



APPLICATIONS:

APPEAL APPLICATION

Instructions and Checklist

Related Code Section: Refer to the City Planning case determination to identify the Zone Code section for the entitlement and the appeal procedure.

Purpose: This application is for the appeal of Department of City Planning determinations authorized by the Los Angeles Municipal Code (LAMC).

A. APPELLATE BODY/CASE INFORMATION

1. APPELLATE BODY

- ☐ Area Planning Commission ☐ City Planning Commission ☒ City Council ☐ Director of Planning
☐ Zoning Administrator

Regarding Case Number: VTT-74602-1A

Project Address: 3432 -3470 W Wilshire Blvd ; 659-699 S Mariposa Ave; 3265-3287 W 7th St; 666-678 S Irolo St

Final Date to Appeal: July 10, 2020

2. APPELLANT

Appellant Identity:
(check all that apply)

- ☐ Representative ☐ Property Owner
☐ Applicant ☐ Operator of the Use/Site

☒ Person, other than the Applicant, Owner or Operator claiming to be aggrieved

☐ Person affected by the determination made by the **Department of Building and Safety**

- ☐ Representative ☐ Owner ☐ Aggrieved Party
☐ Applicant ☐ Operator

3. APPELLANT INFORMATION

Appellant's Name: Supporter's Alliance for Environmental Responsibility

Company/Organization: _____

Mailing Address: 4399 Santa Anita Ave, Suite 2005

City: El Monte State: CA Zip: 91731

Telephone: (510) 836-4200 E-mail: michael@lozeaudrury.com

a. Is the appeal being filed on your behalf or on behalf of another party, organization or company?

☒ Self ☐ Other: _____

b. Is the appeal being filed to support the original applicant's position? ☐ Yes ☒ No

4. REPRESENTATIVE/AGENT INFORMATION

Representative/Agent name (if applicable): Michael Lozeau
Company: Lozeau Drury LLP
Mailing Address: 1939 Harrison Street, Suite 150
City: Oakland State: CA Zip: 94612
Telephone: (510) 836-4200 E-mail: michael@lozeaudrury.com

5. JUSTIFICATION/REASON FOR APPEAL

a. Is the entire decision, or only parts of it being appealed? ☒ Entire ☐ Part

b. Are specific conditions of approval being appealed? ☒ Yes ☐ No

If Yes, list the condition number(s) here: All Conditions

Attach a separate sheet providing your reasons for the appeal. Your reason must state:

- ☒ The reason for the appeal ☒ How you are aggrieved by the decision
☒ Specifically the points at issue ☒ Why you believe the decision-maker erred or abused their discretion

6. APPLICANT'S AFFIDAVIT

I certify that the statements contained in this application are complete and true:

Appellant Signature: Michael Lozeau Date: 7/7/2020

GENERAL APPEAL FILING REQUIREMENTS

B. ALL CASES REQUIRE THE FOLLOWING ITEMS - SEE THE ADDITIONAL INSTRUCTIONS FOR SPECIFIC CASE TYPES

1. Appeal Documents

a. **Three (3) sets** - The following documents are required for each appeal filed (1 original and 2 duplicates)
Each case being appealed is required to provide three (3) sets of the listed documents.

- ☐ Appeal Application (form CP-7769)
- ☐ Justification/Reason for Appeal
- ☐ Copies of Original Determination Letter

b. Electronic Copy

- ☐ Provide an electronic copy of your appeal documents on a flash drive (planning staff will upload materials during filing and return the flash drive to you) or a CD (which will remain in the file). The following items must be saved as individual PDFs and labeled accordingly (e.g. "Appeal Form.pdf", "Justification/Reason Statement.pdf", or "Original Determination Letter.pdf" etc.). No file should exceed 9.8 MB in size.

c. Appeal Fee

- ☐ Original Applicant - A fee equal to 85% of the original application fee, provide a copy of the original application receipt(s) to calculate the fee per LAMC Section 19.01B 1.
- ☐ Aggrieved Party - The fee charged shall be in accordance with the LAMC Section 19.01B 1.

d. Notice Requirement

- ☐ Mailing List - All appeals require noticing per the applicable LAMC section(s). Original Applicants must provide noticing per the LAMC
- ☐ Mailing Fee - The appeal notice mailing fee is paid by the project applicant, payment is made to the City Planning's mailing contractor (BTC), a copy of the receipt must be submitted as proof of payment.

SPECIFIC CASE TYPES - APPEAL FILING INFORMATION

C. DENSITY BONUS / TRANSIT ORIENTED COMMUNITES (TOC)

1. Density Bonus/TOC

Appeal procedures for Density Bonus/TOC per LAMC Section 12.22.A 25 (g) f.

NOTE:

- Density Bonus/TOC cases, only the *on menu or additional incentives* items can be appealed.
- Appeals of Density Bonus/TOC cases can only be filed by adjacent owners or tenants (must have documentation), and always only appealable to the Citywide Planning Commission.
- ☐ Provide documentation to confirm adjacent owner or tenant status, i.e., a lease agreement, rent receipt, utility bill, property tax bill, ZIMAS, drivers license, bill statement etc.

D. WAIVER OF DEDICATION AND OR IMPROVEMENT

Appeal procedure for Waiver of Dedication or Improvement per LAMC Section 12.37 I.

NOTE:

- Waivers for By-Right Projects, can only be appealed by the owner.
- When a Waiver is on appeal and is part of a master land use application request or subdivider's statement for a project, the applicant may appeal pursuant to the procedures that governs the entitlement.

E. TENTATIVE TRACT/VESTING

1. Tentative Tract/Vesting - Appeal procedure for Tentative Tract / Vesting application per LAMC Section 17.54 A.

NOTE: Appeals to the City Council from a determination on a Tentative Tract (TT or VTT) by the Area or City Planning Commission must be filed within 10 days of the date of the written determination of said Commission.

- ☐ Provide a copy of the written determination letter from Commission.

F. BUILDING AND SAFETY DETERMINATION

- ☐ **1.** Appeal of the Department of Building and Safety determination, per LAMC 12.26 K 1, an appellant is considered the **Original Applicant** and must provide noticing and pay mailing fees.

a. Appeal Fee

- ☐ Original Applicant - The fee charged shall be in accordance with LAMC Section 19.01B 2, as stated in the Building and Safety determination letter, plus all surcharges. (the fee specified in Table 4-A, Section 98.0403.2 of the City of Los Angeles Building Code)

b. Notice Requirement

- ☐ Mailing Fee - The applicant must pay mailing fees to City Planning's mailing contractor (BTC) and submit a copy of receipt as proof of payment.

- ☐ **2.** Appeal of the Director of City Planning determination per LAMC Section 12.26 K 6, an applicant or any other aggrieved person may file an appeal, and is appealable to the Area Planning Commission or Citywide Planning Commission as noted in the determination.

a. Appeal Fee

- ☐ Original Applicant - The fee charged shall be in accordance with the LAMC Section 19.01 B 1 a.

b. Notice Requirement

- ☐ Mailing List - The appeal notification requirements per LAMC Section 12.26 K 7 apply.
- ☐ Mailing Fees - The appeal notice mailing fee is made to City Planning's mailing contractor (BTC), a copy of receipt must be submitted as proof of payment.

G. NUISANCE ABATEMENT

1. Nuisance Abatement - Appeal procedure for Nuisance Abatement per LAMC Section 12.27.1 C 4

NOTE:

- Nuisance Abatement is only appealable to the City Council.

a. Appeal Fee

- ☐ Aggrieved Party the fee charged shall be in accordance with the LAMC Section 19.01 B 1.

2. Plan Approval/Compliance Review

Appeal procedure for Nuisance Abatement Plan Approval/Compliance Review per LAMC Section 12.27.1 C 4.

a. Appeal Fee

- ☐ Compliance Review - The fee charged shall be in accordance with the LAMC Section 19.01 B.
- ☐ Modification - The fee shall be in accordance with the LAMC Section 19.01 B.

NOTES

A Certified Neighborhood Council (CNC) or a person identified as a member of a CNC or as representing the CNC may not file an appeal on behalf of the Neighborhood Council; persons affiliated with a CNC may only file as an individual on behalf of self.

Please note that the appellate body must act on your appeal within a time period specified in the Section(s) of the Los Angeles Municipal Code (LAMC) pertaining to the type of appeal being filed. The Department of City Planning will make its best efforts to have appeals scheduled prior to the appellate body's last day to act in order to provide due process to the appellant. If the appellate body is unable to come to a consensus or is unable to hear and consider the appeal prior to the last day to act, the appeal is automatically deemed denied, and the original decision will stand. The last day to act as defined in the LAMC may only be extended if formally agreed upon by the applicant.

This Section for City Planning Staff Use Only		
Base Fee:	Reviewed & Accepted by (DSC Planner):	Date:
Receipt No:	Deemed Complete by (Project Planner):	Date:
☐ Determination authority notified		☐ Original receipt and BTC receipt (if original applicant)

Justification/Reason for Appeal

3440 Wilshire Project

Vesting Tentative Tract No. 74602-1A (CEQA Case No. ENV-2016-3693-MND)

3440-3470 West Wilshire Boulevard, 659-699 South Mariposa Avenue, 3281-3287 West 7th Street, and 666-678 South Irolo Street

REASON FOR THE APPEAL: The Mitigated Negative Declaration (“MND”) prepared for the 3440 Wilshire Project aka VTT-74602-1A & ENV-2016-3693-MND (“Project”) fails to comply with the California Environmental Quality Act (“CEQA”).

SPECIFICALLY THE POINTS IN ISSUE: The specific points in issue are set forth in the attached comment letter dated May 1, 2020, in the expert comment letters attached thereto, and in this appeal.

HOW YOU ARE AGGREIVED BY THE DECISION: Members of appellant Supporters Alliance for Environmental Responsibility (“SAFER”) live and/or work in the vicinity of the proposed Project. They breathe the air, suffer traffic congestion, and will suffer other environmental impacts of the Project unless it is properly mitigated.

WHY YOU BELIEVE THE DECISION-MAKER ERRED OR ABUSED THEIR DISCRETION: The City Planning Commission (“CPC”) adopted the MND, the Errata to the MND, and the Mitigation Monitoring Program (MMP). The CPC also denied SAFER’s appeal, sustained the Advisory Agency’s March 25th, 2020 determination, and approved Vesting Tentative Tract Map No. VTT-74602 for the Project despite the fact that the MND fails to comply with CEQA, and the project fails to comply with the municipal code.



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May 1, 2020

Via E-mail

Samantha Millman, President
Vahid Khorsand, Vice President
David H. Ambroz, Commissioner
Caroline Choe, Commissioner
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Iris Wan, City Planner
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Re: Comment on the Initial Study/Mitigated Negative Declaration for the 3440
Wilshire Project; CPC-2016-3692-VZC-MCUP-SPR; VTT-74602

Dear Honorable Members of the Los Angeles City Planning Commission and Ms. Wan:

I am writing on behalf of Supporters Alliance for Environmental Responsibility and its members living in and around the City of Los Angeles ("SAFER"). These comments support SAFER's appeal of the Initial Study/Mitigated Negative Declaration ("IS/MND") for the 3440 Wilshire Project, a mixed use development proposed for a 7.3-acre lot area located at 3432-3470 Wilshire Boulevard in Los Angeles, and the related project approvals (the "Project"). After reviewing the IS/MND, we conclude that it fails to analyze all environmental impacts and to implement all necessary mitigation measures. SAFER respectfully requests that the City Planning Commission grant SAFER's appeal and send the Project back to staff to prepare an EIR in order to incorporate our concerns discussed below.

This comment has been prepared with the assistance of Certified Industrial Hygienist, Francis "Bud" Offermann, PE, CIH. Mr. Offermann's comment and curriculum vitae are attached as Exhibit A hereto and is incorporated herein by reference in its entirety. This comment was also prepared with assistance from Ecologist Shawn Smallwood, Ph.D. Dr. Smallwood's comments and curriculum vitae are attached as Exhibit B hereto and is incorporated herein by reference in its entirety. Finally, this comment has been prepared with the assistance of the

environmental consulting firm Soil/Water/Air Protection Enterprise (“SWAPE”). SWAPE’s comment the consultants’ curriculum vitae are attached as Exhibit C hereto and are incorporated herein by reference in their entirety.

I. PROJECT DESCRIPTION

The Project proposes to develop a mixed-use project on a 7.3-acre site consisting: 1) 640 apartment units; 2) 10,738 square feet (“sq. ft.”) of commercial floor area; and 2) 1,921 vehicle parking spaces. The Project site is currently developed with four commercial office buildings with ground floor retail uses that front West Wilshire Boulevard and South Irolo Street (the “Existing Office Buildings”), a three-story parking garage, a five-story parking structure, two vehicle driveways, and internal private roadways. The Project involves demolishing the existing three-story parking structure, constructing two commercial kiosks, and constructing a 23-story mixed-use building and a 28-story mixed-use building on top of a podium that is four stories above grade and two stories subterranean. The commercial space will consist of 5,538 sq. ft. of retail area and 5,200 sq. ft. of restaurant area. The restaurant area will consist of 3,700 sq. ft. with 138 indoor and outdoor patio seats of high-turnover restaurant and 1,500 sq. ft. with 68 indoor and outdoor patio seats of fast-food restaurant.

II. LEGAL STANDARD

As the California Supreme Court has held, “[i]f no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR.” *Communities for a Better Env’t v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 319-320 (*CBE v. SCAQMD*) (citing *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75, 88; *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal.App.3d 491, 504–505). “Significant environmental effect” is defined very broadly as “a substantial or potentially substantial adverse change in the environment.” Pub. Res. Code (“PRC”) § 21068; *see also* 14 CCR § 15382. An effect on the environment need not be “momentous” to meet the CEQA test for significance; it is enough that the impacts are “not trivial.” *No Oil, Inc.*, 13 Cal.3d at 83. “The ‘foremost principle’ in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.” *Communities for a Better Env’t v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 109 (*CBE v. CRA*).

The EIR is the very heart of CEQA. *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214 (*Bakersfield Citizens*); *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 927. The EIR is an “environmental ‘alarm bell’ whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return.” *Bakersfield Citizens*, 124 Cal.App.4th at 1220. The EIR also functions as a “document of accountability,” intended to “demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.” *Laurel Heights Improvements Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392. The EIR process “protects not only the environment but also informed self-

government.” *Pocket Protectors*, 124 Cal.App.4th at 927.

An EIR is required if “there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment.” PRC § 21080(d); see also *Pocket Protectors*, 124 Cal.App.4th at 927. In very limited circumstances, an agency may avoid preparing an EIR by issuing a negative declaration, a written statement briefly indicating that a project will have no significant impact thus requiring no EIR (14 CCR § 15371), only if there is not even a “fair argument” that the project will have a significant environmental effect. PRC, §§ 21100, 21064. Since “[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 “the proposed project will not affect the environment at all.” *Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440.

Where an initial study shows that the project may have a significant effect on the environment, a mitigated negative declaration may be appropriate. However, a mitigated negative declaration is proper *only* if the project revisions would avoid or mitigate the potentially significant effects identified in the initial study “to a point where clearly no significant effect on the environment would occur, and . . . there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.” PRC §§ 21064.5 and 21080(c)(2); *Mejia v. City of Los Angeles* (2005) 130 Cal.App.4th 322, 331. In that context, “may” means a reasonable possibility of a significant effect on the environment. PRC §§ 21082.2(a), 21100, 21151(a); *Pocket Protectors*, 124 Cal.App.4th at 927; *League for Protection of Oakland's etc. Historic Res. v. City of Oakland* (1997) 52 Cal.App.4th 896, 904–05.

