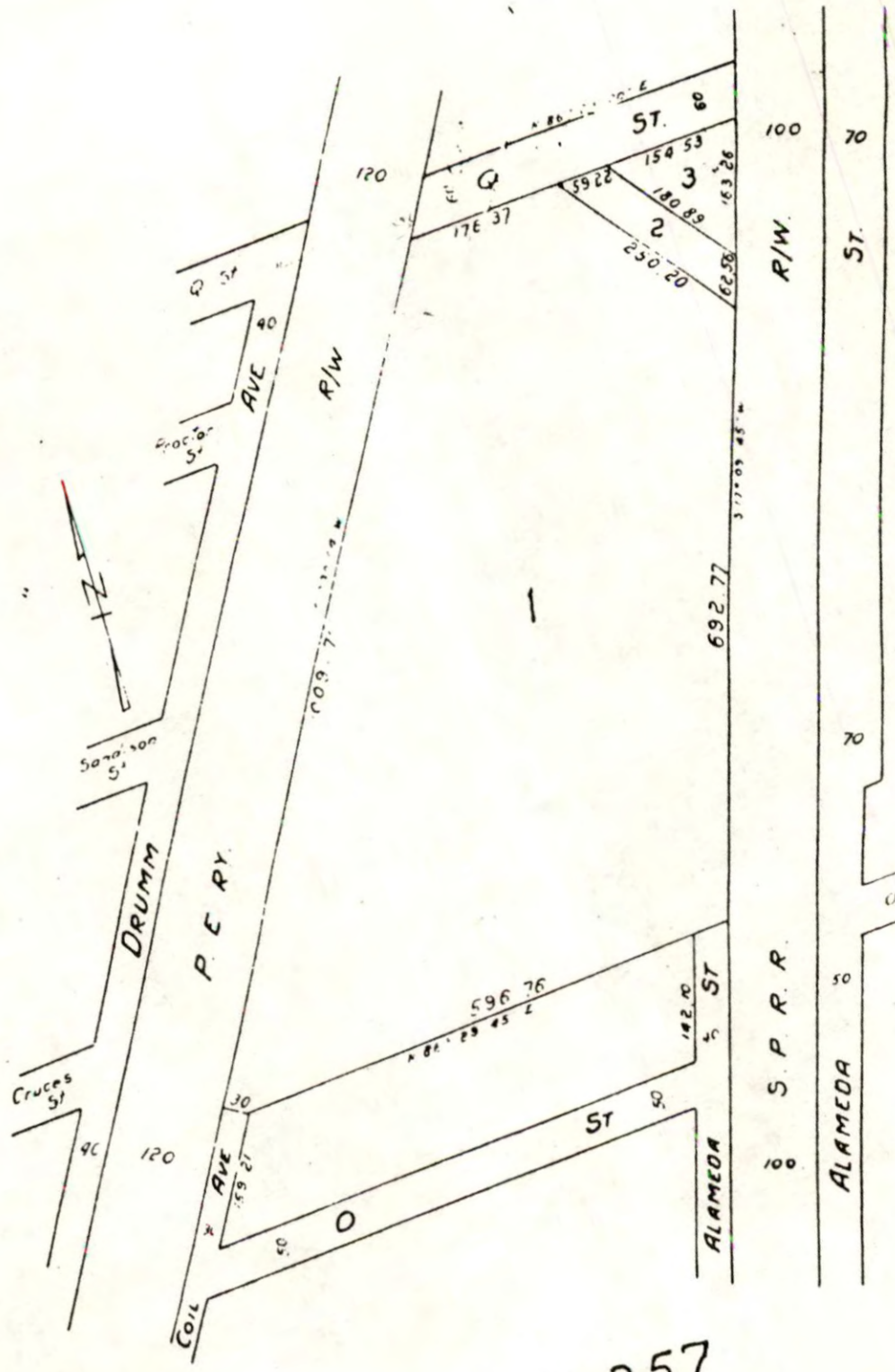
RECEIVED
FEB 5 1 37 PM '82
DIV. OF OIL AND GAS
LONG BEACH, CA.

GREAT LAKE #1
037-22599

ALL THE LAND LYING MORE THAN FIVE HUNDRED (500) FEET BELOW THE SURFACE, BUT NONE OF THE LAND LYING ABOVE THE DEPTH OF FIVE HUNDRED (500) FEET BELOW THE SURFACE, of the following described land;

Lots 1 and 3 of Tract No. 12257, in the City of Los Angeles, County of Los Angeles, State of California, as per map recorded in Book 229 Pages 29 and 30 of Maps, in the office of the County Recorder of said County.

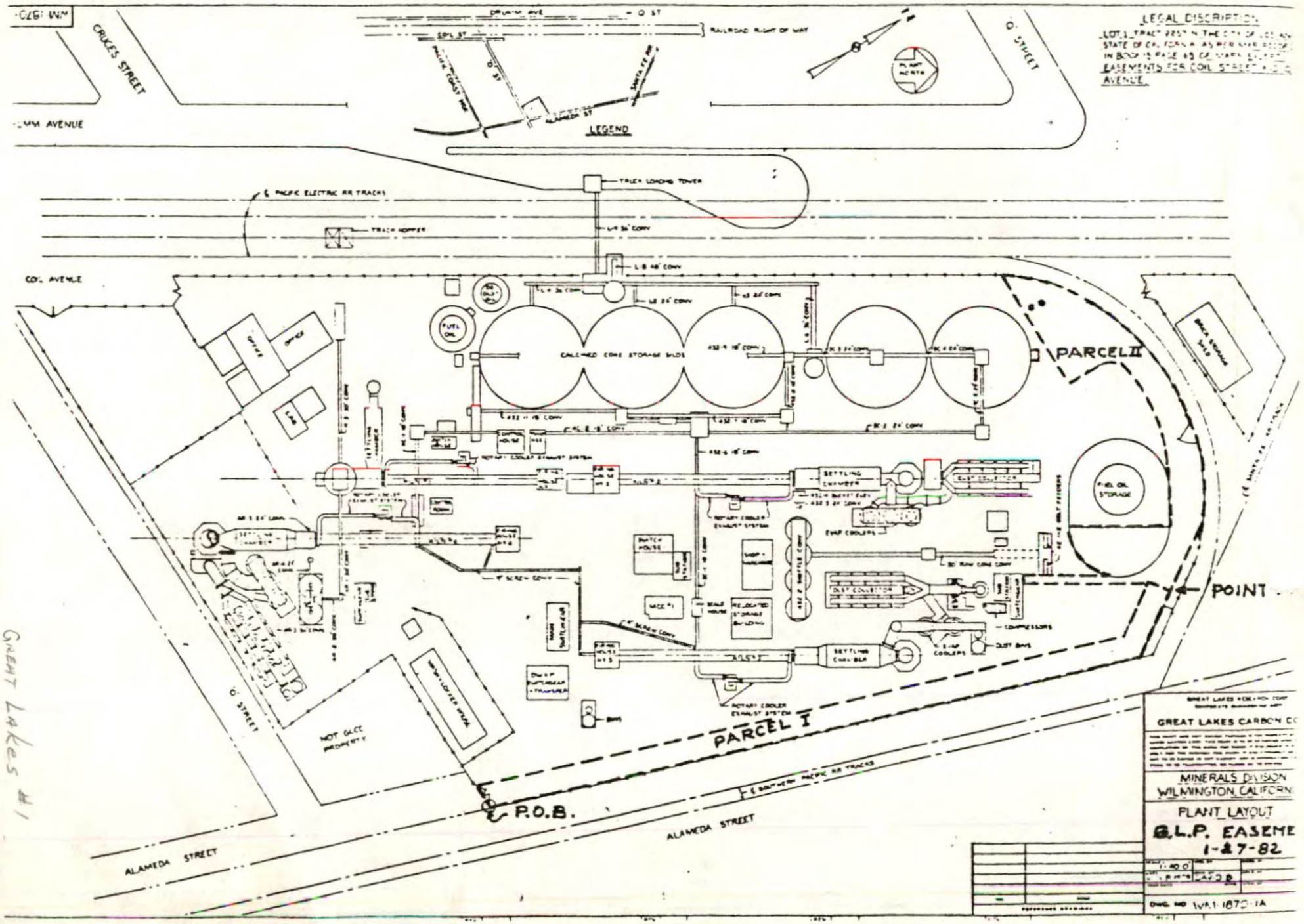
GREAT Lakes #1
037-22599



TRACT Nº 12257

M.B. 229-29 & 30.

THIS IS NOT A SURVEY OF THE LAND BUT IS COMPILED FOR INFORMATION ONLY FROM DATA SHOWN BY OFFICIAL



GREAT LAKES #1
037-22595

RECEIVED
FEB 5 1 37 PM '82
DIV. OF OIL AND GAS
LONG BEACH, CA.

860 Hampshire Road, Suite P
Westlake Village, CA 91361

Date: June 23, 2025

To: Norali Martinez
200 N. Spring Street, Room 721
Los Angeles, CA 90012

From: Christ Kirikian
Partner | Director of Air Quality & Acoustics

Subject: Response to Comments on the Negative Declaration (ND) for KPAC Coil Avenue Freezer Expansion Project (Case No. ENV-2022-6860-ND, SCH No. 2025041295) from Adams Broadwell Joseph & Cardozo letter dated June 12, 2025

This memorandum addresses the comments from Adams Broadwell Joseph & Cardozo dated June 12, 2025 on the Negative Declaration (ND) for the KPAC Coil Avenue Freezer Expansion Project.

1.1 RESPONSE 1

This introductory comment summarizes the Project Description and outlines the issues raised by the commenter in their letter. Specific issues raised by the commenter are addressed in detail in Response to Comment Nos. 2 through 16, below. As demonstrated therein, the Draft ND meets the requirements of CEQA and preparation of an Environmental Impact Report (EIR) is not required.

1.2 RESPONSE 2

This comment consisting of the commenter's statement of interest is noted for the record and will be made available to the decision-makers for their review and consideration.

1.3 RESPONSE 3

The commenter raises the "fair argument" standard under CEQA to assert that the City was legally required to prepare an Environmental Impact Report (EIR) for the proposed project. While it is true that CEQA requires the preparation of an EIR when substantial evidence supports a fair argument that a project may have a significant effect on the environment, the commenter mischaracterizes both the legal threshold and the evidentiary record in this case.

The fair argument standard does indeed establish a relatively low bar for environmental review; however, this threshold is not satisfied by speculative claims, generalized concerns, or unsupported opinions. As defined under CEQA Guidelines §15384, "substantial evidence" must consist of facts, reasonable assumptions predicated upon facts, or expert opinion supported by facts. In this instance, the City conducted a comprehensive Initial Study that evaluated the project's potential effects on air quality, noise, and public health using standard methodologies accepted by regulatory agencies, including emission modeling through

CalEEMod and noise analysis conforming to FTA protocols. The conclusions drawn from this analysis indicate that the project does not exceed any thresholds of significance, and where minor impacts were identified, they were either temporary in nature or sufficiently addressed through regulatory compliance measures.

Finally, the suggestion that the use of a ND is categorically inappropriate due to "potential" unmitigated impacts misconstrues the purpose of the Initial Study process. CEQA requires that a lead agency prepare an EIR only when there is credible, factual support for the claim that impacts may be significant. The Initial Study in this case does not merely speculate that impacts are insignificant; it provides the analytical and evidentiary foundation demonstrating that conclusion. Accordingly, as discussed in Responses #4 through #16 below, the Project would not result in significant air quality, noise and public health impacts.