Under the “fair argument” standard, an EIR is required if any substantial evidence in the record indicates that a project may have an adverse environmental effect—even if contrary evidence exists to support the agency’s decision. 14 CCR § 15064(f)(1); *Pocket Protectors*, 124 Cal.App.4th at 931; *Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1602. The “fair argument” standard creates a “low threshold” favoring environmental review through an EIR rather than through issuance of negative declarations or notices of exemption from CEQA. *Pocket Protectors*, 124 Cal.App.4th at 928.

The “fair argument” standard is virtually the opposite of the typical deferential standard accorded to agencies. As a leading CEQA treatise explains:

This ‘fair argument’ standard is very different from the standard normally followed by public agencies in making administrative determinations. Ordinarily, public agencies weigh the evidence in the record before them and reach a decision based on a preponderance of the evidence. [Citations]. The fair argument standard, by contrast, prevents the lead agency from weighing competing evidence to determine who has a better argument concerning the likelihood or extent of a potential environmental impact. The lead agency’s decision is thus

largely legal rather than factual; it does not resolve conflicts in the evidence but determines only whether substantial evidence exists in the record to support the prescribed fair argument.

Kostka & Zishcke, *Practice Under CEQA*, §6.29, pp. 273-274. The Courts have explained that “it is a question of law, not fact, whether a fair argument exists, and the courts owe no deference to the lead agency’s determination. Review is de novo, with *a preference for resolving doubts in favor of environmental review*.” *Pocket Protectors*, 124 Cal.App.4th at 928 (emphasis in original).

CEQA requires that an environmental document include a description of the project’s environmental setting or “baseline.” CEQA Guidelines § 15063(d)(2). The CEQA “baseline” is the set of environmental conditions against which to compare a project’s anticipated impacts. *CBE v. SCAQMD*, 48 Cal.4th at 321. CEQA Guidelines section 15125(a) states, in pertinent part, that a lead agency’s environmental review under CEQA:

...must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time [environmental analysis] is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant.

See Save Our Peninsula Committee v. County of Monterey (2001) 87 Cal.App.4th 99, 124–25 (“*Save Our Peninsula*”).) As the court of appeal has explained, “the impacts of the project must be measured against the ‘real conditions on the ground,’” and not against hypothetical permitted levels. *Id.* at 121–23.

III. DISCUSSION

A. There is Substantial Evidence of a Fair Argument that the Project Will Have a Significant Health Risk Impact from its Indoor Air Quality Impacts.

Certified Industrial Hygienist, Francis “Bud” Offermann, PE, CIH, has conducted a review of the proposed Project and relevant documents regarding the Project’s indoor air emissions. Indoor Environmental Engineering Comments (April 10, 2020) (Exhibit A). Mr. Offermann concludes that it is likely that the Project will expose residents of the Project to significant impacts related to indoor air quality, and in particular, emissions of the cancer-causing chemical formaldehyde. Mr. Offermann is a leading expert on indoor air quality and has published extensively on the topic. *See* attached CV.

Mr. Offermann explains that many composite wood products used in modern apartment home construction contain formaldehyde-based glues which off-gas formaldehyde over a very long time period. He states, “The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particleboard. These materials are commonly used in building construction for

flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims.” Offermann, pp. 2-3.

Formaldehyde is a known human carcinogen. Mr. Offermann states that there is a fair argument that future residents of the Project will be exposed to a cancer risk from formaldehyde of approximately 112 per million, assuming all materials are compliant with the California Air Resources Board’s formaldehyde airborne toxics control measure. *Id.*, p. 3. This more than 11 times the SCAQMD’s CEQA significance threshold for airborne cancer risk of 10 per million. In addition, Mr. Offermann concludes that people working the commercial spaces of the Project will be exposed to an increased cancer risk from formaldehyde of 16.4 per million, which also exceeds the threshold of significance. *Id.* at 5. Mr. Offermann concludes that these significant environmental impacts should be analyzed in an EIR and mitigation measures should be imposed to reduce the risk of formaldehyde exposure. *Id.*, p. 45.

Mr. Offermann also notes that the high cancer risk that may be posed by the Project’s indoor air emissions likely will be exacerbated by the additional cancer risk that exists as a result of the Project’s location near roadways with moderate to high traffic (i.e. Wilshire Boulevard, S. Mariposa Boulevard, Sm. Normandy Ave., and W. 7th Street) and the high levels of PM 2.5 already present in the ambient air. Offermann, pp. 10-11. No analysis has been conducted of the significant cumulative health impacts that will result to future residents of the Project.

Mr. Offermann concludes that these significant environmental impacts should be analyzed in an EIR and mitigation measures should be imposed to reduce the risk of formaldehyde exposure. *Id.* Mr. Offermann identifies mitigation measures that are available to reduce these significant health risks, including the installation of air filters and a requirement that the applicant use only composite wood materials (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins in the buildings’ interiors. *Id.* at 12-13.

The City has a duty to investigate issues relating to a project’s potential environmental impacts, especially those issues raised by an expert’s comments. *See Cty. Sanitation Dist. No. 2 v. Cty. of Kern*, (2005) 127 Cal.App.4th 1544, 1597–98 (“under CEQA, the lead agency bears a burden to investigate potential environmental impacts”). In addition to assessing the Project’s potential health impacts to residents, Mr. Offermann identifies the investigatory path that the City should be following in developing an EIR to more precisely evaluate the Projects’ future formaldehyde emissions and establishing mitigation measures that reduce the cancer risk below the SCAQMD level. *Id.*, pp. 5-10. Such an analysis would be similar in form to the air quality modeling and traffic modeling typically conducted as part of a CEQA review.

The failure to address the project’s formaldehyde emissions is contrary to the California Supreme Court’s decision in *California Building Industry Ass’n v. Bay Area Air Quality Mgmt. Dist.* (2015) 62 Cal.4th 369, 386 (“*CBIA*”). At issue in *CBIA* was whether the Air District could enact CEQA guidelines that advised lead agencies that they must analyze the impacts of adjacent environmental conditions on a project. The Supreme Court held that CEQA does not generally

require lead agencies to consider the environment's effects on a project. *CBIA*, 62 Cal.4th at 800-801. However, to the extent a project may exacerbate existing adverse environmental conditions at or near a project site, those would still have to be considered pursuant to CEQA. *Id.* at 801 ("CEQA calls upon an agency to evaluate existing conditions in order to assess whether a project could exacerbate hazards that are already present"). In so holding, the Court expressly held that CEQA's statutory language required lead agencies to disclose and analyze "impacts on *a project's users or residents* that arise *from the project's effects* on the environment." *Id.* at 800 (emphasis added).

The carcinogenic formaldehyde emissions identified by Mr. Offermann are not an existing environmental condition. Those emissions to the air will be from the Project. Residents and workers will be users of the Project. Currently, there is presumably little if any formaldehyde emissions at the site. Once the project is built, emissions will begin at levels that pose significant health risks. Rather than excusing the City from addressing the impacts of carcinogens emitted into the indoor air from the project, the Supreme Court in *CBIA* expressly finds that this type of effect by the project on the environment and a "project's users and residents" must be addressed in the CEQA process.

The Supreme Court's reasoning is well-grounded in CEQA's statutory language. CEQA expressly includes a project's effects on human beings as an effect on the environment that must be addressed in an environmental review. "Section 21083(b)(3)'s express language, for example, requires a finding of a 'significant effect on the environment' (§ 21083(b)) whenever the 'environmental effects of a project will cause substantial adverse effects *on human beings*, either directly or indirectly.'" *CBIA*, 62 Cal.4th at 800 (emphasis in original). Likewise, "the Legislature has made clear—in declarations accompanying CEQA's enactment—that public health and safety are of great importance in the statutory scheme." *Id.*, citing e.g., §§ 21000, subds. (b), (c), (d), (g), 21001, subds. (b), (d). It goes without saying that the hundreds of future residents of the Project are human beings and the health and safety of those workers is as important to CEQA's safeguards as nearby residents currently living near the project site.

Because Mr. Offermann's expert review is substantial evidence of a fair argument of a significant environmental impact to future users of the project, an EIR must be prepared to disclose and mitigate those impacts.

B. The IS/MND Failed to Adequately Analyze and Mitigate the Potential Adverse Impacts of the Project on Wildlife.

The comment of Dr. Shawn Smallwood is attached as Exhibit B. Dr. Smallwood has identified several issues with the IS/MND for the Project. His concerns are summarized below.

1. There is substantial evidence that Project may have a significant impact on bird species from window collisions.

According to wildlife expert Dr. Shawn Smallwood, the Project will have a significant impact on birds as a result of window collisions. The City has not analyzed or mitigated these

potential impacts to special-species birds. Analyzing the potential impact on wildlife of window collisions is especially important because “[w]indow collisions are often characterized as either the second or third largest source of human-caused bird mortality.” Smallwood, p. 6.

The wildlife database eBirds lists 44 special-status species of birds have been document right around the Project site. Smallwood, p. 2. Of these 44 species, Dr. Smallwood determined that 15 have been known to collide with windows. *Id.* “Many of these species are undoubtedly already experiencing annual mortality caused by window collisions in Los Angeles, but the proposed new project would substantially add window-collision hazards to birds flying over Los Angeles. A fair argument can be made for the need to prepare an EIR to assess project impacts from bird-window collisions, and to formulate appropriate mitigation.” *Id.*

Dr. Smallwood reviewed a number of studies in order to calculate the number of bird collisions that would occur annually as a result of the Project. Smallwood, p. 7-8. According to his calculations, each m² of glass would result in 0.077 bird deaths per year. *Id.* at 8. Dr. Smallwood then looked at the building design for the Project and estimated that the Project would include approximately at least 24,000 m² of glass windows. *Id.* Based on the estimated 24,000 m² of glass windows and the 0.077 bird deaths per m² of glass windows, Dr. Smallwood estimates that the project could result in 1,848 bird deaths per year. *Id.* Over 50 years, this will amount to 92,400 bird deaths. *Id.* Most of these deaths would be of birds protected under Fish & Game Code section 3513. *Id.*

These bird deaths constitute a significant impact that must be analyzed. *Id.* The City must prepare an EIR to disclose, analyze, and mitigate the full scope of the Project’s impact resulting from window collisions.

2. There is no evidence to support the IS/MND’s conclusion that the Project will not have a significant impact on biological species.

No wildlife surveys were conducted by biologist in preparation of the IS/MND. As a result, the IS/MND fails to inform the public and decisionmakers about avian use of the area. Dr. Smallwood explains that “[s]urveys are needed to learn how many of each bird species fly through the area and at what times of day (and night).” Smallwood, p. 2. Conducting these types of surveys could then inform an analysis of collision risk and mitigation measures to reduce that risk. *Id.* Mitigation measures may include things like interior light management and design modifications to facades facing the prevailing approach directions of migrating birds. *Id.* Without conducting surveys, there is no substantial evidence to support the IS/MND’s conclusion that the Project will not have a significant impact on biological resources.

3. The City fails to mitigate the Project’s adverse impact on bird species from window collisions.

In order to mitigate the impact of the window collisions on bird species, Dr. Smallwood has suggested several mitigation measures. As a starting point, before construction, “[a]ny new

project should be informed by preconstruction surveys of daytime and nocturnal flight activity.” Smallwood, p. 13. Dr. Smallwood explains:

[Pre-construction] surveys can reveal the one or more façades facing the prevailing approach direction of birds, and these revelations can help prioritize where certain types of mitigation can be targeted. It is critical to formulate effective measures prior to construction, because post-construction options will be limited, likely more expensive, and probably less effective.

Id.

Dr. Smallwood also notes the importance of post-construction fatality monitoring, which he says “should be an essential feature of any new building project.” Smallwood, p. 12. These surveys should be combined with threshold fatality rates that would trigger additional mitigation. *Id.* at 15. The City should identify candidate impact-reduction measures that can be implemented in case the original measure(s) proves ineffective or inadequate, including compensatory mitigation.

In addition, for mitigation measures involving the siting and design of the Project, Dr. Smallwood suggests: (1) deciding on the location of structures; (2) deciding on the façade and orientation of structures; (3) selecting types and sizes of windows; (4) minimizing transparency through two parallel façades; (5) minimizing views of interior plants; (6) landscaping so as to increase distance between windows and vegetation; (7) monitoring for fatalities to identify seasonal and spatial patterns; and (8) adjusted light management, window markings, and other measures as needed based on survey results. Smallwood, p. 14. Dr. Smallwood also suggests that the City also look to the guidelines developed by the American Bird Conservancy and the City of San Francisco to minimize injuries and fatalities to bird species. *Id.*

Finally, Dr. Smallwood recommends compensatory mitigation including contributions to wildlife rehabilitation facilities to cover the costs of injured animals that may be delivered to these facilities for care from this Project or other projects. Smallwood, p. 15. These and other feasible mitigation measures must be considered in an EIR.

4. The IS/MND fails to adequately analyze the Project’s impact on wildlife movement.

The IS/MND improperly dismisses the Project’s potential to impact wildlife movement based on the urbanized location of the Project, which, the IS/MND claims, does not support a wildlife corridor. These conclusions rely on a false CEQA standard. A project will have a significant biological impact if it would “[i]nterfere 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.” CEQA Guidelines, App. G. As Dr. Smallwood explains:

[W]hether a site supports a wildlife movement corridor is not the standard at issue with Initial Study question 4d; rather, it is whether the project would interfere with wildlife movement. City of Los Angeles apparently neglected to consider that birds fly. Birds fly to forage, defend territories, disperse, and migrate. Birds, including special-status species of birds, inhabit the airspaces of Los Angeles, some as residents of Los Angeles and others as dispersers or migrants. Inserting two high-rises into the airspaces used by birds would interfere with wildlife movement while also killing many birds. Collision mortality would be worsened by constructing two high-rises as planned – high-rises composed of glass façades.

Smallwood, p. 2.

Because of its reliance on a false CEQA standard for determining impacts on wildlife movement, the IS/MND contains no evidence to support the conclusion that the Project will not have a significant impact on wildlife movement. In contrast, Dr. Smallwood's comments constitute substantial evidence that the Project will have a significant impact on wildlife movement. As a result, an EIR must be prepared to analyze the Project's impacts on wildlife movement.

5. The IS/MND fails to analyze the Project's cumulative biological impacts.

The IS/MND does not include an analysis of the Project's potential cumulative biological impacts on the grounds that no wildlife habitat occurs in the City of Los Angeles. Smallwood, p. 14. As a result, the IS/MND provides no analysis of the Project's cumulative contribution to window collisions. *Id.* Dr. Smallwood explains that "[t]his missing analysis is a critical shortfall, because bird abundance across North America has declined 29% over the last 48 years (Rosenberg et al. 2019). The proposed project alone is predicted to kill 1,848 bird deaths per year (95% CI: 960-2,640), which would add to many thousands more killed by windows in Los Angeles." *Id.* The City violates CEQA by not conducting an analysis of the Project's cumulative impact to biological resources as a result of window collisions.

C. The IS/MND's Traffic Analysis is Not Supported by Substantial Evidence and Greatly Underestimates Project-Generated Traffic.

A significant transportation impact would occur if roadways and intersections that would carry project-generated traffic would exceed adopted City of Los Angeles Department of Transportation thresholds of significance. IS/MND, B-215. The IS/MND's conclusion that the Project will not result in significant transportation impacts is not supported by substantial evidence. As described below, and in the expert comments of traffic engineer Dan Smith (attached hereto as Exhibit B), the IS/MND greatly underestimates the vehicle trips generated by the Project. Mr. Smith concludes that there is "overwhelming evidence that there is fair argument that demonstrates that the Project's impacts are not fully disclosed and mitigated in the IS/MND. Consequently, the Project cannot be approved under a mitigated negative declaration and a full EIR must be prepared." Smith, p. 5.

1. The IS/MND underestimates traffic generated from the retail component of the Project.

The Project includes 5,538 square feet of commercial retail space. The IS/MND estimates the gross number of trips generated from this retail space based on *Trip Generation, 10th Edition*'s average rates for Land Use Category 820, which is the land use category for "Shopping Center." Smith, p. 2. But Traffic Engineer Dan Smith explains in his expert comments, that this land use is inapplicable to the Project because 5,538 square feet of retail space is not a shopping center. *Id.* To generate the average trip rates used for the Shopping Center land use category requires approximately 400,000 square feet of floor area. *Id.* Mr. Smith determined that a convenience market would be a much more accurate land use category to use. *Id.* Using the *Trip Generation, 10th Edition*, shopping centers generate daily vehicle trips at an average rate of 37.75 trips per thousand square feet of floor area, where as convenience markets generate 762.28 trips per thousand square feet. *Id.* This amounts to 20 times more traffic generated from the retail space than was disclosed in the IS/MND. The same flaw is reflected in the IS/MND's peak hour trip analysis.

Making matters worse, the IS/MND then discounts 90 percent of the gross trip generation of this small retail space. *Id.* This 90 percent reduction is based on 15 percent for trips internal to the Project, 25 percent as transit trips, and 50 percent as trips attached to passerby traffic. *Id.* As Mr. Smith explains, these reductions do not hold up to scrutiny. "[T]he notion that the convenience retail would attract 50 percent of its patronage from existing passerby vehicle traffic is absurd." *Id.* Mr. Smith explains that these types of passerby attraction rates are normally attained by convenience markets on busy urban or suburban streets and where the retail store has its own surface parking lot. *Id.* Here, in contrast, the retail space is contained within a larger building, where the passerby is forced to enter and leave a large parking garage. *Id.* Moreover, the retail space is not visible from either Wilshire Boulevard or Irolo. It is only visible from S. Mariposa Avenue and/or W. 7th Street. *Id.* The IS/MND discloses that S. Mariposa carries only 680 vehicles past the Project site in the A.M. peak hour and 672 in the P.M. peak hour, while W. 7th Street carries only 349 vehicles past the Project site in the A.M. peak hour and 542 in the P.M. peak hour. IS/MND Appendix K-1, Figure 1. Mr. Smith concludes that "These totals are insufficient to support the claimed passerby attraction discount, particularly where the on-street parking spaces are usually occupied and passers-by would be forced to enter and leave a parking garage." *Id.* "The notion that 25 percent of the people visiting a convenience market would make purposeful transit trips to reach that market is similarly implausible. This is likely to be true only of a handful of employees of the market." *Id.*

2. The IS/MND underestimates traffic generated from the fast-casual restaurant component of the Project.

Like the retail space, the IS/MND assumes again that 90 percent of the fast-casual restaurant's gross trip generation will not add to traffic except at Project driveways. Just as with the retail space, the IS/MND reduces traffic by 90 percent, with 50 percent attracted from passerby traffic, 25 percent from transit, and 15 percent internal. Smith, p. 3. Mr. Smith concludes that "[a]ll of the discussion above with respect to the discounting of trips to a convenience

market is similarly applicable to the fast-causal restaurant.” *Id.*

3. The IS/MND underestimates traffic generated from the high-turnover sit-down restaurant component of the Project.

The Project also includes a high-turnover sit-down restaurant. For this component of the Project, the IS/MND discounts 60 percent of the trip generation, made up of 25 percent transit, 20 percent passer-by attraction, and 15 percent internal. *Id.* But Mr. Smith points out that “[e]xcept for negligible numbers of restaurant employees, few if any people would take transit in a purposeful trip to reach or depart from a restaurant of this type. Certainly, patrons of the restaurant will include persons who arrived and will depart the area via transit but these comprise part if not most of the attracted passer-by category.” *Id.* The need for drivers to park inside a parking garage and the fact that the restaurant will only be visible from the lightly trafficked S. Mariposa and W. 7th street further minimizes the patrons that will be attracted from street traffic. *Id.*

4. The IS/MND underestimates traffic generated from the residential component of the Project.

For the residential portion of the Project, the IS/MND analysis assumes a 15 percent internalization deduction. It does not, however apply a 25 percent transit deduction to the peak hour trip generation because, the IS/MND says, the basin trip generation rate was derived from surveys of similar local area residential high rises, where the transit utilization was already reflected in the observed vehicle trip generation rate. Mr. Smith raises the question of “whether or not those surveyed buildings had comparable trip internalization that would have already been reflected in the observed vehicle trip rates.” Smith, p. 4. The IS/MND must be revised to make this clarification.

Mr. Smith’s comments constitute substantial evidence that the Project’s traffic impact have been significantly underestimated. The IS/MND must be revised to address these inaccuracies.

5. The IS/MND fails to account for trips by transportation network company services.

Mr. Smith explains that the rise of transportation network companies (“TNCs”) (also known as ride hailing services) like Uber and Lyft, has substantially changed the nature of transportation in urban areas. Smith, p. 4. Recent research has shown that TNCs are problematic because: “a) a large part of the transportation demand they serve is drawn from trips that would otherwise been carried out by walking, bicycling or transit, b) a large share of the trips they serve are induced trips – trips that would not be made at all were the service not available or trips to distant destinations that would have been satisfied locally by walking absent the service and c) each passenger service trip actually involves 2 vehicle trips – the trip from where the vehicle is circulating or waiting to the point of call and the trip from the point of call to the actual destination.” *Id.* Despite the major impact of TNCs on transportation in Los Angeles and

elsewhere, the IS/MND makes no effort to estimate the transportation impacts of TNC services related to the Project. Without counting any trips generated by TNCs, the IS/MND underestimates the Project's transportation impact.

D. The IS/MND Fails to Establish a Baseline for Hazardous Substances.

SWAPE, an environmental consulting firm, reviewed the IS/MND. SWAPE's comment letter is attached as Exhibit C and their findings are summarized in the following sections.

SWAPE notes that the Phase I Environmental Site Assessment ("Phase I Assessment") prepared for the Project site in 2014 identified an 8,000 gallon oil underground storage tank ("UST"), and three USTs associated with a gas station formerly located at the site. SWAPE, p. 1. According to the Phase I, the 8,000-gallon UST was removed in 1988.

However, SWAPE points out that there is no record of removal of the three gas station USTs cite in the Phase I. SWAPE, pp. 1-2. Instead, there is only a vague statement that:

An Application for Permit; Abandonment by Removal Fire Department-City of Los Angeles, was also reviewed as part of our previous assessment, which discussed the removal of one waste oil UST and two gasoline USTs, dated June 8, 1988.

While the application for removal is cited in the Phase I, there is no documentation of the actual removal of the three USTs. References to the gas station USTs in the Phase I use uncertain language. For example:

It is suspected that these USTs were related to the gas & oil station noted on the 1961 Sanborn Map.

It should also be noted that based on our regulatory review, the Subject [Project site] was identified as a registered storage tank site featuring a "inactive" regulatory status for two previous onsite "regulated unleaded" USTs. These gasoline USTs are suspected to be associated with the removal of the aforementioned gasoline USTs noted in the permit.

Without documentation of removal of the USTs, the Phase I fails to confirm the presence or absence of the USTs at the Project site. *Id.* SWAPE concludes that a Phase II is necessary to identify the presence or absence of the USTs and to conduct soil and soil vapor sampling. Without this information, the IS/MND fails to establish a baseline set of environmental conditions against which environmental impact can be evaluated.

It is well-established that CEQA requires analysis of toxic soil contamination that may be disturbed by a Project, and that the effects of this disturbance on human health and the environment must be analyzed. CEQA requires a finding that a project has a "significant effect on the environment" if "the environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly." (PRC §21083(b)(3).) As the Court of Appeal has stated, "[a] new project located in an area that will expose its occupants to preexisting dangerous pollutants can be said to have substantial adverse effect on human beings."

(*Cal. Building Industry Assn. v. Bay Area Air Quality Mgm't Dist.* (2013) 218 Cal.App.4th 1171 (*CBIA v. BAAQMD*).) The existence of toxic soil contamination at a project site is a significant impact requiring review and mitigation in an EIR. (*McQueen v. Bd. of Dirs.* (1988) 202 Cal.App.3d 1136, 1149; *Assoc. For A Cleaner Env't v. Yosemite Comm. College Dist.* (2004) 116 Cal.App.4th 629 (*ACE v. Yosemite*).) This mitigation may not be deferred until a future time after Project approval. (*Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 306; *Citizens for Responsible Equitable Envt'l Dev. v. City of Chula Vista* (2011) 197 Cal.App.4th 327, 330-31 (*CREED*).)

The City must thoroughly investigate the site and prepare an EIR to adequately analyze and mitigate the potential impact of USTs at the Project site.

E. The IS/MND Relied on Unsubstantiated Input Parameters to Estimate Project Emissions and Thus Failed to Adequately Analyze the Project's Air Quality Impacts.

The IS/MND for the Project relies on emissions calculated from the California Emissions Estimator Model Version CalEEMod.2016.3.2 ("CalEEMod"). This model relies on recommended default values for on-site specific information related to a number of factors. The model is used to generate a project's construction and operational emissions. SWAPE reviewed the Project's CalEEMod output files and found that the values input into the model were unsubstantiated or inconsistent with information provided in the IS/MND. This results in an underestimation of the Project's emissions. As a result, the Project may have a significant air quality impacts and an EIR is required to properly analyze these potential impacts.

1. The IS/MND uses an incorrect construction schedule.

According to the IS/MND, the Project's building construction period for Tower 1 and 2 would each be 19 months, with Tower 1 construction starting in June 2022, and Tower 2 construction starting in June 2024. IS/MND, p. A-15, Table A-8. When combined with 2 months of site prep and 3 months of grading, this amounts to a total of 43-months of active construction. However, the CalEEMod output files show that the model included a construction schedule that lasted 48 months, rather than 43 months, and failed to include the five-month break between construction of Tower 1 and Tower 2. SWAPE, p. 4. According to the "User Entered Comments & Non-Default Data" table, the justification for this was "consultant assumptions." IS/MND, App. C, pp. 1, 31, 66. This does not justify the inconsistency between the model and the information provided in the IS/MND. SWAPE, p. 5.

SWAPE explains that "[b]y spreading out construction emissions over a 48-month period, rather than the 43-month period indicated by the IS/MND, maximum daily emissions associated with construction are artificially reduced." *Id.* Because the construction schedule used in the CalEEMod model is incorrect, the model underestimates the Project's construction-related emissions.

2. The IS/MND underestimated the number of hauling trips during site preparation and grading.

The CalEEMod output files indicate that several of the hauling, vendor, and worker trips were manually altered from their default values. SWAPE, p. 5. According to the “User Entered Comments & Non-Default Data” table, the justification for this was “Developer information.” IS/MND, App. C, pp. 2, 32, 67. No information is provided to justify these changes. The Traffic Study provides an estimate of *peak daily* trips for each construction phase, but does not provide the *total* number of hauling, vendor, and worker trips for each phase, which is what was changed in the model.

In addition, the Traffic Study estimates a maximum daily number of hauling trips of one. As a result, the CalEEMod model should have included *at least* one hauling trip for construction. Yet the CalEEMod output files demonstrate that the model failed to include any hauling trips for construction. SWAPE, p. 6. The model is therefore inconsistent with the model. *Id.*

The number of worker, hauling, and vendor trips and the associated vehicle miles traveled (“VMT”) are used by CalEEMod to determine the exhaust emissions associated with the vehicle use and fugitive dust emissions. SWAPE, p. 6. “[B]y failing to include the correct number of hauling, vendor, and worker trips, the model underestimates the Project’s construction-related emissions and should not be relied upon to determine Project significance.” *Id.*

3. The IS/MND made unsubstantiated changes to acres of grading in the CalEEMod model.

The amount of grading included in the CalEEMod model was manually reduced for different phases from 33 to 2.33 acres and from 30 to zero acres. SWAPE, p. 7. According to the “User Entered Comments & Non-Default Data” table, the justification for this was “Developer information.” But nothing in the IS/MND provides evidence to justify these reductions. The number of acres to be graded in the CalEEMod model is used to calculate fugitive dust emissions associated with dozers, graders, scrapers, and haul trucks. *Id.* By under reporting the acres of grading required as part of construction, the model underestimates construction-related emissions.

4. The IS/MND relied on unsubstantiated construction mitigation measures.

The CalEEMod output files show that the model included the following construction-related mitigation measures: “Replace Ground Cover,” “Water Exposed Area,” and “Clean Paved Roads.” SWAPE, p. 7 (citing Appendix C, pp. 8-9, 39, 73-74). The model also included a 46% reduction in particulate matter emissions as a result of cleaning paved roads. *Id.* (citing Appendix C, pp. 2, 32, 67). The “User Entered Comments & Non-Default Data” provided the following justification: “Assumes SCAQMD Rule 403 control efficiencies.” *Id.*

The IS/MND explains:

[I]t is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Rule 403 control requirements include measures to prevent the generation of visible dust plumes. Measures include, but are not limited to, applying water and/or soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system or other control measures to remove bulk material from tires and vehicle undercarriages before vehicles exit the Project Site, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce regional PM_{2.5} and PM₁₀ emissions associated with construction activities by approximately 61 percent.

IS/MND, p. B-41(emphasis added).

Accordingly, the Project has the option to either apply water and/or soil binders but has not committed to either or both. Moreover, Rule 403 fails to justify the 46% reduction in particulate matter as a result of “clean paved roads.” Without evidence that this equates to a mitigation measure that is mandatory and enforceable, the reduction is not supported by substantial evidence and should not be included in the model.

5. The IS/MND relied on an unsubstantiated number of daily trips.

The IS/MND includes a 25% “transit credit” for both retail and multifamily housing trip generation. IS/MND, App. K-1, pp. 24, Table 4. According to the Traffic Study, this reduction credit was based on the 2016 Los Angeles Department of Transportation’s (“LADOT”) “Traffic Study Policies and Procedures.” *Id.* Reliance on this document is misplaced. As SWAPE points out, this document was replaced by the City in 2019 with the LADOT’s “Transportation Assessment Guidelines (“TAG”). SWAPE, p. 3. The TAG now provides that “LADOT, **at its discretion, may allow up to** a 25% transit/walk trip generation reduction” applied “**on a case by case basis.**” *Id.* SWAPE reviewed the Traffic Study and found no verification of or permission to rely on the 25% reduction by LADOT. *Id.* Without this information, the IS/MND errs in relying on the 25% transit reduction credit, and the Project’s traffic counts may be underestimated.

F. The IS/MND Failed to Adequately Evaluate Health Risks from Diesel Particulate Matter Emissions

1. The IS/MND lacks substantial evidence to support its finding that the Project’s emissions will not cause a significant health impact.

The IS/MND concludes that the health risk impact from diesel particulate matter related to Project construction and operation will be less than significant. In making this finding, the IS/MND does not conduct a quantified a health risk assessment (“HRA”) for Project construction or operation. SWAPE, p. 8. The IS/MND attempts to justify this by stating:

Because there is such a short-term exposure period, construction TAC emissions would result in a less-than significant impact. Therefore, construction of the Project would not expose sensitive receptors to substantial diesel PM concentrations, and this impact would be less than significant.

IS/MND, p. B-46. The IS/MND explains the omission of an operational HRA as follows:

[T]he SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulate emissions (e.g., truck stops and warehouse distribution facilities) and has provided guidance for analyzing mobile source diesel emissions.[48] The Project would not generate a substantial number of truck trips since it would not be a truck stop or distribution center. Based on the limited activity of TAC sources, the Project would not warrant the need for a health risk assessment associated with on-site activities. Therefore, Project impacts would be less than significant.