1.4 RESPONSE 4

The assertion that the ND fails to adequately describe baseline noise conditions misrepresents both the methodological consistency and regulatory sufficiency of the Initial Study's analysis. CEQA does not mandate continuous or multi-day noise monitoring, nor does it require characterization of every potential fluctuation in ambient conditions. Rather, the statute requires that environmental analyses be based on substantial evidence and reasonable assumptions supported by data.

The baseline noise data relied upon in the ND were developed through site-specific monitoring at six locations adjacent to sensitive receptors, including residences west of the project site. These surveys were conducted during weekday morning hours under typical conditions, capturing noise levels associated with local vehicular traffic and rail activity—both identified as primary contributors to ambient noise in the project area. Fifteen-minute measurement intervals conform to widely accepted industry practices (e.g., Caltrans Technical Noise Supplement, FTA Noise and Vibration Manual), and are routinely upheld in CEQA documents as a reasonable approach to characterizing ambient noise. The suggestion that these data are "unsupported" or "unrepresentative" ignores this regulatory context and fails to provide any alternative analysis or threshold demonstrating otherwise.

Regarding the claim that the measurements represent "only 2% of allowable weekday construction hours," this is a misleading metric. Noise standards and impact determinations under CEQA are not based on cumulative hourly representations but on comparisons between modeled project noise levels and established thresholds (typically Leq and Lmax metrics) over defined time periods. The Initial Study applied this framework by comparing anticipated project-related increases to City-adopted noise standards and significance thresholds, thereby ensuring an appropriate, regulation-compliant evaluation.

With respect to Saturday operations, CEQA requires that the lead agency assess reasonably foreseeable conditions. However, the suggestion that weekend noise "may" differ does not constitute substantial evidence of a significant effect. Weekend activity levels in the vicinity are expected to be lower than weekdays, particularly in terms of commuter rail and traffic noise, making weekday measurements a conservative indicator of potential impact. Absent evidence of intensified weekend operations or materially distinct baseline conditions, the City was not obligated to expand its monitoring scope to include Saturday data.

1.5 RESPONSE 5

The appellant incorrectly makes the assumption the ND should have included a quantified construction Health Risk Assessment (HRA), and is thus allegedly inconsistent with CEQA's requirement to make a "reasonable effort to substantively connect a project's air quality impacts to likely health consequences."

The City relies on methodology established by the South Coast Air Quality Management District (SCAQMD) for preparation of CEQA air quality analyses. SCAQMD shares responsibility with the California Air Resources Board (CARB) for ensuring that all state and federal ambient air quality standards are achieved and maintained throughout all of Los Angeles County. Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with new development projects within the Air Basin, such as the Project. Instead, SCAQMD published the CEQA *Air Quality Handbook* in November 1993 to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects proposed in the Air Basin. The CEQA *Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses and was used extensively in the preparation of the air quality analysis for this report.

The SCAQMD CEQA Handbook does not recommend analysis of toxic air contaminants (TACs) from short-term construction activities. The rational for not requiring a health risk assessment for construction activities is the limited duration of exposure. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Specifically, "Individual Cancer Risk" is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology. Given that the greatest potential for diesel particulate emissions would only occur during demolition (approximately 1 month) and excavation/grading activities (approximately 2 months) and other construction activities (approximately 12 months) during the overall construction schedule would result in reduced use of heavy-duty diesel construction equipment in comparison to demolition and excavation/grading activities, the Project would not result in a long-term (i.e., 70 year) source of TAC emissions. No residual TAC emissions and corresponding individual cancer risk are anticipated after construction. Because there is such a short-term exposure period (15 out of 840 months of a 70-year lifetime), further evaluation of construction TAC emissions is not warranted. As such, the analysis correctly concluded that Project-related TAC impacts during construction were less than significant.

Additionally, the commenter's claim that the ND improperly relies on Localized Significance Thresholds (LSTs) to assess health impacts from exposure to DPM reflects a misunderstanding of both the regulatory framework and the purpose of LSTs as defined by the SCAQMD. LSTs are expressly intended to serve as conservative screening tools to evaluate localized impacts from criteria pollutants—including particulate matter (PM_{10} and $PM_{2.5}$)—emitted during construction activities. While it is correct that LSTs are not designed to directly assess TACs or conduct HRAs, the assertion that the use of LSTs is "flawed" misconstrues their accepted function.

SCAQMD has consistently advised that a site-specific construction HRA is not required unless modeled emissions—particularly of diesel PM—exceed the applicable LST. In this case, the project's estimated

construction emissions, as modeled in CalEEMod and analyzed in the ND, are well below LST screening thresholds for PM_{10} and $PM_{2.5}$ at the nearest sensitive receptors. This provides a strong presumption under CEQA that the project's localized health impacts, including those associated with short-term exposure to DPM, are less than significant.

The LST methodology is intentionally designed to err on the side of caution by incorporating conservative assumptions regarding proximity, meteorology, and receptor sensitivity. If LSTs are not exceeded, SCAQMD guidance explicitly does not recommend further analysis, such as an HRA, for short-term construction activities. Requiring an HRA in every instance where diesel equipment is used would exceed both regulatory expectations and CEQA's own standard for substantial evidence.

1.6 RESPONSE 6

The commenter's argument that the ND fails to analyze cumulative air quality impacts misstates the applicable CEQA framework and overextends the interpretive scope of current SCAQMD guidance. The ND fully complies with CEQA's two-pronged test for evaluating cumulative impacts: (1) determining whether the cumulative condition itself is significant, and (2) assessing whether the project's contribution is cumulatively considerable in that context.

CEQA Guidelines §15064(h)(3) explicitly allow a lead agency to use established regulatory thresholds as a proxy for cumulative significance, provided those thresholds are developed to account for cumulative conditions. The SCAQMD mass emission thresholds for criteria pollutants are specifically designed to evaluate whether a project's contribution to regional air quality degradation would be cumulatively considerable. The project's modeled emissions fall well below these thresholds for all pollutants of concern, including NO_x, ROG, CO, PM_{10}, and $PM_{2.5}$. Therefore, per CEQA Guidelines, the conclusion that cumulative impacts are less than significant is legally defensible and supported by substantial evidence.

The commenter asserts that this approach is insufficient because SCAQMD is "currently updating" its guidance for cumulative analysis of TACs, specifically DPM. However, draft concepts presented in working groups do not constitute adopted regulatory thresholds or enforceable policy. Until such time as SCAQMD formally adopts a cumulative TAC significance framework through a public process, lead agencies are not required under CEQA to apply tentative methodologies still under development. Nonetheless, the ND proactively addressed TAC impacts through conservative screening with LSTs for PM emissions, which serve as a recognized proxy for short-term DPM exposure. These emissions were shown to be well below LSTs at the nearest sensitive receptors.

Furthermore, the commenter references the MATES V dataset and background cancer risks without providing any project-specific risk assessment or evidence that the project would elevate cumulative cancer risk in a meaningful way. CEQA requires a fact-based demonstration of significance, not generalized concerns or emerging research discussions. The ND's conclusion that a HRA was not warranted is consistent with SCAQMD's own guidance, which indicates that an HRA is not required unless screening thresholds (i.e., LSTs) are exceeded—a condition not met here.

Regarding the claim that the ND improperly dismisses foreseeable projects as speculative, this too is incorrect. The Initial Study considered the built environment and regional growth patterns but did not identify any specific, active, or approved projects in the immediate vicinity that would combine with the proposed project to result in a cumulatively considerable impact. CEQA does not require speculation about unknown or indefinite future development. Rather, it mandates a good faith effort to use reasonably available information. The ND's cumulative analysis meets that standard.

In sum, the commenter provides no substantial evidence that the project would incrementally contribute to a significant cumulative air quality condition. The City's reliance on adopted regulatory thresholds and accepted screening methodologies is consistent with CEQA and current SCAQMD practice. An EIR is not required simply because alternative thresholds or emerging guidance could theoretically yield different conclusions. CEQA requires a reasoned, evidence-based approach—which the City has applied here.

1.7 RESPONSE 7

The claim that substantial evidence supports a fair argument the project may result in a significant cancer risk due to DPM emissions is not supported by regulatory standards or established CEQA practice. While the commenter cites Dr. Clark's independent modeling to suggest that the project's construction activities would cause a cancer risk exceeding 1 in one million, this analysis is not a legally binding standard under CEQA nor does it represent adopted methodology from the SCAQMD.

The SCAQMD has not formally adopted the draft cumulative cancer risk significance framework referenced by the commenter. While the Multiple Air Toxics Exposure Study V (MATES V) provides valuable background information on regional TAC exposure levels, it is not intended to serve as a project-level threshold or regulatory trigger under CEQA. The cited 1 in one million benchmark reflects a conceptual screening threshold discussed in SCAQMD working groups—it is not codified or recommended as a universal standard. Agencies are not required to rely on non-final guidance, particularly in the absence of an adopted methodology.

The ND properly utilized SCAQMD's LSTs for $PM_{2.5}$ and PM_{10}, which are conservative screening tools that account for localized emissions, receptor proximity, and short-term exposure risks. Project emissions were found to be well below those thresholds, indicating that the potential for localized DPM-related impacts, including cancer risk, is less than significant. SCAQMD explicitly does not recommend preparation of a HRA unless LSTs are exceeded—a condition that does not apply here.

Moreover, Dr. Clark's modeling assumes the applicability of the draft cumulative impact methodology and imposes thresholds that are neither required by CEQA nor endorsed by SCAQMD. Even if one were to accept the modeling at face value, the resulting cancer risk of 2.27 in one million still falls below SCAQMD's currently adopted significance threshold of 10 in one million. CEQA does not require an EIR simply because an alternative analysis generates a more conservative result, especially when that result remains below existing regulatory thresholds.

Finally, the commenter's claim that the project's location in a disadvantaged or AB 617-designated community mandates use of a stricter threshold lacks a basis in CEQA or in adopted air district regulations. While CEQA recognizes environmental justice considerations, it does not require the substitution of emerging or unadopted standards in place of established criteria. The City's conclusions are grounded in adopted thresholds, agency guidance, and accepted modeling practices. The existence of alternate analyses or lower thresholds, even if derived from valid models, does not equate to substantial evidence that a significant impact may occur.

Additionally, as described in both Response #5 and #6, if LSTs are not exceeded, SCAQMD guidance explicitly does not recommend further analysis, such as an HRA, for short-term construction activities. No residual TAC emissions and corresponding individual cancer risk are anticipated after construction. Because there is such a short-term exposure period (15 out of 840 months of a 70-year lifetime), further evaluation of construction TAC emissions is not warranted. As such, the analysis correctly concluded that Project-related TAC impacts during construction were less than significant.

In short, the administrative record supports the conclusion that construction-related DPM emissions would not result in a significant health risk. The City is not required to prepare an EIR based on speculative or non-standard risk thresholds, particularly where no adopted methodology mandates such action. The commenter's reliance on draft guidance and unofficial risk thresholds does not constitute substantial evidence under CEQA.

1.8 Response 8

First, the commenter's claim that the air quality analysis is deficient due to the omission of emissions from transport refrigeration units (TRUs) fails to consider the operational data already disclosed in the ND, as well as the scale of the projected increase. The ND acknowledges that the existing site accommodates approximately 110 to 120 truck TRUs per day and that, under the proposed project, TRU activity would increase by only 30 to 40 trucks per day—a modest increment in the context of the overall operational volume.

There will be no increase in refrigerated railcar TRU activity, and all additional truck TRUs are already subject to regulatory controls under the California Air Resources Board's (CARB) TRU Airborne Toxic Control Measure (ATCM). These regulations cap the emissions profile of in-use and new TRUs through required engine upgrades, operational time limits, and idling restrictions. As such, even at the conservative end of the activity range, the net increase in TRU activity is regulated and not expected to materially increase the project's localized DPM emissions.

To ensure that this assumption was empirically tested, the project's emissions profile was supplemented with PCE units at a ratio of 1.5 passenger cars to input into CalEEMod. Therefore, it was assumed the proposed expansion would result in 732 daily trips. The ND's finding of less-than-significant air quality impacts remains valid, and there is no substantial evidence to suggest that the marginal increase in TRU-related emissions would result in significant localized cancer risks or contribute materially to cumulative impacts. The project is located in an industrial corridor where similar mobile and stationary emission sources are common, and it has

incorporated operational best practices and mitigation measures that further minimize emissions exposure at nearby sensitive receptors.

Secondly, the comment asserts that the air quality analysis in the ND is deficient because it does not explicitly quantify emissions from cargo handling equipment such as yard trucks, forklifts, or top picks—equipment commonly associated with cold storage logistics. However, this claim overstates the potential contribution of these sources and does not undermine the ND's conclusions.

To address the comment and ensure the most conservative evaluation possible under CEQA, a supplemental emissions analysis was conducted that incorporates cargo handling equipment using standard emission factors for diesel and propane-powered yard equipment commonly found at similar facilities. This analysis includes operational assumptions reflective of routine facility use, including multiple pieces of equipment operating daily.

The results of the supplemental modeling (refer to **Attachment A**) confirm that emissions from cargo handling equipment—when added to the original CalEEMod output—do not meaningfully increase total operational emissions. Specifically, even with the inclusion of these sources, the project's total emissions for all criteria pollutants, including nitrogen oxides (NOx), volatile organic compounds (VOCs), and DPM remain well below SCAQMD regional and localized significance thresholds.

This additional analysis reaffirms that the original conclusion of "less than significant impact" remains valid. The fact that neither the baseline nor project conditions triggered any thresholds for significance—even after conservatively including this equipment—demonstrates that the commenter's concern does not rise to the level of substantial evidence under CEQA. The omission of such minor sources from the initial model does not constitute a "significant analytical gap," particularly given that the revised modeling confirms no change in the impact determination.

Thirdly, the commenter's claim that the omission of emissions from the facility's stationary fire pump undermines the integrity of the air quality modeling is unsubstantiated and ultimately irrelevant to the CEQA conclusions. While it is correct that the original model did not explicitly include emissions from the fire pump, this does not constitute a material deficiency because, as the commenter themselves acknowledges, fire pumps are tested only intermittently—typically for short durations on a monthly or annual basis. Their limited runtime inherently limits their emissions output, making it unlikely that they would substantially affect the overall emissions profile of the project.

Nevertheless, to address the comment and further validate the robustness of the environmental analysis, a supplemental modeling exercise was conducted to incorporate emissions from the fire pump under conservative operational assumptions. Specifically, the revised analysis assumes the fire pump would operate for one hour per day and up to 100 hours per year—substantially more frequent than industry practice and well beyond typical testing schedules. This modeling approach ensures that any potential emissions are overestimated rather than minimized, in keeping with CEQA's requirement for conservative impact assessment.

As shown in **Attachment A** of the supplemental analysis, the addition of the fire pump results in negligible changes to the overall emissions inventory. Criteria pollutant levels, including for DPM and nitrogen oxides (NOx)—the pollutants of concern identified by the commenter—remain almost identical to the original results disclosed in the ND. Importantly, total emissions for all regulated pollutants, including DPM and NOx, remain below the applicable SCAQMD significance thresholds. These findings confirm that the fire pump does not contribute materially to the project's potential to cause significant air quality impacts.

Therefore, the inclusion of the fire pump in the supplemental analysis further substantiates the ND's conclusion that air quality impacts are less than significant. The commenter's assertion does not constitute substantial evidence under CEQA, nor does it demonstrate a basis for requiring preparation of an Environmental Impact Report.

1.9 RESPONSE 9

The commenter's assertion that the noise analysis supporting the ND is analytically flawed due to "unsupported assumptions" about equipment distances reflects a fundamental misunderstanding of both the modeling methodology employed and the regulatory expectations under CEQA. Contrary to the comment's claim, the analysis did not rely on speculative or undocumented distances; rather, it utilized industry-standard software and conservative modeling protocols to ensure the assessment was both representative and precautionary.

The noise modeling was conducted using SoundPLAN, a three-dimensional acoustic modeling tool that incorporates not only source data—such as the sound power levels for construction equipment provided by the Federal Highway Administration's Roadway Construction Noise Model (FHWA RCNM)—but also terrain, elevation, and receptor-specific inputs. The use of SoundPLAN inherently accounts for the actual geometric relationship between noise sources and sensitive receptors by integrating scaled topographical data. Thus, the distances between construction activities and nearby residential receptors were not arbitrarily assumed; they were algorithmically computed within the modeling environment based on accurate spatial mapping utilizing Google Earth.

Moreover, the analysis adopted conservative assumptions throughout. It presumes the simultaneous operation of multiple high-noise construction equipment types, a condition that rarely occurs in real-world scenarios due to logistical constraints and typical construction phasing. This "worst-case" assumption ensures that predicted noise levels represent the upper bound of potential exposure and thus err on the side of caution when evaluating significance.

The suggestion that empirical validation of input distances is missing is misplaced. SoundPLAN, by design, references georeferenced base maps and user-defined project layouts to simulate propagation paths. The model's outputs reflect not generic assumptions, but spatially accurate projections based on mapped receptor locations.

CEQA requires that noise assessments be based on reasonable assumptions and supported by substantial evidence. The City's use of a 3D modeling platform like SoundPLAN, coupled with conservative construction scenarios and FHWA-sourced equipment data, meets and exceeds this standard. The analysis discloses assumptions and modeling parameters. Thus, the claim that the ND fails to substantiate noise model inputs or fails to accurately depict receptor distances is unfounded. The analysis is conservative and fully CEQA-compliant.

1.10 Response 10

The commenter's critique of the City's use of an 80 dBA Leq threshold for assessing construction noise mischaracterizes the purpose and application of this threshold, and disregards the City of Los Angeles's most recent regulatory guidance. While it is true that noise thresholds must be tailored to local context and receptor sensitivity, the City's analysis is both consistent with CEQA and directly aligned with the City's current adopted methodology for assessing construction noise impacts.

In September 2024, the Department of City Planning issued an advisory memorandum that formalized updated thresholds and methodologies for analyzing construction noise and vibration. These updates, which evolved from the December 2023 policy proposal process, specifically establish thresholds that balance the realities of urban construction with the need to protect public health and sensitive receptors. For construction noise, the advisory identifies context-sensitive, receptor-specific thresholds that reflect both absolute noise levels and potential for sleep disturbance. The City's ND applies the adopted 80 dBA Leq daytime threshold for residential receptors—a threshold that the Department affirmed in its 2024 memorandum as an appropriate criterion for temporary, non-pile-driving activities during standard construction hours.

Furthermore, the ND's noise analysis is conservative and methodologically robust. It uses FHWA-sourced maximum noise levels, assumes simultaneous operation of all major construction equipment types, and models receptor-specific impacts using three-dimensional terrain-based propagation via SoundPLAN. This ensures that the modeled noise environment does not underestimate potential impacts. The fact that these worst-case scenarios remain below the City's adopted 80 dBA significance threshold provides substantial evidence supporting the conclusion that construction noise will not result in significant effects.

In sum, the City's noise analysis is fully consistent with CEQA and the September 2024 City-adopted thresholds and methodologies. The argument that the use of an absolute threshold is inappropriate lacks merit and fails to recognize the discretion CEQA affords lead agencies in setting and applying locally tailored significance criteria. The ND's findings are both technically and legally sound.

1.11 Response 11

The comment contends that construction noise impacts are significant and unmitigated based on an independent calculation provided by Ms. Toncheva, which aims to show that the demolition phase would generate an 8-hour Leq of 82 dBA at nearby residential receptors. However, this analysis is incomplete and

omits critical context and project-specific design features, thereby limiting its reliability and evidentiary value under CEQA.

First, the assertion that the ND fails to apply the City's recommended methodology is inaccurate. As described in Response #10, the noise analysis adheres to the September 2024 Department of City Planning advisory memorandum, which formally establishes the 80 dBA Leq daytime threshold for evaluating significance of construction noise impacts within the City of Los Angeles. This threshold reflects cumulative policy considerations, balancing construction feasibility with community protection, and is specifically intended for short-term, daytime construction activities such as those proposed for this project.

Second, the commenter's analysis fails to incorporate existing site conditions and Environmental Protection Measures (EPMs) that are integral to the project's design and implementation. As documented in the ND's noise study, EPMs NV1-1 through NV1-6 include multiple controls: properly maintained and muffled equipment (NV1-1), orientation and staging of noisy equipment away from sensitive uses (NV1-2), installation of temporary noise barriers or acoustic blankets (NV1-3, NV1-6), restriction of particularly noisy tasks to daytime hours (NV1-5), and clear site access routing to minimize disturbance (NV1-4). These measures are not speculative—they are regulatory compliance measures and enforceable components of project implementation and materially reduce the predicted noise levels at offsite receptors.

In addition, the modeling in the ND accounts for the attenuation provided by physical distance and onsite structures. Ms. Toncheva's calculation uses a simplified propagation estimate without factoring in the noise shielding benefits of intervening buildings. The modeled noise levels, inclusive of worst-case assumptions, remain below the City's adopted 80 dBA threshold for construction activities.

1.12 RESPONSE 12

The commenter's claim that the ND fails to demonstrate compliance with applicable construction noise standards under Los Angeles Municipal Code (LAMC) §112.05 is factually and legally unfounded. As detailed in Response #10, the City has explicitly incorporated the most current, context-sensitive construction noise thresholds as set forth in its September 2024 Department of City Planning advisory memorandum. That guidance refines the City's application of CEQA thresholds of significance for construction noise and vibration and was developed precisely to address inconsistencies between regulatory noise limits and the realities of temporary construction activity in urban environments.

The CEQA analysis in the ND appropriately utilizes the 80 dBA Leq threshold identified in the City's 2024 adopted CEQA guidance as the relevant threshold for determining the potential for significant impacts on sensitive receptors. This threshold was not selected arbitrarily; it reflects Citywide policy deliberations that weighed community health, urban density, and environmental justice considerations, and was established to ensure consistency across all CEQA noise analyses conducted within the City of Los Angeles.

The suggestion that the ND does not acknowledge or analyze local construction noise regulations is also incorrect. The analysis incorporates construction equipment noise profiles based on FHWA data and models

noise levels using SoundPLAN under conservative assumptions—including simultaneous equipment operation at the nearest property line to residential uses. The modeled levels were then compared against the adopted CEQA threshold.