IS/MND p. B-48.

The IS/MND's failure to conduct an operational HRA is inconsistent with the approach recommended by the California Office of Environmental Health Hazard Assessment ("OEHHA"). SWAPE, p. 10. OEHHA recommends a health risk assessment of a project's operational emissions for projects that will be in place for more than 6 months. *Id.* Projects lasting more than 6 months should be evaluated for the duration of the project, and an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident. *Id.* The Project would last at least 30 years and certainly much longer than six months. These recommendations reflect the most recent health risk assessment policy.

Rather than preparing an HRA, the IS/MND relies on a Localized Significance Threshold ("LST") methodology to support its finding that the Project will not have a significant health risk impact. Reliance on the LST methodology is incorrect. As the SCAQMD guidance on the LST explains, the LST methodology only evaluates impact from criteria pollutants (NOx, CO, PM10, and PM2.5). SWAPE, p. 9. Toxic air contaminants ("TACs") such as diesel particulate matter ("DPM") are not criteria pollutants. *Id.* By relying on the LST analysis, the IS/MND failed to analyze TAC exposure as a result Project construction and operation. Without this information, the City lacks substantial evidence to support the IS/MND's conclusion that the Project will not have a significant health risk impact.

2. SWAPE conducted a screening-level health risk assessment that indicates a significant health risk impact.

SWAPE prepared a screening-level HRA to evaluate potential impacts from Project construction and operation. SWAPE used AERSCREEN, the leading screening-level air quality

dispersion model. SWAPE, p. 11. SWAPE used a sensitive receptor distance of 100 meters¹ and analyzed impacts to individuals at different stages of life based on OEHHA and SCAQMD guidance utilizing age sensitivity factors. SWAPE, pp. 11-14.

SWAPE found that the excess cancer risk for adults, children, and infants at a sensitive receptor located approximately 100 meters away over the course of Project construction and operation are approximately 12, 99, and 43 in one million, respectively. SWAPE, p. 14. Moreover, the excess lifetime cancer risk over the course of a Project operation is approximately 160 in one million. *Id.*) The risks to adults, children, infants, and lifetime residents appreciably exceed the SCAQMD's threshold of 10 in one million.² SWAPE's analysis constitutes substantial evidence that the Project may have a significant health impact as a result of diesel particulate emissions. The City must prepare an EIR with a more refined HRA that is representative of site conditions in order to evaluate the Project's health risk impact and to include suitable mitigation measures.

G. Contrary to the IS/MND's Conclusion, the Project Will Have a Significant GHG Impact.

1. The IS/MND's GHG analysis violates CEQA.

The IS/MND concludes that the Project's GHG impact would be less than significant as a result of consistency with CARB's Climate Change Scoping Plan., SCAG's 2016-2040 TRP/SCS, the City's LA Green Plan, and the City's Sustainable City pLAn. IS/MND, p. B-111. Specifically, the IS/MND states,

[G]iven the Project's consistency with State, SCAG, and City GHG emission reduction goals and objectives, the Project is consistent with applicable plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs. *In the absence of adopted standards and established significance thresholds*, and given this consistency, it is concluded that the Project's incremental contribution to greenhouse gas emissions and their effects on climate change would not be cumulatively considerable.

IS/MND, p. B-139 (emphasis added).

¹ The closest sensitive receptor is located 18 meters from the Project site. However, 100 meters was used in the HRA based on AERSCREEN output files which demonstrate that the maximally exposed receptor is located 100 meters from the Project site. SWAPE, p. 12.

² While OEHHA and SCAQMD recommend using age sensitivity factors in conducting an HRA, even without using age sensitivity factors, the SWAPE determined that the excess cancer risks would exceed the threshold of significance. SWAPE, p. 14. The excess cancer risk posed to adults and children would be 12 and 33 in one million, while the excess lifetime cancer risk over the course of a Project operation would be 49 in one million. *Id.*

The IS/MND's justifications and conclusion that the Project's GHG impacts are less-than-significant violate CEQA for several reasons.

First, none of these regulatory plans meet the criteria for an officially adopted GHG reduction program, commonly referred to as a Climate Action Plan ("CAP"), for use as a threshold of significance for GHG emissions. SWAPE, pp. 15-16. As CEQA Guideline section 15064.4(b)(3) makes clear, a qualified CAP "must be adopted by the relevant public agency through a public review process," and, as explained by CEQA Guideline section 15183.5(b)(1), the CAP should include:

- (1) **Inventory:** Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);
- (2) **Establish GHG Reduction Goal:** Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- (3) **Analyze Project Types:** Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- (4) **Craft Performance Based Mitigation Measures:** Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- (5) **Monitoring:** Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels; and

Here, the IS/MND fails to demonstrate that CARB's Climate Change Scoping Plan., SCAG's 2016-2040 TRP/SCS, the City's LA Green Plan, or the City's Sustainable City pLAn include the above-listed requirements to be considered a qualified CAP for the City. As such, the IS/MND leaves an analytical gap and fails to demonstrate that compliance with said plans can be used for project-level significance determination. *Id.*

Second, reliance on these plans is misplaced because the plans are either not directly applicable to the Project, are outdated, or the Project is not consistent with the plan at all. For example, consistency with the LA Green Plan is misplaced because the LA Green Plan does not include project-level measures. Instead, the mitigation measures in the plan are primarily city-level actions. SWAPE, p. 16. Similarly, reliance on the Sustainable City pLAn cannot be relied on because it is out of date and has been superseded by the LA Green New Deal. SWAPE, p. 18. In addition, while the IS/MND claims that the Project is consistent with CARB's Scoping Plan or SCAG's 2016-2040 RTP/SCS, SWAPE found dozens of inconsistencies between the Project and the plans. SWAPE, pp. 19-32. These inconsistencies must be analyzed and remedies in an EIR.

Moreover, consistency with relevant policies cannot be used to determine a Project's significance, as projects must incorporate emission reductions measures beyond those that comprise basic requirements. The California Supreme Court has made clear that just because "a project is designed to meet high building efficiency and conservation standards ... does not

establish that its [GHG] emissions from transportation activities lack significant impacts.” (*Center for Biological Diversity v. Cal. Dept. of Fish and Wildlife* (“*Newhall Ranch*”) (2015) 62 Cal.4th 204, 229.) As such, newer developments must be more GHG-efficient. (*See Newhall Ranch*, 62 Cal.4th at 226.)

2. The Project will have a significant GHG impact.

Since the IS/MND improperly relies entirely on consistency with CARB’s Climate Change Scoping Plan., SCAG’s 2016-2040 TRP/SCS, the City’s LA Green Plan, and the City’s Sustainable City pLAN to determine GHG impact significance, the IS/MND fails to compare the Project’s GHG emissions to the correct SCAQMD thresholds.

SCAQMD has interim thresholds that the City should have compared the Project’s GHG emissions to. SWAPE, p. 32. When compared to the thresholds, even when relying on the IS/MND’s incorrect and unsubstantiated CalEEMod model, the Project would result in a significant GHG impact. The IS/MND’s CalEEMod output files demonstrate that the Project’s mitigated emissions include approximately 8,699 MT CO₂e/year (amortized construction and operational emissions). This far exceeds the SCAQMD 3,000 MT CO₂e/year mixed-use development threshold. SWAPE, p. 36. These exceedances are even greater when SWAPE updated the CalEEMod model to correct the above-identified deficiencies. *Id.* at 37. SWAPE’s updated model shows the Project will emit 9,502.4 MT CO₂e/year. *Id.*

SWAPE Annual Greenhouse Gas Emissions	
Project Phase	Proposed Project (MT CO ₂ e/year)
Construction (amortized over 30 years)	255.6
Area	11.1
Energy	4,530.7
Mobile	3,968.9
Waste	190.1
Water	546.0
Total	9,502.4
Threshold	3,000
Exceed?	Yes

Because the project threshold is exceeded, a service population analysis is warranted. *Id.* SWAPE found that, dividing the Project’s GHG emission by its service population of 1,88-people means that the Project would emit approximately 4.63 MT CO₂e/SP/year, which exceeds the SCAQMD 2035 efficiency target of 3.0 of MT CO₂e/SP/year. *Id.* at 36-37. SWAPE’s updated CalEEMod model reveals an even greater service population efficiency of 5.05 MT CO₂e/SP/year.

SWAPE Service Population Efficiency Analysis	
Project Phase	Proposed Project (MT CO₂e/yr)
Total	9502.37
Service Population	1880.00
Service Population Efficiency	5.05
Threshold	3.00
<i>Exceed?</i>	<i>Yes</i>

SWAPE's comments constitute substantial evidence that the Project may have a significant greenhouse gas impact. This impact must be fully analyzed and mitigated in an EIR. SWAPE's comments include a number of mitigation measures available to reduce the Project's GHG emissions, and these should all be considered by the City.

H. The Project Lacks Sufficient Affordable Housing in Conflict with Ballot Measure JJJ.

Only 5% (32 units) of the Project's 640 units will be set aside for affordable housing. IS/MND, p. B-174. All 32 of the affordable housing units will be considered Moderate Income housing, using the State's level of affordability and Los Angeles Housing Community Investment Department's schedule of rents. Not a single unit being made available for Low Income, Very Low Income, or Extremely Low-Income tenants. This lack of affordable housing units violates Measure JJJ.

Measure JJJ, as codified at Los Angeles Municipal Code ("LAMC") section 11.5.11, was approved by Los Angeles voters on November 8, 2016 and became effective on December 13, 2016. The residential affordability requirements of Measure JJJ apply to projects with ten or more residential units which seek: (1) a discretionary General Plan Amendment; (2) any zone change or height-district change that results in increased allowable residential floor area, density, or height; or (3) a residential use where such use was not allowed previously. (LAMC § 11.5.11(a).)

Pursuant to Measure JJJ, "Rental Projects" which satisfy at least one of the above provisions must provide the following:

- (i) No less than the affordability percentage corresponding to the level of density increase as provided in California Government Code Section 65915(f), inclusive of any Replacement Units; or
- (ii) If the General Plan amendment, zone change or height district change results in a residential density increase greater than 35%, then the Project shall provide no less than 5% of the total units at rents affordable to Extremely Low Income households, and either 6% of the total units at

- rents affordable to Very Low Income households or 15% of the total units at rents affordable to Lower Income households, inclusive of any Replacement Units; or
- (iii) If the General Plan amendment, zone change or height district change allows a residential use where not previously allowed, then the Project shall provide no less than 5% of the total units at rents affordable to Extremely Low Income households, and either 11% of the total units at rents affordable to Very Low Income households or 20% of the total units at rents affordable to Lower Income households, inclusive of any Replacement Units. (LAMC § 11.5.11(a)(1).)

Measure JJJ also contains alternative compliance options under which a project can satisfy Measure JJJ's affordability provisions without providing affordable units on-site. These alternative compliance options are (1) construction of affordable units off-site, (2) acquiring property containing "At-Risk Affordable Units," or (3) payment of an in-lieu fee. (LAMC § 11.5.11(b).)

The Project site's General Plan land use designation is currently Regional Center Commercial. The lots that make up the Project site are zoned PB-2, and P-2, which are for parking buildings and surface or underground parking. Residential units are not permitted in PB-2 or P-2 zones. The Project proposes to rezone the entire Project site to C4, which is a commercial zone that may include R4 uses, which include multiple dwelling residential uses. Since the Project will have ten or more residential units and is seeking a zone change that results in increased allowable residential floor area, Measure JJJ applies. LAMC § 11.5.11(a). Specifically, the zone change will allow a residential use where not previously allowed. As a result, "the Project shall provide no less than 5% of the total units at rents affordable to Extremely Low Income households, and either 11% of the total units at rents affordable to Very Low Income households or 20% of the total units at rents affordable to Lower Income households, inclusive of any Replacement Units." LAMC § 11.5.11(a)(1). The Project does not meet the requirements of Measure JJJ because it will only provide 5% of total units at rents affordable to Moderate Income households. The Project must be revised to comply with the affordable housing requirements of Measure JJJ.

IV. CONCLUSION

In light of the above comments, the City must prepare an EIR for the Project and the draft EIR should be circulated for public review and comment in accordance with CEQA. Thank you for considering these comments.

Sincerely,



Rebecca L. Davis
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EXHIBIT A



INDOOR ENVIRONMENTAL ENGINEERING



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From: Francis J. Offermann PE CIH

Subject: Indoor Air Quality: 3440 Wilshire Project – Los Angeles, CA
(IEE File Reference: P-4349)

Pages: 16

Indoor Air Quality Impacts

Indoor air quality (IAQ) directly impacts the comfort and health of building occupants, and the achievement of acceptable IAQ in newly constructed and renovated buildings is a well-recognized design objective. For example, IAQ is addressed by major high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014). Indoor air quality in homes is particularly important because occupants, on average, spend approximately ninety percent of their time indoors with the majority of this time spent at home (EPA, 2011). Some segments of the population that are most susceptible to the effects of poor IAQ, such as the very young and the elderly, occupy their homes almost continuously. Additionally, an increasing number of adults are working from home at least some of the time during the workweek. Indoor air quality also is a serious concern for workers in hotels, offices and other business establishments.

The concentrations of many air pollutants often are elevated in homes and other buildings relative to outdoor air because many of the materials and products used indoors contain and release a variety of pollutants to air (Hodgson et al., 2002; Offermann and Hodgson,

2011). With respect to indoor air contaminants for which inhalation is the primary route of exposure, the critical design and construction parameters are the provision of adequate ventilation and the reduction of indoor sources of the contaminants.

Indoor Formaldehyde Concentrations Impact. In the California New Home Study (CNHS) of 108 new homes in California (Offermann, 2009), 25 air contaminants were measured, and formaldehyde was identified as the indoor air contaminant with the highest cancer risk as determined by the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), No Significant Risk Levels (NSRL) for carcinogens. The NSRL is the daily intake level calculated to result in one excess case of cancer in an exposed population of 100,000 (i.e., ten in one million cancer risk) and for formaldehyde is 40 $\mu\text{g}/\text{day}$. The NSRL concentration of formaldehyde that represents a daily dose of 40 μg is 2 $\mu\text{g}/\text{m}^3$, assuming a continuous 24-hour exposure, a total daily inhaled air volume of 20 m^3 , and 100% absorption by the respiratory system. All of the CNHS homes exceeded this NSRL concentration of 2 $\mu\text{g}/\text{m}^3$. The median indoor formaldehyde concentration was 36 $\mu\text{g}/\text{m}^3$, and ranged from 4.8 to 136 $\mu\text{g}/\text{m}^3$, which corresponds to a median exceedance of the 2 $\mu\text{g}/\text{m}^3$ NSRL concentration of 18 and a range of 2.3 to 68.

Therefore, the cancer risk of a resident living in a California home with the median indoor formaldehyde concentration of 36 $\mu\text{g}/\text{m}^3$, is 180 per million as a result of formaldehyde alone. The CEQA significance threshold for airborne cancer risk is 10 per million, as established by the South Coast Air Quality Management District (SCAQMD, 2015).

Besides being a human carcinogen, formaldehyde is also a potent eye and respiratory irritant. In the CNHS, many homes exceeded the non-cancer reference exposure levels (RELs) prescribed by California Office of Environmental Health Hazard Assessment (OEHHA, 2017b). The percentage of homes exceeding the RELs ranged from 98% for the Chronic REL of 9 $\mu\text{g}/\text{m}^3$ to 28% for the Acute REL of 55 $\mu\text{g}/\text{m}^3$.

The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and

particleboard. These materials are commonly used in building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims.