Furthermore, the legal premise that compliance with regulatory standards must be independently demonstrated to function as mitigation under CEQA is inapplicable here. CEQA does not require mitigation for impacts that are found to be less than significant in the first instance. In this case, the project is expected to comply with applicable municipal construction standards through standard conditions of approval, contract specifications, and active construction oversight by the City's Department of Building and Safety. The ND does not rely on regulatory compliance as a substitute for mitigation but is instead concluding—based on modeling and adopted thresholds—that the impacts are not significant.

In conclusion, the ND's approach is fully aligned with both the City's 2024 CEQA thresholds and with CEQA's requirements for a good faith, evidence-based impact determination. The suggestion that a failure to disclose or address LAMC §112.05 renders the ND deficient is inaccurate. The project's construction noise levels, even under conservative assumptions, are consistent with City-adopted CEQA thresholds and are expected to operate within the performance envelope established by applicable local regulations.

1.13 Response 13

The ND acknowledges that all mechanical equipment is required to comply with the City's Municipal Code Section 112.02, which prohibits noise from such equipment from causing an increase in ambient noise level of more than 5 dBA. Compliance with these regulatory standards ensures that noise levels generated by mechanical equipment do not exceed acceptable thresholds.

The LADBS reviews building permit applications to ensure that all proposed mechanical equipment complies with applicable noise regulations. As part of this review, project applicants are required to demonstrate that mechanical equipment is designed and installed in a manner that meets the City's Municipal Code. If necessary, additional noise attenuation measures, such as shielding, equipment selection, or placement adjustments, may be incorporated into project design to achieve compliance.

Since the Project is required to comply with the City's Municipal Code and will be subject to review during the plan check process, additional analysis in the ND is not required. The conclusion that impacts would be less than significant is based on enforceable regulatory standards, and compliance will be verified as part of the City's plan check process.

1.14 Response 14

Under existing conditions, approximately 120 truck/container trips occur per day, with modeled noise levels ranging from 57.1 dBA for medium-duty trucks to 62.4 dBA for heavy-duty trucks at 25 feet from the nearest sensitive receptor. The proposed project would add 40 truck/container trips per day, resulting in a total of 160. This increase corresponds to a projected noise level of 58.4 to 63.6 dBA at the same receptor distance,

depending on truck class. This maximum incremental increase of 1.3 dBA is well below the commonly used CEQA significance threshold of 5 dBA for operational noise. According to the ambient noise measurements provided in the ND, existing baseline noise levels already exceed 60 dBA due to industrial activity and transportation infrastructure in the area. Therefore, the additional truck activity would not cause a perceptible or significant change in the acoustic environment.

For purposes of this response, a supplemental analysis was conducted to simulate dock operations in their proposed location, adjacent to Drumm Avenue and behind the existing barrier wall, which was explicitly included in the model as a shielding feature. The supplemental SoundPLAN modeling specifically evaluated dock operations using a reference Sound Power Level (LwA) of 114.2 dB, which corresponds to the unloading of trailers via forklift—one of the loudest reasonably anticipated operational scenarios.

The results of the supplemental analysis show that noise levels at the nearest sensitive receptors are as follows: 60.9 dBA at Site 1, 60.1 dBA at Site 2, 56.3 dBA at Site 3, 54.4 dBA at Site 4, 48.9 dBA at Site 5, and 41.5 dBA at Site 6 (refer to **Attachment B**). None of these modeled noise levels represent an increase of 5 dBA or more above existing ambient conditions, the standard CEQA threshold for a potentially significant increase. Even at the closest receptor (Site 1), the modeled dock-related noise increase is below this level, demonstrating that the proposed dock relocation and extended operations into Saturday will not result in perceptible or significant increases in noise exposure.

In conclusion, the original and supplemental analyses demonstrate, using site-specific modeling and conservative assumptions, that noise from truck and dock operations will not result in a significant increase over ambient conditions. The ND's conclusion of a less than significant impact is supported by substantial evidence and complies fully with CEQA.

1.15 Response 15

The commenter's assertion that the City cannot lawfully approve the requested entitlements due to alleged "significant, unmitigated public health and environmental impacts" mischaracterizes both the scope of the proposed project and the thoroughness of the environmental review conducted under CEQA. As established in detailed responses to comments throughout this administrative record, the ND is supported by substantial evidence and appropriately concludes that the project will not result in significant environmental impacts.

With respect to air quality, the ND applies SCAQMD thresholds for both regional and localized impacts and models emissions using CalEEMod under conservative assumptions. Construction emissions fall well below applicable LSTs, which SCAQMD recognizes as the primary screening tool for evaluating short-term DPM exposure. Contrary to assertions in the comment, a HRA is not warranted per adopted SCAQMD guidance, and the application of emerging, non-final cumulative risk frameworks is not required under CEQA. The project's contribution to cumulative air quality impacts is likewise less than considerable, as explained in prior responses.

For noise, the ND uses SoundPLAN modeling with conservative input assumptions and incorporates both weekday ambient measurements and enforceable Environmental Protection Measures (EPMs) NV1-1 through NV1-6. As addressed in earlier responses, operational noise from truck traffic and loading dock activities, including during Saturday operations, would not exceed a 5 dBA increase above ambient at any sensitive receptor. Construction noise, modeled assuming simultaneous use of all major equipment types, remains below the City's adopted 80 dBA Leq threshold as formalized in the September 2024 Department of City Planning advisory memorandum. Supplemental analysis further confirmed that noise from dock operations does not exceed ambient levels in a manner that would result in a significant impact.

The ND also provides a reasoned, evidence-based assessment of all other CEQA-required resource areas and finds no potentially significant effects that remain unmitigated. Assertions of public health or welfare harm are not substantiated by expert opinion that meets CEQA's substantial evidence standard. Where alternative modeling was presented by commenters, those submissions either failed to account for design-level mitigation, applied unadopted or draft thresholds, or made assumptions inconsistent with the project description.

Regarding General Plan and Community Plan consistency, the commenter's claim of inconsistency with policies such as Air Quality Element Policy 1.3.1 or Noise Element Policies 2.2 ignores the fact that these policies are implemented through the environmental standards and thresholds applied in the ND. Since the ND demonstrates that the project complies with those standards and would not result in significant impacts, the project does not conflict with those policies. Moreover, the project includes design and operational features—such as noise shielding, equipment muffling, and truck routing controls—that reflect best practices in minimizing off-site effects and supporting community compatibility.

Finally, the entitlement findings required for the General Plan Amendment, Zone Change, Zoning Administrator Determination, Site Plan Review, and Waiver of Dedication and Improvements are not precluded by the ND's findings. There is no evidence that the project would degrade adjacent properties, pose a risk to public safety, or be inconsistent with the scale, character, or goals of the Wilmington – Harbor City Community Plan. To the contrary, the project facilitates improved logistics operations in a zone historically defined by industrial and goods movement uses, while incorporating environmental controls that mitigate potential externalities.

In conclusion, the ND demonstrates that the project's potential environmental impacts are less than significant. The City retains full discretion to make the required findings in support of the proposed entitlements based on substantial evidence in the record, consistent with CEQA, the General Plan, and all applicable policies.

1.16 RESPONSE 16

This comment concludes the letter. Refer to Response to Comment Nos. 1 through 14, above for issues raised by the commenter.

ATTACHMENT A

Supplemental CalEEMod Output Files

KPAC (Operational) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	KPAC (Operational)
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.30
Precipitation (days)	16.0
Location	1420 Coil Ave, Wilmington, CA 90744, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4611
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Refrigerated Warehouse-Rail	282	1000sqft	6.47	281,999	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.5	11.3	22.3	39.9	0.14	0.66	5.65	6.31	0.62	1.47	2.09	268	25,349	25,617	28.7	1.84	7,545	34,428
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.3	9.31	22.8	26.2	0.13	0.64	5.65	6.29	0.61	1.47	2.07	268	25,130	25,398	28.7	1.85	7,516	34,183
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.9	10.0	18.3	29.9	0.11	0.50	4.80	5.30	0.48	1.25	1.72	268	23,002	23,270	28.6	1.64	7,526	32,000
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.99	1.83	3.34	5.46	0.02	0.09	0.88	0.97	0.09	0.23	0.31	44.3	3,808	3,853	4.73	0.27	1,246	5,298
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	55.0	55.0	550	150	—	—	150	—	—	55.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshold	—	55.0	55.0	550	150	—	—	150	—	—	55.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.04	1.36	12.3	18.6	0.11	0.14	5.65	5.79	0.13	1.47	1.60	—	12,163	12,163	0.66	1.43	29.2	12,634
Area	8.93	8.76	0.10	12.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	50.4	50.4	< 0.005	< 0.005	—	50.6
Energy	0.18	0.09	1.59	1.34	0.01	0.12	—	0.12	0.12	—	0.12	—	10,862	10,862	0.80	0.09	—	10,909
Water	—	—	—	—	—	—	—	—	—	—	—	125	840	965	12.9	0.31	—	1,380
Waste	—	—	—	—	—	—	—	—	—	—	—	143	0.00	143	14.3	0.00	—	500
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,515	7,515
Off-Road	0.95	0.80	7.35	6.86	0.01	0.33	—	0.33	0.31	—	0.31	—	1,267	1,267	0.05	0.01	—	1,271
Stationary	0.36	0.33	0.92	0.84	< 0.005	0.05	0.00	0.05	0.05	0.00	0.05	0.00	168	168	0.01	< 0.005	0.00	168
Total	12.5	11.3	22.3	39.9	0.14	0.66	5.65	6.31	0.62	1.47	2.09	268	25,349	25,617	28.7	1.84	7,545	34,428
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.02	1.34	12.9	17.2	0.11	0.14	5.65	5.79	0.13	1.47	1.60	—	11,994	11,994	0.67	1.44	0.76	12,439
Area	6.75	6.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.18	0.09	1.59	1.34	0.01	0.12	—	0.12	0.12	—	0.12	—	10,862	10,862	0.80	0.09	—	10,909
Water	—	—	—	—	—	—	—	—	—	—	—	125	840	965	12.9	0.31	—	1,380
Waste	—	—	—	—	—	—	—	—	—	—	—	143	0.00	143	14.3	0.00	—	500
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,515	7,515