In January 2009, the California Air Resources Board (CARB) adopted an airborne toxics control measure (ATCM) to reduce formaldehyde emissions from composite wood products, including hardwood plywood, particleboard, medium density fiberboard, and also furniture and other finished products made with these wood products (California Air Resources Board 2009). While this formaldehyde ATCM has resulted in reduced emissions from composite wood products sold in California, they do not preclude that homes built with composite wood products meeting the CARB ATCM will have indoor formaldehyde concentrations that are below cancer and non-cancer exposure guidelines.

A follow up study to the California New Home Study (CNHS) was conducted in 2016-2018 (Chan et. al., 2019), and found that the median indoor formaldehyde in new homes mostly (69 of 70) built in 2012 or later with CARB Phase 2 Formaldehyde ATCM materials had lower indoor formaldehyde concentrations, with a median indoor concentrations of 22.4 $\mu\text{g}/\text{m}^3$ (18.2 ppb) as compared to a median of 36 $\mu\text{g}/\text{m}^3$ found in the 2007 CNHS.

Thus, while new homes built after the 2009 CARB formaldehyde ATCM have a 38% lower median indoor formaldehyde concentration and cancer risk, the median lifetime cancer risk is still 112 per million for homes built with CARB compliant composite wood products, which is more than 11 times the OEHHA 10 in a million cancer risk threshold (OEHHA, 2017a).

With respect to this project, the buildings in the 3440 Wilshire Project in Los Angeles, CA consist of residential and commercial retail spaces

The residential occupants will potentially have continuous exposure (e.g. 24 hours per day, 52 weeks per year). These exposures are anticipated to result in significant cancer risks resulting from exposures to formaldehyde released by the building materials and furnishing commonly found in residential construction.

Because these residences will be constructed with CARB Phase 2 Formaldehyde ATCM materials, and be ventilated with the minimum code required amount of outdoor air, the indoor residential formaldehyde concentrations are likely similar to those concentrations observed in residences built with CARB Phase 2 Formaldehyde ATCM materials, which is a median of $22.4 \mu\text{g}/\text{m}^3$ (Chan et. al., 2019)

Assuming that the residential occupants inhale 20 m^3 of air per day, the average 70-year lifetime formaldehyde daily dose is $448 \mu\text{g}/\text{day}$ for continuous exposure in the residences. This exposure represents a cancer risk of 112 per million, which is more than 11 times the Bay Area Air Quality Management District CEQA cancer risk of 10 per million (BAAQMD, 2007). For occupants that do not have continuous exposure, the cancer risk will be proportionally less but still substantially over the BAAQMD CEQA cancer risk of 10 per million (e.g. for 12/hour/day occupancy, more than 5 times the BAAQMD CEQA cancer risk of 10 per million).

The employees of the commercial spaces are also expected to experience significant indoor exposures (e.g., 40 hours per week, 50 weeks per year). These exposures for employees are anticipated to result in significant cancer risks resulting from exposures to formaldehyde released by the building materials and furnishing commonly found in offices, warehouses, residences and hotels.

Because these commercial will be constructed with CARB Phase 2 Formaldehyde ATCM materials, and be ventilated with the minimum code required amount of outdoor air, the indoor warehouse formaldehyde concentrations are likely similar to those concentrations observed in residences built with CARB Phase 2 Formaldehyde ATCM materials, which is a median of $22.4 \mu\text{g}/\text{m}^3$ (Chan et. al., 2019).

Assuming that the commercial space employees work 8 hours per day and inhale 20 m^3 of air per day, the formaldehyde dose per work-day at the offices is $149 \mu\text{g}/\text{day}$.

Assuming that the commercial space employees work 5 days per week and 50 weeks per year for 45 years (start at age 20 and retire at age 65) the average 70-year lifetime

formaldehyde daily dose is 65.6 µg/day.

This is 1.64 times the NSRL (OEHHA, 2017a) of 40 µg/day and represents a cancer risk of 16.4 per million, which exceeds the CEQA cancer risk of 10 per million. This impact should be analyzed in an environmental impact report (“EIR”), and the agency should impose all feasible mitigation measures to reduce this impact.

Several feasible mitigation measures are discussed below and these and other measures should be analyzed in an EIR.

While measurements of the indoor concentrations of formaldehyde in residences built with CARB Phase 2 Formaldehyde ATCM materials (Chan et. al., 2019), indicate that indoor formaldehyde concentrations in buildings built with similar materials (e.g. hotels, residences, offices, warehouses, schools) will pose cancer risks in excess of the CEQA cancer risk of 10 per million, a determination of the cancer risk that is specific to this project and the materials used to construct these buildings can and should be conducted prior to completion of the environmental review.

The following describes a method that should be used prior to construction in the environmental review under CEQA, for determining whether the indoor concentrations resulting from the formaldehyde emissions of the specific building materials/furnishings selected for the building exceed cancer and non-cancer guidelines. Such a design analyses can be used to identify those materials/furnishings prior to the completion of the City’s CEQA review and project approval, that have formaldehyde emission rates that contribute to indoor concentrations that exceed cancer and non-cancer guidelines, so that alternative lower emitting materials/furnishings may be selected and/or higher minimum outdoor air ventilation rates can be increased to achieve acceptable indoor concentrations and incorporated as mitigation measures for this project.

Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment.

This formaldehyde emissions assessment should be used in the environmental review under CEQA to assess the indoor formaldehyde concentrations from the proposed loading of building materials/furnishings, the area-specific formaldehyde emission rate data for building materials/furnishings, and the design minimum outdoor air ventilation rates. This assessment allows the applicant (and the City) to determine before the conclusion of the environmental review process and the building materials/furnishings are specified, purchased, and installed if the total chemical emissions will exceed cancer and non-cancer guidelines, and if so, allow for changes in the selection of specific material/furnishings and/or the design minimum outdoor air ventilations rates such that cancer and non-cancer guidelines are not exceeded.

1.) Define Indoor Air Quality Zones. Divide the building into separate indoor air quality zones, (IAQ Zones). IAQ Zones are defined as areas of well-mixed air. Thus, each ventilation system with recirculating air is considered a single zone, and each room or group of rooms where air is not recirculated (e.g. 100% outdoor air) is considered a separate zone. For IAQ Zones with the same construction material/furnishings and design minimum outdoor air ventilation rates. (e.g. hotel rooms, apartments, condominiums, etc.) the formaldehyde emission rates need only be assessed for a single IAQ Zone of that type.

2.) Calculate Material/Furnishing Loading. For each IAQ Zone, determine the building material and furnishing loadings (e.g., m^2 of material/ m^2 floor area, units of furnishings/ m^2 floor area) from an inventory of all potential indoor formaldehyde sources, including flooring, ceiling tiles, furnishings, finishes, insulation, sealants, adhesives, and any products constructed with composite wood products containing urea-formaldehyde resins (e.g., plywood, medium density fiberboard, particleboard).

3.) Calculate the Formaldehyde Emission Rate. For each building material, calculate the formaldehyde emission rate ($\mu\text{g}/\text{h}$) from the product of the area-specific formaldehyde emission rate ($\mu\text{g}/\text{m}^2\text{-h}$) and the area (m^2) of material in the IAQ Zone, and from each furnishing (e.g. chairs, desks, etc.) from the unit-specific formaldehyde emission rate ($\mu\text{g}/\text{unit-h}$) and the number of units in the IAQ Zone.

NOTE: As a result of the high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014), most manufacturers of building materials furnishings sold in the United States conduct chemical emission rate tests using the California Department of Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers”, (CDPH, 2017), or other equivalent chemical emission rate testing methods. Most manufacturers of building furnishings sold in the United States conduct chemical emission rate tests using ANSI/BIFMA M7.1 Standard Test Method for Determining VOC Emissions (BIFMA, 2018), or other equivalent chemical emission rate testing methods.

CDPH, BIFMA, and other chemical emission rate testing programs, typically certify that a material or furnishing does not create indoor chemical concentrations in excess of the maximum concentrations permitted by their certification. For instance, the CDPH emission rate testing requires that the measured emission rates when input into an office, school, or residential model do not exceed one-half of the OEHHA Chronic Exposure Guidelines (OEHHA, 2017b) for the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017). These certifications themselves do not provide the actual area-specific formaldehyde emission rate (i.e., $\mu\text{g}/\text{m}^2\text{-h}$) of the product, but rather provide data that the formaldehyde emission rates do not exceed the maximum rate allowed for the certification. Thus for example, the data for a certification of a specific type of flooring may be used to calculate that the area-specific emission rate of formaldehyde is less than $31 \mu\text{g}/\text{m}^2\text{-h}$, but not the actual measured specific emission rate, which may be 3, 18, or $30 \mu\text{g}/\text{m}^2\text{-h}$. These area-specific emission rates determined from the product certifications of CDPH, BIFA, and other certification programs can be used as an initial estimate of the formaldehyde emission rate.

If the actual area-specific emission rates of a building material or furnishing is needed (i.e. the initial emission rates estimates from the product certifications are higher than desired), then that data can be acquired by requesting from the manufacturer the complete chemical emission rate test report. For instance if the complete CDPH emission test report is requested for a CDHP certified product, that report will provide the actual area-specific

emission rates for not only the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017), but also all of the cancer and reproductive/developmental chemicals listed in the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), all of the toxic air contaminants (TACs) in the California Air Resources Board Toxic Air Contamination List (CARB, 2011), and the 10 chemicals with the greatest emission rates.

Alternatively, a sample of the building material or furnishing can be submitted to a chemical emission rate testing laboratory, such as Berkeley Analytical Laboratory (<https://berkeleyanalytical.com>), to measure the formaldehyde emission rate.

4.) Calculate the Total Formaldehyde Emission Rate. For each IAQ Zone, calculate the total formaldehyde emission rate (i.e. $\mu\text{g/h}$) from the individual formaldehyde emission rates from each of the building material/furnishings as determined in Step 3.

5.) Calculate the Indoor Formaldehyde Concentration. For each IAQ Zone, calculate the indoor formaldehyde concentration ($\mu\text{g/m}^3$) from Equation 1 by dividing the total formaldehyde emission rates (i.e. $\mu\text{g/h}$) as determined in Step 4, by the design minimum outdoor air ventilation rate (m^3/h) for the IAQ Zone.

$$C_{in} = \frac{E_{total}}{Q_{oa}} \quad (\text{Equation 1})$$

where:

C_{in} = indoor formaldehyde concentration ($\mu\text{g/m}^3$)

E_{total} = total formaldehyde emission rate ($\mu\text{g/h}$) into the IAQ Zone.

Q_{oa} = design minimum outdoor air ventilation rate to the IAQ Zone (m^3/h)

The above Equation 1 is based upon mass balance theory, and is referenced in Section 3.10.2 “Calculation of Estimated Building Concentrations” of the California Department of Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers”, (CDPH, 2017).

6.) Calculate the Indoor Exposure Cancer and Non-Cancer Health Risks. For each IAQ Zone, calculate the cancer and non-cancer health risks from the indoor formaldehyde concentrations determined in Step 5 and as described in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines; Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015).

7.) Mitigate Indoor Formaldehyde Exposures of exceeding the CEQA Cancer and/or Non-Cancer Health Risks. In each IAQ Zone, provide mitigation for any formaldehyde exposure risk as determined in Step 6, that exceeds the CEQA cancer risk of 10 per million or the CEQA non-cancer Hazard Quotient of 1.0.

Provide the source and/or ventilation mitigation required in all IAQ Zones to reduce the health risks of the chemical exposures below the CEQA cancer and non-cancer health risks.

Source mitigation for formaldehyde may include:

- 1.) reducing the amount materials and/or furnishings that emit formaldehyde
- 2.) substituting a different material with a lower area-specific emission rate of formaldehyde

Ventilation mitigation for formaldehyde emitted from building materials and/or furnishings may include:

- 1.) increasing the design minimum outdoor air ventilation rate to the IAQ Zone.

NOTE: Mitigating the formaldehyde emissions through use of less material/furnishings, or use of lower emitting materials/furnishings, is the preferred mitigation option, as mitigation with increased outdoor air ventilation increases initial and operating costs associated with the heating/cooling systems.

Further, we are not asking that the builder to “speculate” on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health “Standard Method for the Testing and Evaluation of Volatile

Organic Chemical Emissions for Indoor Sources Using Environmental Chambers”, (CDPH, 2017), and use the procedure described earlier (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Impact. Another important finding of the CNHS, was that the outdoor air ventilation rates in the homes were very low. Outdoor air ventilation is a very important factor influencing the indoor concentrations of air contaminants, as it is the primary removal mechanism of all indoor air generated air contaminants. Lower outdoor air exchange rates cause indoor generated air contaminants to accumulate to higher indoor air concentrations. Many homeowners rarely open their windows or doors for ventilation as a result of their concerns for security/safety, noise, dust, and odor concerns (Price, 2007). In the CNHS field study, 32% of the homes did not use their windows during the 24-hour Test Day, and 15% of the homes did not use their windows during the entire preceding week. Most of the homes with no window usage were homes in the winter field session. Thus, a substantial percentage of homeowners never open their windows, especially in the winter season. The median 24-hour measurement was 0.26 ach, with a range of 0.09 ach to 5.3 ach. A total of 67% of the homes had outdoor air exchange rates below the minimum California Building Code (2001) requirement of 0.35 ach. Thus, the relatively tight envelope construction, combined with the fact that many people never open their windows for ventilation, results in homes with low outdoor air exchange rates and higher indoor air contaminant concentrations.

The 3440 Wilshire Project in Los Angeles, CA is close to roads with moderate to high traffic (e.g. Wilshire Boulevard, S. Mariposa Boulevard, S. Normandy Avenue, and W. 7th Street. As a result of the outdoor vehicle traffic noise, the Project site is likely to be a sound impacted site. The noise analyses provided in the Mitigated Negative Declaration (CAJA Environmental Services, 2020), reports in Tables B. 13-7 and B.13-8 Future + Project AM and PM Peak Hour Mobile Source Noise Levels, that the noise levels will range from 60.8 to 64.0 dBA L_{eq} 1hr.

As a result of the high outdoor noise levels, the current project will require the need for mechanical supply of outdoor air ventilation air to allow for a habitable interior environment with closed windows and doors. Such a ventilation system would allow windows and doors to be kept closed at the occupant's discretion to control exterior noise within building interiors.

PM_{2.5} Outdoor Concentrations Impact. An additional impact of the nearby motor vehicle traffic associated with this project, are the outdoor concentrations of PM_{2.5}. According to the Mitigated Negative Declaration (CAJA Environmental Services, 2020), this Project is located in the Los Angeles County portion of the South Coast Air Basin, which is a State and Federal non-attainment area for PM_{2.5}.

An air quality analyses should to be conducted to determine the concentrations of PM_{2.5} in the outdoor and indoor air that people inhale each day. This air quality analyses needs to consider the cumulative impacts of the project related emissions, existing and projected future emissions from local PM_{2.5} sources (e.g. stationary sources, motor vehicles, and airport traffic) upon the outdoor air concentrations at the project site. If the outdoor concentrations are determined to exceed the California and National annual average PM_{2.5} exceedence concentration of 12 µg/m³, or the National 24-hour average exceedence concentration of 35 µg/m³, then the buildings need to have a mechanical supply of outdoor air that has air filtration with sufficient PM_{2.5} removal efficiency, such that the indoor concentrations of outdoor PM_{2.5} particles is less than the California and National PM_{2.5} annual and 24-hour standards.

It is my experience that based on the projected high traffic noise levels, the annual average concentration of PM_{2.5} will exceed the California and National PM_{2.5} annual and 24-hour standards and warrant installation of high efficiency air filters (i.e. MERV 13 or higher) in all mechanically supplied outdoor air ventilation systems.