Off-Road	0.95	0.80	7.35	6.86	0.01	0.33	—	0.33	0.31	—	0.31	—	1,267	1,267	0.05	0.01	—	1,271
Stationary	0.36	0.33	0.92	0.84	< 0.005	0.05	0.00	0.05	0.05	0.00	0.05	0.00	168	168	0.01	< 0.005	0.00	168
Total	10.3	9.31	22.8	26.2	0.13	0.64	5.65	6.29	0.61	1.47	2.07	268	25,130	25,398	28.7	1.85	7,516	34,183
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.73	1.15	11.1	15.1	0.10	0.12	4.80	4.92	0.11	1.25	1.36	—	10,318	10,318	0.57	1.23	10.8	10,710
Area	8.25	8.13	0.07	8.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.5	34.5	< 0.005	< 0.005	—	34.7
Energy	0.18	0.09	1.59	1.34	0.01	0.12	—	0.12	0.12	—	0.12	—	10,862	10,862	0.80	0.09	—	10,909
Water	—	—	—	—	—	—	—	—	—	—	—	125	840	965	12.9	0.31	—	1,380
Waste	—	—	—	—	—	—	—	—	—	—	—	143	0.00	143	14.3	0.00	—	500
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,515	7,515
Off-Road	0.68	0.57	5.24	4.89	0.01	0.24	—	0.24	0.22	—	0.22	—	902	902	0.04	0.01	—	905
Stationary	0.10	0.09	0.25	0.23	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	46.0	46.0	< 0.005	< 0.005	0.00	46.2
Total	10.9	10.0	18.3	29.9	0.11	0.50	4.80	5.30	0.48	1.25	1.72	268	23,002	23,270	28.6	1.64	7,526	32,000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.32	0.21	2.03	2.75	0.02	0.02	0.88	0.90	0.02	0.23	0.25	—	1,708	1,708	0.09	0.20	1.79	1,773
Area	1.50	1.48	0.01	1.53	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.72	5.72	< 0.005	< 0.005	—	5.74
Energy	0.03	0.02	0.29	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	—	1,798	1,798	0.13	0.02	—	1,806
Water	—	—	—	—	—	—	—	—	—	—	—	20.7	139	160	2.13	0.05	—	228
Waste	—	—	—	—	—	—	—	—	—	—	—	23.7	0.00	23.7	2.36	0.00	—	82.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,244	1,244
Off-Road	0.12	0.10	0.96	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	149	149	0.01	< 0.005	—	150
Stationary	0.02	0.02	0.05	0.04	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	7.62	7.62	< 0.005	< 0.005	0.00	7.64
Total	1.99	1.83	3.34	5.46	0.02	0.09	0.88	0.97	0.09	0.23	0.31	44.3	3,808	3,853	4.73	0.27	1,246	5,298

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	2.04	1.36	12.3	18.6	0.11	0.14	5.65	5.79	0.13	1.47	1.60	—	12,163	12,163	0.66	1.43	29.2	12,634
Total	2.04	1.36	12.3	18.6	0.11	0.14	5.65	5.79	0.13	1.47	1.60	—	12,163	12,163	0.66	1.43	29.2	12,634
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	2.02	1.34	12.9	17.2	0.11	0.14	5.65	5.79	0.13	1.47	1.60	—	11,994	11,994	0.67	1.44	0.76	12,439
Total	2.02	1.34	12.9	17.2	0.11	0.14	5.65	5.79	0.13	1.47	1.60	—	11,994	11,994	0.67	1.44	0.76	12,439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	0.32	0.21	2.03	2.75	0.02	0.02	0.88	0.90	0.02	0.23	0.25	—	1,708	1,708	0.09	0.20	1.79	1,773
Total	0.32	0.21	2.03	2.75	0.02	0.02	0.88	0.90	0.02	0.23	0.25	—	1,708	1,708	0.09	0.20	1.79	1,773

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	8,959	8,959	0.63	0.09	—	9,002
Total	—	—	—	—	—	—	—	—	—	—	—	—	8,959	8,959	0.63	0.09	—	9,002
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	8,959	8,959	0.63	0.09	—	9,002
Total	—	—	—	—	—	—	—	—	—	—	—	—	8,959	8,959	0.63	0.09	—	9,002
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,483	1,483	0.11	0.01	—	1,490
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,483	1,483	0.11	0.01	—	1,490

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refriger Warehouse-Rail	0.18	0.09	1.59	1.34	0.01	0.12	—	0.12	0.12	—	0.12	—	1,902	1,902	0.17	< 0.005	—	1,908
Total	0.18	0.09	1.59	1.34	0.01	0.12	—	0.12	0.12	—	0.12	—	1,902	1,902	0.17	< 0.005	—	1,908
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	0.18	0.09	1.59	1.34	0.01	0.12	—	0.12	0.12	—	0.12	—	1,902	1,902	0.17	< 0.005	—	1,908
Total	0.18	0.09	1.59	1.34	0.01	0.12	—	0.12	0.12	—	0.12	—	1,902	1,902	0.17	< 0.005	—	1,908
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	0.03	0.02	0.29	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	—	315	315	0.03	< 0.005	—	316
Total	0.03	0.02	0.29	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	—	315	315	0.03	< 0.005	—	316

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	6.03	6.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.72	0.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	2.18	2.01	0.10	12.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	50.4	50.4	< 0.005	< 0.005	—	50.6
Total	8.93	8.76	0.10	12.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	50.4	50.4	< 0.005	< 0.005	—	50.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	6.03	6.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.72	0.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.75	6.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.27	0.25	0.01	1.53	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.72	5.72	< 0.005	< 0.005	—	5.74
Total	1.50	1.48	0.01	1.53	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.72	5.72	< 0.005	< 0.005	—	5.74

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	125	840	965	12.9	0.31	—	1,380
Total	—	—	—	—	—	—	—	—	—	—	—	125	840	965	12.9	0.31	—	1,380
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	125	840	965	12.9	0.31	—	1,380
Total	—	—	—	—	—	—	—	—	—	—	—	125	840	965	12.9	0.31	—	1,380
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	20.7	139	160	2.13	0.05	—	228
Total	—	—	—	—	—	—	—	—	—	—	—	20.7	139	160	2.13	0.05	—	228

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated	—	—	—	—	—	—	—	—	—	—	—	143	0.00	143	14.3	0.00	—	500
Total	—	—	—	—	—	—	—	—	—	—	—	143	0.00	143	14.3	0.00	—	500
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	143	0.00	143	14.3	0.00	—	500
Total	—	—	—	—	—	—	—	—	—	—	—	143	0.00	143	14.3	0.00	—	500
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	23.7	0.00	23.7	2.36	0.00	—	82.8
Total	—	—	—	—	—	—	—	—	—	—	—	23.7	0.00	23.7	2.36	0.00	—	82.8

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,515	7,515
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,515	7,515
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refriger Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,515	7,515
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,515	7,515
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,244	1,244
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,244	1,244

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	0.08	0.07	0.68	1.04	< 0.005	0.03	—	0.03	0.03	—	0.03	—	152	152	0.01	< 0.005	—	153
Rubber Tired Dozers	0.82	0.69	6.26	5.29	0.01	0.28	—	0.28	0.25	—	0.25	—	1,034	1,034	0.04	0.01	—	1,038
Other Construction Equipment	0.05	0.04	0.42	0.53	< 0.005	0.02	—	0.02	0.02	—	0.02	—	80.1	80.1	< 0.005	< 0.005	—	80.4
Total	0.95	0.80	7.35	6.86	0.01	0.33	—	0.33	0.31	—	0.31	—	1,267	1,267	0.05	0.01	—	1,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	0.08	0.07	0.68	1.04	< 0.005	0.03	—	0.03	0.03	—	0.03	—	152	152	0.01	< 0.005	—	153

Rubber Tired Dozers	0.82	0.69	6.26	5.29	0.01	0.28	—	0.28	0.25	—	0.25	—	1,034	1,034	0.04	0.01	—	1,038
Other Construction Equipment	0.05	0.04	0.42	0.53	< 0.005	0.02	—	0.02	0.02	—	0.02	—	80.1	80.1	< 0.005	< 0.005	—	80.4
Total	0.95	0.80	7.35	6.86	0.01	0.33	—	0.33	0.31	—	0.31	—	1,267	1,267	0.05	0.01	—	1,271
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	0.01	0.01	0.09	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	18.0
Rubber Tired Dozers	0.11	0.09	0.81	0.69	< 0.005	0.04	—	0.04	0.03	—	0.03	—	122	122	< 0.005	< 0.005	—	122
Other Construction Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.45	9.45	< 0.005	< 0.005	—	9.48
Total	0.12	0.10	0.96	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	149	149	0.01	< 0.005	—	150

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fire Pump	0.36	0.33	0.92	0.84	< 0.005	0.05	0.00	0.05	0.05	0.00	0.05	0.00	168	168	0.01	< 0.005	0.00	168
Total	0.36	0.33	0.92	0.84	< 0.005	0.05	0.00	0.05	0.05	0.00	0.05	0.00	168	168	0.01	< 0.005	0.00	168
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Fire Pump	0.36	0.33	0.92	0.84	< 0.005	0.05	0.00	0.05	0.05	0.00	0.05	0.00	168	168	0.01	< 0.005	0.00	168
Total	0.36	0.33	0.92	0.84	< 0.005	0.05	0.00	0.05	0.05	0.00	0.05	0.00	168	168	0.01	< 0.005	0.00	168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fire Pump	0.02	0.02	0.05	0.04	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	7.62	7.62	< 0.005	< 0.005	0.00	7.64
Total	0.02	0.02	0.05	0.04	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	7.62	7.62	< 0.005	< 0.005	0.00	7.64

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Refrigerated Warehouse-Rail	733	733	0.00	229,386	7,275	7,275	0.00	2,276,180

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	422,999	141,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-Rail	4,736,467	690	0.0489	0.0069	5,936,212

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-Rail	65,212,269	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-Rail	265	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40

Other Construction Equipment	Diesel	Average	1.00	2.00	82.0	0.42

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Fire Pump	Diesel	1.00	1.00	100	200	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	6.24	annual days of extreme heat
Extreme Precipitation	4.10	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A

Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	20.8
AQ-PM	67.5
AQ-DPM	83.5
Drinking Water	42.4
Lead Risk Housing	94.8
Pesticides	21.1
Toxic Releases	99.3
Traffic	66.0
Effect Indicators	—
CleanUp Sites	59.4
Groundwater	56.3
Haz Waste Facilities/Generators	97.3
Impaired Water Bodies	0.00
Solid Waste	90.1
Sensitive Population	—
Asthma	83.0
Cardio-vascular	92.8
Low Birth Weights	62.1
Socioeconomic Factor Indicators	—
Education	96.2
Housing	93.9
Linguistic	59.8
Poverty	78.3
Unemployment	79.7

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	17.65687155
Employed	57.44899269
Median HI	28.24329526
Education	—
Bachelor's or higher	4.157577313
High school enrollment	100
Preschool enrollment	37.79032465
Transportation	—
Auto Access	37.4566919
Active commuting	59.00166816
Social	—
2-parent households	11.81829847
Voting	28.74374439
Neighborhood	—
Alcohol availability	21.57064032
Park access	26.22866675
Retail density	56.79455922
Supermarket access	7.76337739
Tree canopy	26.97292442
Housing	—
Homeownership	38.90671115
Housing habitability	11.48466573
Low-inc homeowner severe housing cost burden	33.64557937
Low-inc renter severe housing cost burden	26.31849095

Uncrowded housing	2.977030669
Health Outcomes	—
Insured adults	11.54882587
Arthritis	68.4
Asthma ER Admissions	21.3
High Blood Pressure	69.1
Cancer (excluding skin)	89.7
Asthma	23.6
Coronary Heart Disease	37.1
Chronic Obstructive Pulmonary Disease	40.0
Diagnosed Diabetes	13.1
Life Expectancy at Birth	11.0
Cognitively Disabled	50.3
Physically Disabled	45.1
Heart Attack ER Admissions	21.1
Mental Health Not Good	13.3
Chronic Kidney Disease	14.8
Obesity	12.4
Pedestrian Injuries	67.4
Physical Health Not Good	12.4
Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	54.2
Current Smoker	20.8
No Leisure Time for Physical Activity	15.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	17.1
Elderly	76.6
English Speaking	16.2
Foreign-born	79.0
Outdoor Workers	28.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	10.6
Traffic Density	54.5
Traffic Access	87.4
Other Indices	—
Hardship	93.8
Other Decision Support	—
2016 Voting	5.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	97.0
Healthy Places Index Score for Project Location (b)	20.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	According to the Transportation Study Assessment Referral Form, based on 679 daily trips for the proposed land use
Operations: Fleet Mix	Employee trips account for approximately 34 percent of total daily trips. Truck trips account of approximately 66 percent and divided evenly between medium and heavy duty trucks for a conservative assessment
Operations: Off-Road Equipment	Conservatively assuming the use of a fork lift, dozer and other equipment during operation.

ATTACHMENT A

Supplemental SoundPLAN Output Sheets - Loading Dock

KPAC Cold Storage Expansion
Contribution spectra - Loading Dock

Time slice	Source	Sum dB(A)	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Receiver Site 1 Fl G Leq-1hour dB(A) Leq-1hour 60.9 dB(A)										
Leq-1hour	Dock Operation	35.2	26.4	25.6	26.1	28.4	29.1	27.0	17.4	-10.7
Leq-1hour	Dock Operation	60.9	39.0	42.4	43.8	47.2	54.8	58.0	52.6	35.3
Receiver Site 2 Fl G Leq-1hour dB(A) Leq-1hour 55.9 dB(A)										
Leq-1hour	Dock Operation	33.5	24.3	23.3	24.2	26.4	28.3	25.5	12.6	-24.3
Leq-1hour	Dock Operation	55.8	37.7	40.5	42.5	46.1	51.2	51.6	44.8	26.1
Receiver Site 2 Fl F2 Leq-1hour dB(A) Leq-1hour 60.1 dB(A)										
Leq-1hour	Dock Operation	34.2	24.0	24.0	25.0	27.1	29.2	26.7	12.9	-24.2
Leq-1hour	Dock Operation	60.1	39.3	42.2	44.3	46.7	54.7	56.9	51.5	36.1
Receiver Site 3 Fl G Leq-1hour dB(A) Leq-1hour 56.3 dB(A)										
Leq-1hour	Dock Operation	32.1	22.5	21.6	22.5	25.8	27.1	23.8	7.6	-39.8
Leq-1hour	Dock Operation	56.3	38.4	41.2	43.0	46.7	51.7	52.1	45.0	26.4
Receiver Site 4 Fl G Leq-1hour dB(A) Leq-1hour 54.4 dB(A)										
Leq-1hour	Dock Operation	27.2	18.8	17.2	17.9	21.1	21.5	18.0	1.1	-54.6
Leq-1hour	Dock Operation	54.4	36.1	38.6	40.7	44.1	48.8	51.0	44.1	24.6
Receiver Site 5 Fl G Leq-1hour dB(A) Leq-1hour 41.0 dB(A)										
Leq-1hour	Dock Operation	29.3	20.7	19.4	19.9	22.2	22.9	22.4	11.8	-23.5
Leq-1hour	Dock Operation	40.7	25.7	25.9	27.2	29.7	35.2	37.6	27.9	1.5
Receiver Site 5 Fl F2 Leq-1hour dB(A) Leq-1hour 48.9 dB(A)										
Leq-1hour	Dock Operation	33.4	24.4	24.1	24.7	26.9	27.6	24.8	12.3	-23.5
Leq-1hour	Dock Operation	48.7	31.0	33.1	35.2	36.3	43.8	45.4	36.8	9.4
Receiver Site 6 Fl G Leq-1hour dB(A) Leq-1hour 38.1 dB(A)										
Leq-1hour	Dock Operation	28.1	20.2	18.9	19.5	21.7	21.8	18.4	1.9	-50.6
Leq-1hour	Dock Operation	37.7	25.4	25.3	25.5	27.9	33.4	32.7	21.4	-12.5
Receiver Site 6 Fl F2 Leq-1hour dB(A) Leq-1hour 41.5 dB(A)										
Leq-1hour	Dock Operation	28.6	20.0	19.3	20.1	22.3	22.5	19.2	1.9	-50.7
Leq-1hour	Dock Operation	41.3	27.1	28.4	29.6	31.1	36.8	37.0	25.3	-9.9

EXHIBIT F

General Plan Amendment Initiation Request Form

CPC-2022-6859

INSTRUCTIONS:

GENERAL PLAN AMENDMENT

INITIATION REQUEST FORM

RELATED CODE SECTION: Section 12.32 of the Los Angeles Municipal Code established the procedure for Land Use Legislative Actions to initiate consideration of a proposed General Plan Amendment.

PURPOSE: Under the City Charter, only the City may initiate an Amendment to the General Plan through action of the City Council, the City Planning Commission, or the Director of Planning. In order for the Director of Planning to initiate upon a request, this form must be completed in accordance with instructions form (CP-7723.1), and be signed by the Director and included with a submittal of an application package when filed.

☑ I hereby request that the Director of Planning initiate a General Plan Amendment.

From: [Q]MR2-1VL-CUGU; Light Industrial (45-foot height limit per Footnote 10). (Zone, Land Use)

To: [Q]MR2-1LD-CUGU; Light Industrial (site-specific 65-foot height limit). (Zone, Land Use)

on property located at: 1420 Coil Avenue

within the: Wilmington - Harbor City District/Community Plan

Project Description: Expand existing 221,496 square-foot operations, which will include a new freezer addition of 45,377 square feet and conversion of an existing 27,234 square-foot cold dock to freezer area with a new automated racking system. Total floor area including offices will be 266,873 square feet. The total new freezer area will be 72,611 square feet. Existing buildings are up to 40 feet high. New addition will be 65 feet high. Will comply with encroachment plane limit of CUGU Ordinance and Transitional Height limit of 33 feet (99 feet distance). Required parking is 89 spaces. Existing parking is 120 spaces.

By my signature below, I request the aforementioned General Plan Amendment and affirm my understanding that initiation of a plan amendment is within the absolute discretion of the Director of Planning and, if initiated, to ensure a comprehensive review of the request and to avoid discordant planned land use, the Director may initiate additional properties ("added areas") within the immediate area for a similar General Plan Amendment and if so, that updated application materials will be required, including but not limited to, the radius maps and an expanded notification list.

(Signature) ☐-Owner ☑-Representative

Date 1/14/22

This Page For Staff/DCP Use Only

Planner in receipt of request:	Print Name	Michelle Singh	Initials MS
Materials Required:	☐ Cover Letter	☐ Exhibit Maps	
Management Team Review:	☒ Date:	3/4/22	

Pursuant to the Los Angeles City Charter and the Municipal Code, I hereby:

☐ Approve the initiation of the plan amendment(s) as requested by the Owner/Representative, as described above.

☒ Approve the initiation of the plan amendment(s) as requested by the Owner/Representative, as described above, with the following limitations or additional direction:

Provide an extended landscape buffer along the property's western boundary line.

Provide enahnced articulation to building addition.

☐ Also initiate additional properties ("added areas") within the immediate area for a similar change of the plan:

From: _____ (Zone, Land Use)

To: _____ (Zone, Land Use)

on the property(ies) located at: _____

VINCENT P. BERTONI, AICP
Director of Planning

Signature

3-30-22
Date

INITIAL SUBMISSIONS

The following submissions by the public are in compliance with the Commission Rules and Operating Procedures (ROPs), Rule 4.3a. Please note that "compliance" means that the submission complies with deadline, delivery method (hard copy and/or electronic) AND the number of copies. The Commission's ROPs can be accessed at http://planning.lacity.org, by selecting "Commissions & Hearings" and selecting the specific Commission.

The following submissions are not integrated or addressed in the Staff Report but have been distributed to the Commission.

Material which does not comply with the submission rules is not distributed to the Commission.

ENABLE BOOKMARKS ONLINE:

**If you are using Explorer, you will need to enable the Acrobat  toolbar to see the bookmarks on the left side of the screen.

If you are using Chrome, the bookmarks are on the upper right-side of the screen. If you do not want to use the bookmarks, simply scroll through the file.

If you have any questions, please contact the Commission Office at (213) 978-1300.

Planning CPC <cpc@lacity.org>

City Planning Commission 8/14/25 Hearing for 1420 Coil Avenue Freezer Expansion Project (L7873)

Lorrie J. LeLe <ljlele@adamsbroadwell.com> Mon, Aug 4, 2025 at 3:50 PM
To: "cpc@lacity.org" <cpc@lacity.org>, "cecilia.lamas@lacity.org" <cecilia.lamas@lacity.org>, "norali.martinez@lacity.org" <norali.martinez@lacity.org>
Cc: "Andrew J. Graf" <Agraf@adamsbroadwell.com>

On behalf of the Coalition for Responsible Equitable Economic Development Los Angeles, we submit the attached comments regarding the above referenced project.

We are also providing you with a Dropbox link which contains the referenced documents for your convenience.

https://www.dropbox.com/scl/fo/bs16xes56ckinkvwmqvdw/AMfD1m0CvJEfbTvpanH6f04?rlkey=4c3bncy2w5062nl4tt78uad3k&st=eclsmekx&dl=0

If you have any questions, please contact Andrew Graf.

Thank you,

Lorrie LeLe

Legal Assistant

Adams Broadwell Joseph & Cardozo

520 Capitol Mall, Suite 350

Sacramento, CA 95814

ljlele@adamsbroadwell.com | Phone: 916. 444.6201 Ext. 10 | Fax: 916.444.6209 |

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L7873-007j - 2025-08-04 KPAC Coil Ave Freezer Expansion CPC Comments.pdf
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August 4, 2025

VIA Email and Overnight Mail

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Re: **City Planning Commission 8/14/25 Hearing for 1420 Coil Avenue Freezer Expansion Project (CPC-2022-6859-GPA-HD-ZAD-WDI, ENV-2022-6860-ND)**

Dear President Lawshe, Commissioners, Ms. Lamas, and Ms. Martinez:

We write on behalf of the Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") regarding the 1420 Coil Avenue Freezer Expansion Project (Case No. CPC-2022-6589-GPA-HD-ZAD-WDI, ENV-2022-6860-ND) ("Project") proposed by Konoike Pacific California, Inc. ("Applicant"), to be considered by the City of Los Angeles ("City") City Planning Commission ("CPC") on August 14, 2025.

CREED LA's review of the City's Responses to Comments ("RTCs") on the Project's proposed Negative Declaration ("ND") demonstrate that the City has not complied with California Environmental Quality Act ("CEQA") or local land use laws. CREED LA urges the CPC to continue the public hearing on the Project and remand this matter to Staff with direction to prepare an environmental impact report ("EIR") that fully discloses, analyzes, and mitigates, the Project's significant noise, hazards, and public health impacts, as required by CEQA, before considering the Project's proposed entitlements.

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I. INTRODUCTION

On August 14, 2025, the CPC is scheduled to consider adoption of the ND and approval of the Project's entitlements, including a proposed general plan amendment and change of height district to accommodate a 65 foot building height, a zoning administrator determination to permit a transitional height of 65 feet for the portion of the remodeled building beyond 100 feet from the residential area to the west of the Project site, and a waiver of dedication and improvement requirements for Drum and Coil Avenues.[1] Any action to adopt the ND or approve the entitlements is premature and unsupported by substantial evidence in the record, as the City has failed to comply with the requirements of CEQA and the record lacks substantial evidence to support approval findings.