Indoor Air Quality Impact Mitigation Measures

The following are recommended mitigation measures to minimize the impacts upon indoor quality:

- indoor formaldehyde concentrations
- outdoor air ventilation
- PM_{2.5} outdoor air concentrations

Indoor Formaldehyde Concentrations Mitigation. Use only composite wood materials (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins (CARB, 2009). Other projects such as the AC by Marriott Hotel – West San Jose Project (Asset Gas SC Inc.) and 2525 North Main Street, Santa Ana (AC 2525 Main LLC, 2019) have entered into settlement agreements stipulating the use of composite wood materials only containing NAF or ULEF resins.

Alternatively, conduct the previously described Pre-Construction Building Material/Furnishing Chemical Emissions Assessment, to determine that the combination of formaldehyde emissions from building materials and furnishings do not create indoor formaldehyde concentrations that exceed the CEQA cancer and non-cancer health risks.

It is important to note that we are not asking that the builder to “speculate” on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers”, (CDPH, 2017), and use the procedure described earlier (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Mitigation. Provide each habitable room with a continuous mechanical supply of outdoor air that meets or exceeds the California 2016 Building Energy Efficiency Standards (California Energy Commission, 2015) requirements of the greater of 15 cfm/occupant or 0.15 cfm/ft² of floor area. Following installation of the system conduct testing and balancing to insure that required amount of outdoor air is entering each habitable room and provide a written report documenting the outdoor airflow rates. Do not use exhaust only mechanical outdoor air systems, use only balanced outdoor air supply and exhaust systems or outdoor air supply only systems. Provide a manual for the occupants or maintenance personnel, that describes the purpose of the mechanical outdoor air system and the operation and maintenance requirements of the system.

PM_{2.5} Outdoor Air Concentration Mitigation. Install air filtration with sufficient PM_{2.5} removal efficiency (e.g. MERV 13 or higher) to filter the outdoor air entering the mechanical outdoor air supply systems, such that the indoor concentrations of outdoor PM_{2.5} particles are less than the California and National PM_{2.5} annual and 24-hour standards. Install the air filters in the system such that they are accessible for replacement by the occupants or maintenance personnel. Include in the mechanical outdoor air ventilation system manual instructions on how to replace the air filters and the estimated frequency of replacement.

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President: Indoor Environmental Engineering, San Francisco, CA. December, 1981 - present.

Direct team of environmental scientists, chemists, and mechanical engineers in conducting State and Federal research regarding indoor air quality instrumentation development, building air quality field studies, ventilation and air cleaning performance measurements, and chemical emission rate testing.

Provide design side input to architects regarding selection of building materials and ventilation system components to ensure a high quality indoor environment.

Direct Indoor Air Quality Consulting Team for the winning design proposal for the new State of Washington Ecology Department building.

Develop a full-scale ventilation test facility for measuring the performance of air diffusers; ASHRAE 129, Air Change Effectiveness, and ASHRAE 113, Air Diffusion Performance Index.

Develop a chemical emission rate testing laboratory for measuring the chemical emissions from building materials, furnishings, and equipment.

Principle Investigator of the California New Homes Study (2005-2007). Measured ventilation and indoor air quality in 108 new single family detached homes in northern and southern California.

Develop and teach IAQ professional development workshops to building owners, managers, hygienists, and engineers.

Air Pollution Engineer: Earth Metrics Inc., Burlingame, CA, October, 1985 to March, 1987.

Responsible for development of an air pollution laboratory including installation a forced choice olfactometer, tracer gas electron capture chromatograph, and associated calibration facilities. Field team leader for studies of fugitive odor emissions from sewage treatment plants, entrainment of fume hood exhausts into computer chip fabrication rooms, and indoor air quality investigations.

Staff Scientist: Building Ventilation and Indoor Air Quality Program, Energy and Environment Division, Lawrence Berkeley Laboratory, Berkeley, CA. January, 1980 to August, 1984.

Deputy project leader for the Control Techniques group; responsible for laboratory and field studies aimed at evaluating the performance of indoor air pollutant control strategies (i.e. ventilation, filtration, precipitation, absorption, adsorption, and source control).

Coordinated field and laboratory studies of air-to-air heat exchangers including evaluation of thermal performance, ventilation efficiency, cross-stream contaminant transfer, and the effects of freezing/defrosting.

Developed an *in situ* test protocol for evaluating the performance of air cleaning systems and introduced the concept of effective cleaning rate (ECR) also known as the Clean Air Delivery Rate (CADR).

Coordinated laboratory studies of portable and ducted air cleaning systems and their effect on indoor concentrations of respirable particles and radon progeny.

Co-designed an automated instrument system for measuring residential ventilation rates and radon concentrations.

Designed hardware and software for a multi-channel automated data acquisition system used to evaluate the performance of air-to-air heat transfer equipment.

Assistant Chief Engineer: Alta Bates Hospital, Berkeley, CA, October, 1979 to January, 1980.

Responsible for energy management projects involving installation of power factor correction capacitors on large inductive electrical devices and installation of steam meters on physical plant steam lines. Member of Local 39, International Union of Operating Engineers.

Manufacturing Engineer: American Precision Industries, Buffalo, NY, October, 1977 to October, 1979.

Responsible for reorganizing the manufacturing procedures regarding production of shell and tube heat exchangers. Designed customized automatic assembly, welding, and testing equipment. Designed a large paint spray booth. Prepared economic studies justifying new equipment purchases. Safety Director.

Project Engineer: Arcata Graphics, Buffalo, N.Y. June, 1976 to October, 1977.

Responsible for the design and installation of a bulk ink storage and distribution system and high speed automatic counting and marking equipment. Also coordinated material handling studies which led to the purchase and installation of new equipment.

PROFESSIONAL ORGANIZATION MEMBERSHIP

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

- Chairman of SPC-145P, Standards Project Committee - Test Method for Assessing the Performance of Gas Phase Air Cleaning Equipment (1991-1992)
- Member SPC-129P, Standards Project Committee - Test Method for Ventilation Effectiveness (1986-97)
 - Member of Drafting Committee
- Member Environmental Health Committee (1992-1994, 1997-2001, 2007-2010)
 - Chairman of EHC Research Subcommittee
 - Member of Man Made Mineral Fiber Position Paper Subcommittee
 - Member of the IAQ Position Paper Committee
 - Member of the Legionella Position Paper Committee
 - Member of the Limiting Indoor Mold and Dampness in Buildings Position Paper Committee
- Member SSPC-62, Standing Standards Project Committee - Ventilation for Acceptable Indoor Air Quality (1992 to 2000)
 - Chairman of Source Control and Air Cleaning Subcommittee
- Chairman of TC-4.10, Indoor Environmental Modeling (1988-92)
 - Member of Research Subcommittee
- Chairman of TC-2.3, Gaseous Air Contaminants and Control Equipment (1989-92)
 - Member of Research Subcommittee

American Society for Testing and Materials (ASTM)

- D-22 Sampling and Analysis of Atmospheres
 - Member of Indoor Air Quality Subcommittee
- E-06 Performance of Building Constructions

American Board of Industrial Hygiene (ABIH)

American Conference of Governmental Industrial Hygienists (ACGIH)

- Bioaerosols Committee (2007-2013)

American Industrial Hygiene Association (AIHA)

Cal-OSHA Indoor Air Quality Advisory Committee

International Society of Indoor Air Quality and Climate (ISIAQ)

- Co-Chairman of Task Force on HVAC Hygiene

U. S. Green Building Council (USGBC)

- Member of the IEQ Technical Advisory Group (2007-2009)
- Member of the IAQ Performance Testing Work Group (2010-2012)

Western Construction Consultants (WESTCON)

PROFESSIONAL CREDENTIALS

Licensed Professional Engineer - Mechanical Engineering

Certified Industrial Hygienist - American Board of Industrial Hygienists

SCIENTIFIC MEETINGS AND SYMPOSIA

Biological Contamination, Diagnosis, and Mitigation, Indoor Air'90, Toronto, Canada, August, 1990.

Models for Predicting Air Quality, Indoor Air'90, Toronto, Canada, August, 1990.

Microbes in Building Materials and Systems, Indoor Air '93, Helsinki, Finland, July, 1993.

Microorganisms in Indoor Air Assessment and Evaluation of Health Effects and Probable Causes, Walnut Creek, CA, February 27, 1997.

Controlling Microbial Moisture Problems in Buildings, Walnut Creek, CA, February 27, 1997.

Scientific Advisory Committee, Roomvent 98, 6th International Conference on Air Distribution in Rooms, KTH, Stockholm, Sweden, June 14-17, 1998.

Moisture and Mould, Indoor Air '99, Edinburgh, Scotland, August, 1999.

Ventilation Modeling and Simulation, Indoor Air '99, Edinburgh, Scotland, August, 1999.

Microbial Growth in Materials, Healthy Buildings 2000, Espoo, Finland, August, 2000.

Co-Chair, Bioaerosols X- Exposures in Residences, Indoor Air 2002, Monterey, CA, July 2002.

Healthy Indoor Environments, Anaheim, CA, April 2003.

Chair, Environmental Tobacco Smoke in Multi-Family Homes, Indoor Air 2008, Copenhagen, Denmark, July 2008.

Co-Chair, ISIAQ Task Force Workshop; HVAC Hygiene, Indoor Air 2002, Monterey, CA, July 2002.

Chair, ETS in Multi-Family Housing: Exposures, Controls, and Legalities Forum, Healthy Buildings 2009, Syracuse, CA, September 14, 2009.

Chair, Energy Conservation and IAQ in Residences Workshop, Indoor Air 2011, Austin, TX, June 6, 2011.

Chair, Electronic Cigarettes: Chemical Emissions and Exposures Colloquium, Indoor Air 2016, Ghent, Belgium, July 4, 2016.

SPECIAL CONSULTATION

Provide consultation to the American Home Appliance Manufacturers on the development of a standard for testing portable air cleaners, AHAM Standard AC-1.

Served as an expert witness and special consultant for the U.S. Federal Trade Commission regarding the performance claims found in advertisements of portable air cleaners and residential furnace filters.

Conducted a forensic investigation for a San Mateo, CA pro se defendant, regarding an alleged homicide where the victim was kidnapped in a steamer trunk. Determined the air exchange rate in the steamer trunk and how long the person could survive.

Conducted *in situ* measurement of human exposure to toluene fumes released during nailpolish application for a plaintiffs attorney pursuing a California Proposition 65 product labeling case. June, 1993.

Conducted a forensic *in situ* investigation for the Butte County, CA Sheriff's Department of the emissions of a portable heater used in the bedroom of two twin one year old girls who suffered simultaneous crib death.

Consult with OSHA on the 1995 proposed new regulation regarding indoor air quality and environmental tobacco smoke.

Consult with EPA on the proposed Building Alliance program and with OSHA on the proposed new OSHA IAQ regulation.

Johnson Controls Audit/Certification Expert Review; Milwaukee, WI. May 28-29, 1997.

Winner of the nationally published 1999 Request for Proposals by the State of Washington to conduct a comprehensive indoor air quality investigation of the Washington State Department of Ecology building in Lacey, WA.

Selected by the State of California Attorney General's Office in August, 2000 to conduct a comprehensive indoor air quality investigation of the Tulare County Court House.

Lawrence Berkeley Laboratory IAQ Experts Workshop: "Cause and Prevention of Sick Building Problems in Offices: The Experience of Indoor Environmental Quality Investigators", Berkeley, California, May 26-27, 2004.

Provide consultation and chemical emission rate testing to the State of California Attorney General's Office in 2013-2015 regarding the chemical emissions from e-cigarettes.

PEER-REVIEWED PUBLICATIONS :

F.J.Offermann, C.D.Hollowell, and G.D.Roseme, "Low-Infiltration Housing in Rochester, New York: A Study of Air Exchange Rates and Indoor Air Quality," *Environment International*, 8, pp. 435-445, 1982.

W.W.Nazaroff, F.J.Offermann, and A.W.Robb, "Automated System for Measuring Air Exchange Rate and Radon Concentration in Houses," *Health Physics*, 45, pp. 525-537, 1983.

F.J.Offermann, W.J.Fisk, D.T.Grimsrud, B.Pedersen, and K.L.Revzan, "Ventilation Efficiencies of Wall- or Window-Mounted Residential Air-to-Air Heat Exchangers," *ASHRAE Annual Transactions*, 89-2B, pp 507-527, 1983.

W.J.Fisk, K.M.Archer, R.E Chant, D. Hekmat, F.J.Offermann, and B.Pedersen, "Onset of Freezing in Residential Air-to-Air Heat Exchangers," *ASHRAE Annual Transactions*, 91-1B, 1984.

W.J.Fisk, K.M.Archer, R.E Chant, D. Hekmat, F.J.Offermann, and B.Pedersen, "Performance of Residential Air-to-Air Heat Exchangers During Operation with Freezing and Periodic Defrosts," *ASHRAE Annual Transactions*, 91-1B, 1984.

F.J.Offermann, R.G.Sextro, W.J.Fisk, D.T.Grimsrud, W.W.Nazaroff, A.V.Nero, and K.L.Revzan, "Control of Respirable Particles with Portable Air Cleaners," *Atmospheric Environment*, Vol. 19, pp.1761-1771, 1985.

R.G.Sextro, F.J.Offermann, W.W.Nazaroff, A.V.Nero, K.L.Revzan, and J.Yater, "Evaluation of Indoor Control Devices and Their Effects on Radon Progeny Concentrations," *Atmospheric Environment*, *12*, pp. 429-438, 1986.

W.J. Fisk, R.K.Spencer, F.J.Offermann, R.K.Spencer, B.Pedersen, R.Sextro, "Indoor Air Quality Control Techniques," *Noyes Data Corporation*, Park Ridge, New Jersey, (1987).

F.J.Offermann, "Ventilation Effectiveness and ADPI Measurements of a Forced Air Heating System," *ASHRAE Transactions* , Volume 94, Part 1, pp 694-704, 1988.

F.J.Offermann and D. Int-Hout "Ventilation Effectiveness Measurements of Three Supply/Return Air Configurations," *Environment International* , Volume 15, pp 585-592 1989.

F.J. Offermann, S.A. Loiselle, M.C. Quinlan, and M.S. Rogers, "A Study of Diesel Fume Entrainment in an Office Building," *IAQ '89*, The Human Equation: Health and Comfort, pp 179-183, ASHRAE, Atlanta, GA, 1989.

R.G.Sextro and F.J.Offermann, "Reduction of Residential Indoor Particle and Radon Progeny Concentrations with Ducted Air Cleaning Systems," submitted to *Indoor Air*, 1990.

S.A.Loiselle, A.T.Hodgson, and F.J.Offermann, "Development of An Indoor Air Sampler for Polycyclic Aromatic Compounds", *Indoor Air* , Vol 2, pp 191-210, 1991.

F.J.Offermann, S.A.Loiselle, A.T.Hodgson, L.A. Gundel, and J.M. Daisey, "A Pilot Study to Measure Indoor Concentrations and Emission Rates of Polycyclic Aromatic Compounds", *Indoor Air* , Vol 4, pp 497-512, 1991.

F.J. Offermann, S. A. Loiselle, R.G. Sextro, "Performance Comparisons of Six Different Air Cleaners Installed in a Residential Forced Air Ventilation System," *IAQ'91*, Healthy Buildings, pp 342-350, ASHRAE, Atlanta, GA (1991).

F.J. Offermann, J. Daisey, A. Hodgson, L. Gundell, and S. Loiselle, "Indoor Concentrations and Emission Rates of Polycyclic Aromatic Compounds", *Indoor Air*, Vol 4, pp 497-512 (1992).

F.J. Offermann, S. A. Loiselle, R.G. Sextro, "Performance of Air Cleaners Installed in a Residential Forced Air System," *ASHRAE Journal*, pp 51-57, July, 1992.