Under CEQA, an EIR must be prepared whenever substantial evidence in the record supports a fair argument that a project may have significant environmental impacts that are not fully mitigated.[2] This "fair argument" standard imposes a low threshold for requiring an EIR.[3] Even where the lead agency asserts that a project will not result in significant environmental impacts, CEQA mandates that "if there is disagreement among expert opinion supported by facts over the significance of an effect on the environment, the Lead Agency shall treat the effect as significant and shall prepare an EIR."[4]

On June 12, 2025, CREED LA submitted comments on the Draft ND during the extended public comment period.[5] CREED LA's comments were supported by expert technical reports documenting potentially significant impacts to air quality, noise, and public health from the Project's construction and operational phases which the ND failed to disclose or mitigate. In response, the City's consultant prepared the RTCs, which assert that the ND complies with CEQA and that no EIR

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[1] City of Los Angeles, Initial Study: KPAC Coil Avenue Freezer Expansion Project (Apr. 2025) (hereinafter "ND"), *available at* https://planning.lacity.gov/odocument/e1530a49-43ec-49de-9db4-95396a173b68/ENV-2022-6860.pdf.
[2] CEQA Guidelines § 15064(f)(1).
[3] *Consolidated Irrig. Dist. v. City of Selma* (2012) 204 Cal.App.4th 187, 207; *Nelson v. County of Kern* (2010) 190 Cal.App.4th 252; *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 928; *Bowman v. City of Berkeley* (2004) 122 Cal.App.4th 572, 580; *Citizen Action to Serve All Students v. Thornley* (1990) 2222 Cal.App.3d 748, 754; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 310.
[4] CEQA Guidelines § 15064(g) (emphasis added).
[5] Letter to Norali Martinzez City of Los Angeles from Andrew J. Graf, Adams Broadwell Joseph & Cardozo re: Comments on Negative Declaration for KPAC Coil Avenue Freezer Expansion Project (Case No. ENV-2022-6860-ND, SCH No. 2025041295) (June 12, 2025) (hereinafter "CREED LA ND Comments").

is required.[6] However, as demonstrated below – and further supported by the attached comments of noise expert Ani Toncheva[7] – the RTCs fail to cure the ND's fundamental analytical deficiencies. The record contains substantial evidence from qualified experts supporting a fair argument that the Project may result in significant environmental impacts, including but not limited to noise, air quality, and public health effects. Under CEQA, the existence of such evidence triggers the City's obligation to prepare an EIR.

Accordingly, CREED LA respectfully urges the CPC to continue the public hearing, and direct Staff to prepare a legally adequate EIR. The EIR must fully disclose, analyze, and mitigate the Project's potentially significant environmental impacts in accordance with CEQA's procedural and substantive requirements.

II. SUBSTANTIAL EVIDENCE SUPPORTS A FAIR ARGUMENT THAT THE PROJECT MAY RESULT IN SIGNIFICANT, UNMITIGATED NOISE IMPACTS

A. The RTCs Do Not Cure Errors in the City's Baseline Ambient Noise Measurements

CREED LA commented that the ND lacks substantial evidence to support its baseline ambient noise measurements because the methodology used to establish baseline conditions is flawed.[8] The RTCs assert that the baseline data is adequate on the grounds that the 15-minute measurement intervals captured "typical" noise levels and conformed to widely accepted industry practices.[9] This is incorrect.

CEQA requires that the environmental setting be described with sufficient detail to place the project's impacts "in the full environmental context."[10] The required scope and level of detail in the baseline description depends on the nature

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[6] Letter to Norali Martinez, City of Los Angeles from Christian Kirkian, Meridian Consultants re: Response to Comments on the Negative Declaration (ND) for KPAC Coil Avenue Freezer Expansion Project (Case No. ENV-2022-6860-ND, SCH No. 2025041295) from Adams Broadwell Joseph & Cardozo letter dated June 12, 2025 (June 23, 2025) (hereinafter "RTCs").
[7] **Exhibit A**, Letter to Andrew J. Graf, Adams Broadwell Joseph & Cardozo from Ani Toncheva, Wilson Ihrig re: KPAC Coil Avenue Freezer Expansion Project, Wilmington, CA, Review and Comment on Response to Comments (Aug. 1, 2025) (hereinafter "Toncheva Supplemental Comments").
[8] CREED LA ND Comments at pp. 5-7.
[9] RTCs at pp. 2-3.
[10] CEQA Guidelines § 15125(c).

and extent of the project's environmental impacts.[11] Here, as explained by noise expert Ms. Toncheva, the use of single-day, 15-minute sampling interval is not consistent with industry standards or with the regulatory guidance on which the RTCs rely, and is insufficient to capture the full extent of construction-related noise impacts, which occur over full-day periods.[12] As a result, the ND relies on unsupported baseline measurements and fails to provide a meaningful basis for evaluating noise impacts in context.

First, the RTCs wrongly contend that the short-term measurements reflect standard industry practice.[13] In fact, as explained by Ms. Toncheva, both the Federal Transit Administration's Transit Noise and Vibration Impact Assessment Manual ("FTA Manual") and the California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol ("CalTrans TeNS") recommend 24-hour monitoring to determine ambient noise levels in residential areas.[14] The FTA Manual explicitly states that full 24-hour measurements are appropriate for establishing residential baseline conditions,[15] while CalTrans TeNS emphasizes that monitoring should be conducted during the noisiest expected time or include sufficient duration to adjust short-term data to represent peak conditions.[16] The ND's methodology fails to meet either standard.

Second, the RTCs mischaracterize the significance of weekend baseline levels, claiming that lower weekend ambient noise levels suggest a reduced impact.[17] In fact, Ms. Toncheva concludes that lower background levels increase the perceptibility and severity of project-related noise, thereby exacerbating its disruptive effects.[18] This fundamental principle of acoustic analysis is well recognized in the field, and the RTCs failure to account for it reflects a flawed and unsupported interpretation of noise impact significance.

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[11] *League to Save Lake Tahoe Mtn. Area Preservation Found. v. County of Placer* (2022) 75 Cal.App.5th 63, 92.
[12] Toncheva Supplemental Comments at p. 1.
[13] *Ibid.*
[14] *Ibid.*
[15] *Ibid*; see also Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual (Sept. 2018) p. 225, *available at* https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.
[16] Toncheva Supplemental Comments at p. 1; see also California Department of Transportation, Technical Noise Supplemental to the Traffic Noise Analysis Protocol (Sept. 2013) pp. 3-10 to 3-11, *available at* https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf.
[17] Toncheva Supplemental Comments at pp. 1-2.
[18] *Id.* at p. 2.

Additionally, the RTCs fail to address nighttime noise levels, which are essential to evaluating the impact of additional equipment expected to operate as part of the facility expansion.[19] CEQA mandates that agencies evaluate the incremental effects of a proposed project.[20] The omission of nighttime data precludes meaningful analysis of operational impacts, particularly where the additional equipment is expected to operate 24 hours a day.

Finally, the RTCs make several assertions regarding CEQA's baseline requirements without citing any statute, regulation, guidelines, or case law.[21] As demonstrated above, the RTCs misstate the applicable legal standards governing the description of the environmental setting. In the absence of supporting legal authority, the RTCs' assertions remain conclusory and unsubstantiated. Accordingly, the RTCs fail to demonstrate that the ND provides a legally adequate baseline for evaluating the project's environmental impacts.

B. Construction Noise Impacts Remain Significant and Unmitigated

CREED LA submitted an expert analysis demonstrating that construction noise impacts would exceed the ND's absolute threshold of 80 dBA, resulting in a significant impact which requires mitigation.[22] In response, the RTCs assert that the expert analysis is flawed because it allegedly fails to account for existing site conditions and Environmental Protection Measures ("EPM").[23] This assertion is incorrect.

The EPM cited – such as the use of mufflers, equipment orientation and staging, noise barriers, restricting construction hours, and clear site access routing – are either already reflected in the modeling inputs or irrelevant to the noise calculation.[24] Mufflers, for example, are standard features on modern construction equipment and are already assumed in the reference noise levels relied upon by both the ND and Ms. Toncheva.[25] Construction hours and access routing do not affect the instantaneous noise levels generated by equipment operations and thus

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[19] *Ibid.*
[20] *El Dorado County Taxpayers for Quality Growth v. County of El Dorado* (2004) 122 Cal.App.4th 1591; *Leonoff v. Monterey County Bd. of Supervisors* (1990) 222 Cal.App.3d 1337; *City of Ukiah v. County of Mendocino* (1987) 196 Cal.App.3d 47.
[21] RTCs at pp. 2-3.
[22] CREED LA ND Comments at pp. 14-16.
[23] RTCs at pp. 9-10.
[24] Toncheva Supplemental Comments at p. 2.
[25] *Ibid.*

have no bearing on the expert's quantitative assessment.[26] Accordingly, the RTCs' critique mischaracterizes the expert's methodology and fails to undermine the conclusion that the Project would generate construction noise in excess of the City's selected threshold.[27] Ms. Toncheva's comments, which were based on site-specific facts in the record and the City's recommended methodology for determining construction noise impacts, provide substantial evidence supporting a fair argument that the Project's construction noise impacts are significant and require analysis and mitigation in an EIR.

Moreover, even if the City disputes Ms. Toncheva's conclusions, they are based on substantial evidence. The City's dispute over the significance of construction noise impacts therefore reflects a disagreement among experts as to whether the Project will result in significant environmental effects. CEQA is explicit in its directive that when such a disagreement exists, particularly where credible expert evidence indicates a fair argument that impacts may be significant, the agency cannot rely on a ND.[28] Instead, it must prepare an EIR.[29]

CREED LA also commented that the ND's noise modeling contained unsupported assumptions and inconsistencies.[30] The RTCs purport to justify the adequacy of the SoundPLAN noise modeling used to support the conclusions in the Initial Study by offering a general explanation of the model's methodology.[31] However, the RTCs fail to provide the underlying modeling data necessary to independently evaluate that claim.[32]

Without access to the layout, the accuracy and reliability of the modeling results cannot be verified.[33] This is particularly critical because there are discrepancies between the narrative discussion in the text and the data presented in the supporting tables.[34] These inconsistencies cannot be meaningfully assessed without access to the model's layout and operational details.[35] The lack of transparency precludes informed public review and undermines the City's obligation under CEQA to support its conclusion with substantial evidence.

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[26] *Ibid.*
[27] *Ibid.*
[28] CEQA Guidelines § 15064(g).
[29] *Ibid.*
[30] CREED LA ND Comments at pp. 13-14.
[31] RTCs at pp. 8-9.
[32] Toncheva Supplemental Comments at p. 2.
[33] *Ibid.*
[34] *Ibid.*
[35] *Ibid.*

C. The City Lacks Substantial Evidence to Conclude that Operational Noise Impacts Would be Less than Significant

CREED LA submitted comments explaining that the ND fails to adequately analyze whether the Project will comply with regulatory standards governing noise from fixed mechanical equipment, resulting in undisclosed and unmitigated noise impacts.[36] In response, the RTCs assert that the Los Angeles Department of Building Safety's permitting process will ensure that any mechanical equipment ultimately installed will comply with applicable noise standards.[37] However, the City's reliance on prospective permit review or regulation by other agencies – without providing substantial evidence demonstrating that such review will effectively mitigate the identified impact – is legally insufficient to support adoption of the ND.