F.J. Offermann and S. A. Loiselle, "Performance of an Air-Cleaning System in an Archival Book Storage Facility," *IAQ'92*, ASHRAE, Atlanta, GA, 1992.

S.B. Hayward, K.S. Liu, L.E. Alevantis, K. Shah, S. Loiselle, F.J. Offermann, Y.L. Chang, L. Webber, "Effectiveness of Ventilation and Other Controls in Reducing Exposure to ETS in Office Buildings," *Indoor Air '93*, Helsinki, Finland, July 4-8, 1993.

F.J. Offermann, S. A. Loiselle, G. Ander, H. Lau, "Indoor Contaminant Emission Rates Before and After a Building Bake-out," *IAQ'93*, Operating and Maintaining Buildings for Health, Comfort, and Productivity, pp 157-163, ASHRAE, Atlanta, GA, 1993.

L.E. Alevantis, Hayward, S.B., Shah, S.B., Loiselle, S., and Offermann, F.J. "Tracer Gas Techniques for Determination of the Effectiveness of Pollutant Removal From Local Sources," *IAQ '93*, Operating and Maintaining Buildings for Health, Comfort, and Productivity, pp 119-129, ASHRAE, Atlanta, GA, 1993.

L.E. Alevantis, Liu, L.E., Hayward, S.B., Offermann, F.J., Shah, S.B., Leiserson, K. Tsao, E., and Huang, Y., "Effectiveness of Ventilation in 23 Designated Smoking Areas in California Buildings," *IAQ '94*, Engineering Indoor Environments, pp 167-181, ASHRAE, Atlanta, GA, 1994.

L.E. Alevantis, Offermann, F.J., Loiselle, S., and Macher, J.M., "Pressure and Ventilation Requirements of Hospital Isolation Rooms for Tuberculosis (TB) Patients: Existing Guidelines in the United States and a Method for Measuring Room Leakage", Ventilation and Indoor air quality in Hospitals, M. Maroni, editor, Kluwer Academic publishers, Netherlands, 1996.

F.J. Offermann, M. A. Waz, A.T. Hodgson, and H.M. Ammann, "Chemical Emissions from a Hospital Operating Room Air Filter," *IAQ'96*, Paths to Better Building Environments, pp 95-99, ASHRAE, Atlanta, GA, 1996.

F.J. Offermann, "Professional Malpractice and the Sick Building Investigator," *IAQ'96*, Paths to Better Building Environments, pp 132-136, ASHRAE, Atlanta, GA, 1996.

F.J. Offermann, "Standard Method of Measuring Air Change Effectiveness," *Indoor Air*, Vol 1, pp.206-211, 1999.

F. J. Offermann, A. T. Hodgson, and J. P. Robertson, "Contaminant Emission Rates from PVC Backed Carpet Tiles on Damp Concrete", Healthy Buildings 2000, Espoo, Finland, August 2000.

K.S. Liu, L.E. Alevantis, and F.J. Offermann, "A Survey of Environmental Tobacco Smoke Controls in California Office Buildings", *Indoor Air*, Vol 11, pp. 26-34, 2001.

F.J. Offermann, R. Colfer, P. Radzinski, and J. Robertson, "Exposure to Environmental Tobacco Smoke in an Automobile", Indoor Air 2002, Monterey, California, July 2002.

F. J. Offermann, J.P. Robertson, and T. Webster, "The Impact of Tracer Gas Mixing on Airflow Rate Measurements in Large Commercial Fan Systems", Indoor Air 2002, Monterey, California, July 2002.

M. J. Mendell, T. Brennan, L. Hathon, J.D. Odom, F.J. Offermann, B.H. Turk, K.M. Wallingford, R.C. Diamond, W.J. Fisk, "Causes and prevention of Symptom Complaints

in Office Buildings: Distilling the Experience of Indoor Environmental Investigators”, submitted to Indoor Air 2005, Beijing, China, September 4-9, 2005.

F.J. Offermann, “Ventilation and IAQ in New Homes With and Without Mechanical Outdoor Air Systems”, Healthy Buildings 2009, Syracuse, CA, September 14, 2009.

F.J. Offermann, “ASHRAE 62.2 Intermittent Residential Ventilation: What’s It Good For, Intermittently Poor IAQ”, IAQVEC 2010, Syracuse, CA, April 21, 2010.

F.J. Offermann and A.T. Hodgson, “Emission Rates of Volatile Organic Compounds in New Homes”, Indoor Air 2011, Austin, TX, June, 2011.

P. Jenkins, R. Johnson, T. Phillips, and F. Offermann, “Chemical Concentrations in New California Homes and Garages”, Indoor Air 2011, Austin, TX, June, 2011.

W. J. Mills, B. J. Grigg, F. J. Offermann, B. E. Gustin, and N. E. Spingarm, “Toluene and Methyl Ethyl Ketone Exposure from a Commercially Available Contact Adhesive”, Journal of Occupational and Environmental Hygiene, 9:D95-D102 May, 2012.

F. J. Offermann, R. Maddalena, J. C. Offermann, B. C. Singer, and H. Wilhelm, “The Impact of Ventilation on the Emission Rates of Volatile Organic Compounds in Residences”, HB 2012, Brisbane, AU, July, 2012.

F. J. Offermann, A. T. Hodgson, P. L. Jenkins, R. D. Johnson, and T. J. Phillips, “Attached Garages as a Source of Volatile Organic Compounds in New Homes”, HB 2012, Brisbane, CA, July, 2012.

R. Maddalena, N. Li, F. Offermann, and B. Singer, “Maximizing Information from Residential Measurements of Volatile Organic Compounds”, HB 2012, Brisbane, AU, July, 2012.

W. Chen, A. Persily, A. Hodgson, F. Offermann, D. Poppendieck, and K. Kumagai, “Area-Specific Airflow Rates for Evaluating the Impacts of VOC emissions in U.S. Single-Family Homes”, Building and Environment, Vol. 71, 204-211, February, 2014.

F. J. Offermann, A. Eagan A. C. Offermann, and L. J. Radonovich, “Infectious Disease Aerosol Exposures With and Without Surge Control Ventilation System Modifications”, Indoor Air 2014, Hong Kong, July, 2014.

F. J. Offermann, “Chemical Emissions from E-Cigarettes: Direct and Indirect Passive Exposures”, Building and Environment, Vol. 93, Part 1, 101-105, November, 2015.

F. J. Offermann, “Formaldehyde Emission Rates From Lumber Liquidators Laminate Flooring Manufactured in China”, Indoor Air 2016, Belgium, Ghent, July, 2016.

F. J. Offermann, “Formaldehyde and Acetaldehyde Emission Rates for E-Cigarettes”, Indoor Air 2016, Belgium, Ghent, July, 2016.

OTHER REPORTS:

W.J.Fisk, P.G.Cleary, and F.J.Offermann, "Energy Saving Ventilation with Residential Heat Exchangers," a Lawrence Berkeley Laboratory brochure distributed by the Bonneville Power Administration, 1981.

F.J.Offermann, J.R.Girman, and C.D.Hollowell, "Midway House Tightening Project: A Study of Indoor Air Quality," Lawrence Berkeley Laboratory, Berkeley, CA, Report LBL-12777, 1981.

F.J.Offermann, J.B.Dickinson, W.J.Fisk, D.T.Grimrud, C.D.Hollowell, D.L.Krinkle, and G.D.Roseme, "Residential Air-Leakage and Indoor Air Quality in Rochester, New York," Lawrence Berkeley Laboratory, Berkeley, CA, Report LBL-13100, 1982.

F.J.Offermann, W.J.Fisk, B.Pedersen, and K.L.Revzan, Residential Air-to-Air Heat Exchangers: A Study of the Ventilation Efficiencies of Wall- or Window- Mounted Units," Lawrence Berkeley Laboratory, Berkeley, CA, Report LBL-14358, 1982.

F.J.Offermann, W.J.Fisk, W.W.Nazaroff, and R.G.Sextro, "A Review of Portable Air Cleaners for Controlling Indoor Concentrations of Particulates and Radon Progeny," An interim report for the Bonneville Power Administration, 1983.

W.J.Fisk, K.M.Archer, R.E.Chant, D.Hekmat, F.J.Offermann, and B.S. Pedersen, "Freezing in Residential Air-to-Air Heat Exchangers: An Experimental Study," Lawrence Berkeley Laboratory, Berkeley, CA, Report LBL-16783, 1983.

R.G.Sextro, W.W.Nazaroff, F.J.Offermann, and K.L.Revzan, "Measurements of Indoor Aerosol Properties and Their Effect on Radon Progeny," Proceedings of the American Association of Aerosol Research Annual Meeting, April, 1983.

F.J.Offermann, R.G.Sextro, W.J.Fisk, W.W. Nazaroff, A.V.Nero, K.L.Revzan, and J.Yater, "Control of Respirable Particles and Radon Progeny with Portable Air Cleaners," Lawrence Berkeley Laboratory, Berkeley, CA, Report LBL-16659, 1984.

W.J.Fisk, R.K.Spencer, D.T.Grimrud, F.J.Offermann, B.Pedersen, and R.G.Sextro, "Indoor Air Quality Control Techniques: A Critical Review," Lawrence Berkeley Laboratory, Berkeley, CA, Report LBL-16493, 1984.

F.J.Offermann, J.R.Girman, and R.G.Sextro, "Controlling Indoor Air Pollution from Tobacco Smoke: Models and Measurements," Indoor Air, Proceedings of the 3rd International Conference on Indoor Air Quality and Climate, Vol 1, pp 257-264, Swedish Council for Building Research, Stockholm (1984), Lawrence Berkeley Laboratory, Berkeley, CA, Report LBL-17603, 1984.

R.Otto, J.Girman, F.Offermann, and R.Sextro, "A New Method for the Collection and Comparison of Respirable Particles in the Indoor Environment," Lawrence Berkeley Laboratory, Berkeley, CA, Special Director Fund's Study, 1984.

A.T.Hodgson and F.J.Offermann, "Examination of a Sick Office Building," Lawrence Berkeley Laboratory, Berkeley, CA, an informal field study, 1984.

R.G.Sextro, F.J.Offermann, W.W.Nazaroff, and A.V.Nero, "Effects of Aerosol Concentrations on Radon Progeny," *Aerosols, Science, & Technology, and Industrial Applications of Airborne Particles*, editors B.Y.H.Liu, D.Y.H.Pui, and H.J.Fissan, p525, Elsevier, 1984.

K.Sexton, S.Hayward, F.Offermann, R.Sextro, and L.Weber, "Characterization of Particulate and Organic Emissions from Major Indoor Sources, Proceedings of the Third International Conference on Indoor Air Quality and Climate, Stockholm, Sweden, August 20-24, 1984.

F.J.Offermann, "Tracer Gas Measurements of Laboratory Fume Entrainment at a Semiconductor Manufacturing Plant," an Indoor Environmental Engineering R&D Report, 1986.

F.J.Offermann, "Tracer Gas Measurements of Ventilation Rates in a Large Office Building," an Indoor Environmental Engineering R&D Report, 1986.

F.J.Offermann, "Measurements of Volatile Organic Compounds in a New Large Office Building with Adhesive Fastened Carpeting," an Indoor Environmental Engineering R&D Report, 1986.

F.J.Offermann, "Designing and Operating Healthy Buildings", an Indoor Environmental Engineering R&D Report, 1986.

F.J.Offermann, "Measurements and Mitigation of Indoor Spray-Applied Pesticides", an Indoor Environmental Engineering R&D Report, 1988.

F.J.Offermann and S. Loiselle, "Measurements and Mitigation of Indoor Mold Contamination in a Residence", an Indoor Environmental Engineering R&D Report, 1989.

F.J.Offermann and S. Loiselle, "Performance Measurements of an Air Cleaning System in a Large Archival Library Storage Facility", an Indoor Environmental Engineering R&D Report, 1989.

F.J. Offermann, J.M. Daisey, L.A. Gundel, and A.T. Hodgson, S. A. Loiselle, "Sampling, Analysis, and Data Validation of Indoor Concentrations of Polycyclic Aromatic Hydrocarbons", Final Report, Contract No. A732-106, California Air Resources Board, March, 1990.

L.A. Gundel, J.M. Daisey, and F.J. Offermann, "A Sampling and Analytical Method for Gas Phase Polycyclic Aromatic Hydrocarbons", Proceedings of the 5th International Conference on Indoor Air Quality and Climate, Indoor Air '90, July 29-August 1990.

A.T. Hodgson, J.M. Daisey, and F.J. Offermann "Development of an Indoor Sampling and Analytical Method for Particulate Polycyclic Aromatic Hydrocarbons", Proceedings of the 5th International Conference on Indoor Air Quality and Climate, Indoor Air '90, July 29-August, 1990.

F.J. Offermann, J.O. Sateri, "Tracer Gas Measurements in Large Multi-Room Buildings", Indoor Air '93, Helsinki, Finland, July 4-8, 1993.

F.J. Offermann, M. T. O'Flaherty, and M. A. Waz "Validation of ASHRAE 129 - Standard Method of Measuring Air Change Effectiveness", Final Report of ASHRAE Research Project 891, December 8, 1997.

S.E. Guffey, F.J. Offermann et. al., "Proceedings of the Workshop on Ventilation Engineering Controls for Environmental Tobacco smoke in the Hospitality Industry", U.S. Department of Labor Occupational Safety and Health Administration and ACGIH, 1998.

F.J. Offermann, R.J. Fiskum, D. Kosar, and D. Mudaari, "A Practical Guide to Ventilation Practices & Systems for Existing Buildings", *Heating/Piping/Air Conditioning Engineering* supplement to April/May 1999 issue.

F.J. Offermann, P. Pasanen, "Workshop 18: Criteria for Cleaning of Air Handling Systems", Healthy Buildings 2000, Espoo, Finland, August 2000.

F.J. Offermann, Session Summaries: Building Investigations, and Design & Construction, Healthy Buildings 2000, Espoo, Finland, August 2000.

F.J. Offermann, "The IAQ Top 10", Engineered Systems, November, 2008.

L. Kincaid and F.J. Offermann, "Unintended Consequences: Formaldehyde Exposures in Green Homes, AIHA Synergist, February, 2010.

F.J. Offermann, " IAQ in Air Tight Homes", ASHRAE Journal, November, 2010.

F.J. Offermann, "The Hazards of E-Cigarettes", ASHRAE Journal, June, 2014.

PRESENTATIONS :

"Low-Infiltration Housing in Rochester, New York: A Study of Air Exchange Rates and Indoor Air Quality," Presented at the International Symposium on Indoor Air Pollution, Health and Energy Conservation, Amherst, MA, October 13-16, 1981.

"Ventilation Efficiencies of Wall- or Window-Mounted Residential Air-to-Air Heat Exchangers," Presented at the American Society of Heating, Refrigeration, and Air Conditioning Engineers Summer Meeting, Washington, DC, June, 1983.

"Controlling Indoor Air Pollution from Tobacco Smoke: Models and Measurements," Presented at the Third International Conference on Indoor Air Quality and Climate, Stockholm, Sweden, August 20-24, 1984.

"Indoor Air Pollution: An Emerging Environmental Problem", Presented to the Association of Environmental Professionals, Bar Area/Coastal Region 1, Berkeley, CA, May 29, 1986.

"Ventilation Measurement Techniques," Presented at the Workshop on Sampling and Analytical Techniques, Georgia Institute of Technology, Atlanta, Georgia, September 26, 1986 and September 25, 1987.

"Buildings That Make You Sick: Indoor Air Pollution", Presented to the Sacramento Association of Professional Energy Managers, Sacramento, CA, November 18, 1986.