Under CEQA, potentially significant environmental impacts be fully evaluated and mitigated based on substantial evidence in the administrative record.[38] Speculative reliance on future agency action, in the absence of analysis or enforceable mitigation, does not satisfy this requirement.[39] Here, the ND does not identify the type of equipment to be used onsite, nor does it evaluate their potential impacts on nearby residential receptors.[40] Without such information, the City lacks an evidentiary basis to conclude that impacts will be less than significant.

CREED LA also commented that the ND fails to adequately analyze noise impacts from truck and dock activity.[41] The RTCs provide results from a supplemental SoundPLAN analysis which purport to show a less than significant impact.[42] However, like the ND's construction modeling, the RTCs fail to provide the underlying modeling data necessary to independently evaluate the claim.[43] Therefore, the ND lacks substantial evidence to support the conclusion that operational noise impacts associated with truck and dock activity are less than significant.

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[36] CREED LA ND Comments at pp. 16-17.
[37] RTCs at p. X.
[38] *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 306-07.
[39] *Ibid.*
[40] Toncheva Supplemental Comments at p. 2.
[41] CREED LA ND Comments at p. 17.
[42] RTCs at pp. 11-12.
[43] Toncheva Supplemental Comments at p. 2.

III. SUBSTANTIAL EVIDENCE SUPPORTS A FAIR ARUGMENT THAT THE PROJECT MAY RESULT IN SIGNIFICANT PUBLIC HEALTH IMPACTS

A. The RTCs Continue to Improperly Rely on Localized Significance Thresholds to Conclude Cumulative Cancer Risks Are Less than Significant

CREED LA's comments on the ND explained that the ND's reliance on localized significance thresholds ("LSTs") to conclude that cumulative health impacts from exposure to diesel particulate matter ("DPM") are less than significant was inconsistent with law and unsupported by facts because LSTs do not address toxic air contaminants ("TACs").[44] In response, the RTCs double down on the ND's deficiency, asserting that SCAQMD has consistently advised that a site-specific health risk assessment is not required unless modeled emissions – particularly of diesel PM – exceed the applicable LST.[45] However, as CREED LA previously explained, this claim is entirely unsupported. The RTCs fail to cite any written guidance, policy statement, or regulatory document from SCAQMD to substantiate its assertion.

The RTCs reference SCAQMD's 1993 Air Quality Handbook in an apparent attempt to support their position, suggesting that the agency does not recommend analysis of TACs from short-term construction activities.[46] However, this reliance is misplaced. The handbook does not contain any such statement. In fact, the document is both outdated and silent on the issue of health risk assessments for construction-related DPM emissions. It predates the development of current OEHHA risk assessment methodologies and the substantial body of scientific and regulatory guidance that now recognizes the health significance of short-term, high-intensity DPM exposures, especially in communities already overburdened by elevated ambient DPM levels.

Finally, the RTCs contention that reliance on LSTs is appropriate for assessing cumulative health risk impacts is flawed.[47] While mass emission thresholds for criteria pollutants may be designed to evaluate whether a project's contribution to regional air quality degradation is cumulative considerable, they are not an appropriate tool for analyzing cumulative DPM impacts. LSTs were developed to assess localized air quality impacts – specifically, ambient

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[44] CREED LA ND Comments at pp. 7-9.
[45] RTCs at p. 3-4.
[46] *Id.* at p. 3.
[47] RTCs at p. 4.

concentration levels of criteria pollutants – rather than to evaluate chronic or acute health risks posed by TACs such as DPM.[48] By using LSTs as a proxy for cumulative health risks, the ND conflates two distinct analytical tools and bypasses the accepted health risk assessment methodology established by regulatory authorities.[49]

B. The RTCs Response Regarding Cumulative Cancer Risk Impacts Is Inadequate

CREED LA submitted expert evidence demonstrating that the Project's construction-related DPM emissions would result in cancer risks that are cumulatively considerable, particularly when evaluated considering the already elevated DPM exposure in the surrounding community.[50] Dr. Clark's analysis determined that the Project would generate a cancer risk of 2.27 in one million during construction – more than double the one million threshold referenced in updated guidance currently being developed by SCAQMD.[51] In response, the RTCs dismiss these findings by asserting that the Project's emissions fall below LSTs and SCAQMD's 10 in one million thresholds.[52]

Under CEQA, compliance with a selected threshold of significance does not conclusively establish that an impact is less than significant.[53] Thresholds of significance are not presumptive rules; rather they are tools that may assist in the determination of significance, but they do not relieve a lead agency of its obligation to consider substantial evidence indicating that the impact may be significant despite compliance with the chosen threshold.[54] Accordingly, if evidence is submitted suggesting that an environmental effect may be significant notwithstanding compliance with a threshold, the agency must confront and evaluate that evidence in good faith.[55]

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[48] CREED LA ND Comments at pp. 7-9.
[49] *Ibid.*
[50] *Id.* at p. 11-12.
[51] *Ibid.*
[52] RTCs at p. 5.
[53] CEQA Guidelines § 15064(b)(2).
[54] *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108; *Communities for a Better Environment v. Cal. Resources Agency* (2022) 103 Cal.App.4th 98, 111-13.
[55] CEQA Guidelines § 15064(b)(2).

Here, the RTCs' reliance on LSTs and SCAQMD's current threshold is misplaced. As discussed in Section III.A., LSTs are designed to assess short-term localized concentrations of criteria pollutants, not cumulative health risks from TACs like DPM. Similarly, the 10 in one million risk level is not a rigid demarcation of significance, particularly when SCAQMD has recognized the need for updated cumulative impact guidance for TACs and substantial evidence demonstrates that the project would contribute to cumulative impacts in an already heavily burdened community.[56] Dr. Clark's expert analysis – grounded in site-specific modeling and SCAQMD's more recent draft guidance – demonstrates that the Project would incrementally but meaningfully exacerbate cancer risks in a community already experiencing disproportionate DPM exposure.[57]

This constitutes substantial evidence supporting a fair argument of a potentially significant cumulative impact. CEQA requires that an EIR be prepared when such evidence exists.[58] The City may not rely on generalized thresholds to sidestep its duty to fully disclose, evaluate, and mitigate the Project's health risk impacts given the surrounding community's existing vulnerability.

IV. CONCLUSION

CREED LA respectfully urges the CPC to continue the public hearing and direct Staff to prepare an EIR that fully discloses, analyzes, and mitigates the Project's noise, air quality, and public health impacts, as required by CEQA.

Thank you for your consideration of these comments.

Sincerely,



Andrew J. Graf

AIG:ljl
Attachments

[56] CREED LA ND Comments at pp. 7-12.
[57] *Id.* at pp. 11-12.
[58] CEQA Guidelines § 15064.

EXHIBIT A

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #25-001.19

August 1, 2025

Andrew J. Graf
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

SUBJECT: KPAC Coil Avenue Freezer Expansion Project
Wilmington, CA
Review and Comment on Response to Comments

Dear Mr. Graf,

Wilson Ihrig has reviewed the Response to Comments (RTC) prepared by Meridian Consultants, dated June 2025. The RTC is largely unresponsive and does not address potentially significant operational and construction impacts.

Baseline Noise is Not Properly Established: RTC 1.4

The RTC asserts that the Initial Study survey locations were conducted during "typical conditions associated with local vehicular traffic and rail activity" without providing any substantial evidence. As stated in our previous comments, the 15-minute measurements do not adequately capture fluctuation in noise sources, which can underestimate potential impacts. Only one of the measurements notes the presence of rail activity.

The RTC incorrectly claims that the measurement duration adheres to widely accepted industry practices and cites the Caltrans Technical Noise Supplement (TeNS) and the FTA Noise and Vibration Manual (FTA Manual). The FTA Manual explicitly recommends full 24-hour measurements to determine ambient noise for residential receivers [pg. 225]. The TeNS, which is meant to address traffic noise models, does not require 24-hour measurements, but recommends that "noise monitoring for background community noise levels should be done during the expected time of the highest noise level from the highway," [pg. 3-10] or conducting 24-hour measurements to adjust measured short-term levels to the noisiest hour [pg. 3-11].

The RTC misunderstands our original comments dated May 2025, stating that "noise standards and impact determinations under CEQA are not based on cumulative hourly representations." As discussed above, the ambient measurements do not consider fluctuations in existing levels during the hours of construction or operation. As a result, the ND's impact analysis underestimates potential noise impacts.

The RTC does not directly respond to the question of weekend and nighttime ambient levels. The RTC acknowledges that weekend levels are expected to be lower than weekdays, but incorrectly claims

that weekend measurements are a "conservative indicator of potential impact". This statement reflects a fundamental misunderstanding of acoustic analysis. Lower ambient noise levels would result in a greater increase in noise levels due to project activities, and therefore would not be a conservative indicator. The RTC does not address the issue of nighttime measurements to account for 24-hour cooling needs of the facility. Nighttime ambient levels are needed to assess an increase due to operational noise from mechanical equipment.

Construction Noise Levels Would be Potentially Significant: RTC 1.9 – 1.12

The RTC fails to address the omission of the SoundPLAN model referred to in the Initial Study, an omission that is both material and readily verifiable, as the layout can easily be reproduced. As explained in our previous comments, there are discrepancies between distances presented in the body of the text and supporting tables which cannot be assessed without verifying the layout of the SoundPLAN model.

Further, the RTC claims the example analysis for demolition noise does not consider Environmental Protection Measures (EPMs), which were included in the Initial Study. The measures cited include mufflers, equipment orientation and staging, noise barriers, restricting construction hours, and clear site access routing. Mufflers are standard for modern construction equipment and would already be accounted for in the reference levels used by the Initial Study, the same reference levels used in the example calculation. Construction hours and site access routing are irrelevant to the calculation. Therefore, our prior analysis of construction noise impacts remains valid, and demonstrates a potentially significant impact given noise levels from demolition activities at the nearest residential receptor would be 82 dBA, exceeding ambient noise levels by 11 dBA, the City's Municipal Code, and the 80 dBA absolute threshold.

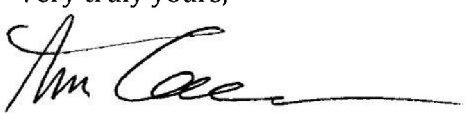
The Initial Study and RTC provide no evidence that the SoundPLAN model reflects equipment direction or the use of a noise barrier. The tables in Attachment 2 of the initial study indicate that no barrier was included in the model.

Missing Operational Noise Analysis, RTC 1.13-1.14

The RTC is unresponsive and continues to make the circular argument that mechanical equipment on site will meet the City's Municipal Code criteria, because it is a requirement. The Initial Study and RTC fail to identify the type of equipment to be used on site and to assess and disclose potential mechanical noise impacts.

The RTC provides further discussion of noise from truck activity and an attachment provides supplemental SoundPLAN output sheets for dock noise. However, the RTC fails to show the SoundPLAN model, show the distance used, or indicate how much shielding is provided by the existing barrier wall, making it difficult to verify the results. Further, it is unclear if the traffic volumes provided in the RTC are for Saturdays.

Very truly yours,



Ani Toncheva, Senior Consultant, WILSON IHRIG