"Ventilation Effectiveness and Indoor Air Quality", Presented to the American Society of Heating, Refrigeration, and Air Conditioning Engineers Northern Nevada Chapter, Reno, NV, February 18, 1987, Golden Gate Chapter, San Francisco, CA, October 1, 1987, and the San Jose Chapter, San Jose, CA, June 9, 1987.

"Tracer Gas Techniques for Studying Ventilation," Presented at the Indoor Air Quality Symposium, Georgia Tech Research Institute, Atlanta, GA, September 22-24, 1987.

"Indoor Air Quality Control: What Works, What Doesn't," Presented to the Sacramento Association of Professional Energy Managers, Sacramento, CA, November 17, 1987.

"Ventilation Effectiveness and ADPI Measurements of a Forced Air Heating System," Presented at the American Society of Heating, Refrigeration, and Air Conditioning Engineers Winter Meeting, Dallas, Texas, January 31, 1988.

"Indoor Air Quality, Ventilation, and Energy in Commercial Buildings", Presented at the Building Owners & Managers Association of Sacramento, Sacramento, CA, July 21, 1988.

"Controlling Indoor Air Quality: The New ASHRAE Ventilation Standards and How to Evaluate Indoor Air Quality", Presented at a conference "Improving Energy Efficiency and Indoor Air Quality in Commercial Buildings," National Energy Management Institute, Reno, Nevada, November 4, 1988.

"A Study of Diesel Fume Entrainment Into an Office Building," Presented at Indoor Air '89: The Human Equation: Health and Comfort, American Society of Heating, Refrigeration, and Air Conditioning Engineers, San Diego, CA, April 17-20, 1989.

"Indoor Air Quality in Commercial Office Buildings," Presented at the Renewable Energy Technologies Symposium and International Exposition, Santa Clara, CA June 20, 1989.

"Building Ventilation and Indoor Air Quality", Presented to the San Joaquin Chapter of the American Society of Heating, Refrigeration, and Air Conditioning Engineers, September 7, 1989.

"How to Meet New Ventilation Standards: Indoor Air Quality and Energy Efficiency," a workshop presented by the Association of Energy Engineers; Chicago, IL, March 20-21, 1989; Atlanta, GA, May 25-26, 1989; San Francisco, CA, October 19-20, 1989; Orlando, FL, December 11-12, 1989; Houston, TX, January 29-30, 1990; Washington D.C., February 26-27, 1990; Anchorage, Alaska, March 23, 1990; Las Vegas, NV, April 23-24, 1990; Atlantic City, NJ, September 27-28, 1991; Anaheim, CA, November 19-20, 1991; Orlando, FL, February 28 - March 1, 1991; Washington, DC, March 20-21, 1991; Chicago, IL, May 16-17, 1991; Lake Tahoe, NV, August 15-16, 1991; Atlantic City, NJ, November 18-19, 1991; San Jose, CA, March 23-24, 1992.

"Indoor Air Quality," a seminar presented by the Anchorage, Alaska Chapter of the American Society of Heating, Refrigeration, and Air Conditioning Engineers, March 23, 1990.

"Ventilation and Indoor Air Quality", Presented at the 1990 HVAC & Building Systems Congress, Santa Clara, CA, March 29, 1990.

"Ventilation Standards for Office Buildings", Presented to the South Bay Property Managers Association, Santa Clara, May 9, 1990.

"Indoor Air Quality", Presented at the Responsive Energy Technologies Symposium & International Exposition (RETSIE), Santa Clara, CA, June 20, 1990.

"Indoor Air Quality - Management and Control Strategies", Presented at the Association of Energy Engineers, San Francisco Bay Area Chapter Meeting, Berkeley, CA, September 25, 1990.

"Diagnosing Indoor Air Contaminant and Odor Problems", Presented at the ASHRAE Annual Meeting, New York City, NY, January 23, 1991.

"Diagnosing and Treating the Sick Building Syndrome", Presented at the Energy 2001, Oklahoma, OK, March 19, 1991.

"Diagnosing and Mitigating Indoor Air Quality Problems" a workshop presented by the Association of Energy Engineers, Chicago, IL, October 29-30, 1990; New York, NY, January 24-25, 1991; Anaheim, April 25-26, 1991; Boston, MA, June 10-11, 1991; Atlanta, GA, October 24-25, 1991; Chicago, IL, October 3-4, 1991; Las Vegas, NV, December 16-17, 1991; Anaheim, CA, January 30-31, 1992; Atlanta, GA, March 5-6, 1992; Washington, DC, May 7-8, 1992; Chicago, IL, August 19-20, 1992; Las Vegas,

NV, October 1-2, 1992; New York City, NY, October 26-27, 1992, Las Vegas, NV, March 18-19, 1993; Lake Tahoe, CA, July 14-15, 1994; Las Vegas, NV, April 3-4, 1995; Lake Tahoe, CA, July 11-12, 1996; Miami, FL, December 9-10, 1996.

"Sick Building Syndrome and the Ventilation Engineer", Presented to the San Jose Engineers Club, May, 21, 1991.

"Duct Cleaning: Who Needs It ? How Is It Done ? What Are The Costs ?" What Are the Risks ?, Moderator of Forum at the ASHRAE Annual Meeting, Indianapolis ID, June 23, 1991.

"Operating Healthy Buildings", Association of Plant Engineers, Oakland, CA, November 14, 1991.

"Duct Cleaning Perspectives", Moderator of Seminar at the ASHRAE Semi-Annual Meeting, Indianapolis, IN, June 24, 1991.

"Duct Cleaning: The Role of the Environmental Hygienist," ASHRAE Annual Meeting, Anaheim, CA, January 29, 1992.

"Emerging IAQ Issues", Fifth National Conference on Indoor Air Pollution, University of Tulsa, Tulsa, OK, April 13-14, 1992.

"International Symposium on Room Air Convection and Ventilation Effectiveness", Member of Scientific Advisory Board, University of Tokyo, July 22-24, 1992.

"Guidelines for Contaminant Control During Construction and Renovation Projects in Office Buildings," Seminar paper at the ASHRAE Annual Meeting, Chicago, IL, January 26, 1993.

"Outside Air Economizers: IAQ Friend or Foe", Moderator of Forum at the ASHRAE Annual Meeting, Chicago, IL, January 26, 1993.

"Orientation to Indoor Air Quality," an EPA two and one half day comprehensive indoor air quality introductory workshop for public officials and building property managers; Sacramento, September 28-30, 1992; San Francisco, February 23-24, 1993; Los Angeles, March 16-18, 1993; Burbank, June 23, 1993; Hawaii, August 24-25, 1993; Las Vegas, August 30, 1993; San Diego, September 13-14, 1993; Phoenix, October 18-19, 1993; Reno, November 14-16, 1995; Fullerton, December 3-4, 1996; Fresno, May 13-14, 1997.

"Building Air Quality: A Guide for Building Owners and Facility Managers," an EPA one half day indoor air quality introductory workshop for building owners and facility managers. Presented throughout Region IX 1993-1995.

"Techniques for Airborne Disease Control", EPRI Healthcare Initiative Symposium; San Francisco, CA; June 7, 1994.

“Diagnosing and Mitigating Indoor Air Quality Problems”, CIHC Conference; San Francisco, September 29, 1994.

”Indoor Air Quality: Tools for Schools,” an EPA one day air quality management workshop for school officials, teachers, and maintenance personnel; San Francisco, October 18-20, 1994; Cerritos, December 5, 1996; Fresno, February 26, 1997; San Jose, March 27, 1997; Riverside, March 5, 1997; San Diego, March 6, 1997; Fullerton, November 13, 1997; Santa Rosa, February 1998; Cerritos, February 26, 1998; Santa Rosa, March 2, 1998.

ASHRAE 62 Standard “Ventilation for Acceptable IAQ”, ASCR Convention; San Francisco, CA, March 16, 1995.

“New Developments in Indoor Air Quality: Protocol for Diagnosing IAQ Problems”, AIHA-NC; March 25, 1995.

"Experimental Validation of ASHRAE SPC 129, Standard Method of Measuring Air Change Effectiveness", 16th AIVC Conference, Palm Springs, USA, September 19-22, 1995.

“Diagnostic Protocols for Building IAQ Assessment”, American Society of Safety Engineers Seminar: ‘Indoor Air Quality – The Next Door’; San Jose Chapter, September 27, 1995; Oakland Chapter, 9, 1997.

“Diagnostic Protocols for Building IAQ Assessment”, Local 39; Oakland, CA, October 3, 1995.

“Diagnostic Protocols for Solving IAQ Problems”, CSU-PPD Conference; October 24, 1995.

“Demonstrating Compliance with ASHRAE 62-1989 Ventilation Requirements”, AIHA; October 25, 1995.

“IAQ Diagnostics: Hands on Assessment of Building Ventilation and Pollutant Transport”, EPA Region IX; Phoenix, AZ, March 12, 1996; San Francisco, CA, April 9, 1996; Burbank, CA, April 12, 1996.

“Experimental Validation of ASHRAE 129P: Standard Method of Measuring Air Change Effectiveness”, Room Vent ‘96 / International Symposium on Room Air Convection and Ventilation Effectiveness"; Yokohama, Japan, July 16-19, 1996.

“IAQ Diagnostic Methodologies and RFP Development”, CCEHSA 1996 Annual Conference, Humboldt State University, Arcata, CA, August 2, 1996.

“The Practical Side of Indoor Air Quality Assessments”, California Industrial Hygiene Conference ‘96, San Diego, CA, September 2, 1996.

“ASHRAE Standard 62: Improving Indoor Environments”, Pacific Gas and Electric Energy Center, San Francisco, CA, October 29, 1996.

“Operating and Maintaining Healthy Buildings”, April 3-4, 1996, San Jose, CA; July 30, 1997, Monterey, CA.

“IAQ Primer”, Local 39, April 16, 1997; Amdahl Corporation, June 9, 1997; State Compensation Insurance Fund’s Safety & Health Services Department, November 21, 1996.

“Tracer Gas Techniques for Measuring Building Air Flow Rates”, ASHRAE, Philadelphia, PA, January 26, 1997.

“How to Diagnose and Mitigate Indoor Air Quality Problems”; Women in Waste; March 19, 1997.

“Environmental Engineer: What Is It?”, Monte Vista High School Career Day; April 10, 1997.

“Indoor Environment Controls: What’s Hot and What’s Not”, Shaklee Corporation; San Francisco, CA, July 15, 1997.

“Measurement of Ventilation System Performance Parameters in the US EPA BASE Study”, Healthy Buildings/IAQ’97, Washington, DC, September 29, 1997.

“Operations and Maintenance for Healthy and Comfortable Indoor Environments”, PASMA; October 7, 1997.

“Designing for Healthy and Comfortable Indoor Environments”, Construction Specification Institute, Santa Rosa, CA, November 6, 1997.

“Ventilation System Design for Good IAQ”, University of Tulsa 10th Annual Conference, San Francisco, CA, February 25, 1998.

“The Building Shell”, Tools For Building Green Conference and Trade Show, Alameda County Waste Management Authority and Recycling Board, Oakland, CA, February 28, 1998.

“Identifying Fungal Contamination Problems In Buildings”, The City of Oakland Municipal Employees, Oakland, CA, March 26, 1998.

“Managing Indoor Air Quality in Schools: Staying Out of Trouble”, CASBO, Sacramento, CA, April 20, 1998.

“Indoor Air Quality”, CSOOC Spring Conference, Visalia, CA, April 30, 1998.

“Particulate and Gas Phase Air Filtration”, ACGIH/OSHA, Ft. Mitchell, KY, June 1998.

“Building Air Quality Facts and Myths”, The City of Oakland / Alameda County Safety Seminar, Oakland, CA, June 12, 1998.

“Building Engineering and Moisture”, Building Contamination Workshop, University of California Berkeley, Continuing Education in Engineering and Environmental Management, San Francisco, CA, October 21-22, 1999.

“Identifying and Mitigating Mold Contamination in Buildings”, Western Construction Consultants Association, Oakland, CA, March 15, 2000; AIG Construction Defect Seminar, Walnut Creek, CA, May 2, 2001; City of Oakland Public Works Agency, Oakland, CA, July 24, 2001; Executive Council of Homeowners, Alamo, CA, August 3, 2001.

“Using the EPA BASE Study for IAQ Investigation / Communication”, Joint Professional Symposium 2000, American Industrial Hygiene Association, Orange County & Southern California Sections, Long Beach, October 19, 2000.

“Ventilation,” Indoor Air Quality: Risk Reduction in the 21st Century Symposium, sponsored by the California Environmental Protection Agency/Air Resources Board, Sacramento, CA, May 3-4, 2000.

“Workshop 18: Criteria for Cleaning of Air Handling Systems”, Healthy Buildings 2000, Espoo, Finland, August 2000.

“Closing Session Summary: ‘Building Investigations’ and ‘Building Design & Construction’”, Healthy Buildings 2000, Espoo, Finland, August 2000.

“Managing Building Air Quality and Energy Efficiency, Meeting the Standard of Care”, BOMA, MidAtlantic Environmental Hygiene Resource Center, Seattle, WA, May 23rd, 2000; San Antonio, TX, September 26-27, 2000.

“Diagnostics & Mitigation in Sick Buildings: When Good Buildings Go Bad,” University of California Berkeley, September 18, 2001.

“Mold Contamination: Recognition and What To Do and Not Do”, Redwood Empire Remodelers Association, Santa Rosa, CA, April 16, 2002.

“Investigative Tools of the IAQ Trade”, Healthy Indoor Environments 2002; Austin, TX; April 22, 2002.

“Finding Hidden Mold: Case Studies in IAQ Investigations”, AIHA Northern California Professionals Symposium; Oakland, CA, May 8, 2002.

“Assessing and Mitigating Fungal Contamination in Buildings”, Cal/OSHA Training; Oakland, CA, February 14, 2003 and West Covina, CA, February 20-21, 2003.

“Use of External Containments During Fungal Mitigation”, Invited Speaker, ACGIH Mold Remediation Symposium, Orlando, FL, November 3-5, 2003.

Building Operator Certification (BOC), 106-IAQ Training Workshops, Northwest Energy Efficiency Council; Stockton, CA, December 3, 2003; San Francisco, CA, December 9, 2003; Irvine, CA, January 13, 2004; San Diego, January 14, 2004; Irwindale, CA, January 27, 2004; Downey, CA, January 28, 2004; Santa Monica, CA, March 16, 2004; Ontario, CA, March 17, 2004; Ontario, CA, November 9, 2004, San Diego, CA, November 10, 2004; San Francisco, CA, November 17, 2004; San Jose, CA, November 18, 2004; Sacramento, CA, March 15, 2005.

“Mold Remediation: The National QUEST for Uniformity Symposium”, Invited Speaker, Orlando, Florida, November 3-5, 2003.

“Mold and Moisture Control”, Indoor Air Quality workshop for The Collaborative for High Performance Schools (CHPS), San Francisco, December 11, 2003.

“Advanced Perspectives In Mold Prevention & Control Symposium”, Invited Speaker, Las Vegas, Nevada, November 7-9, 2004.

“Building Sciences: Understanding and Controlling Moisture in Buildings”, American Industrial Hygiene Association, San Francisco, CA, February 14-16, 2005.

“Indoor Air Quality Diagnostics and Healthy Building Design”, University of California Berkeley, Berkeley, CA, March 2, 2005.

“Improving IAQ = Reduced Tenant Complaints”, Northern California Facilities Exposition, Santa Clara, CA, September 27, 2007.

“Defining Safe Building Air”, Criteria for Safe Air and Water in Buildings, ASHRAE Winter Meeting, Chicago, IL, January 27, 2008.

“Update on USGBC LEED and Air Filtration”, Invited Speaker, NAFA 2008 Convention, San Francisco, CA, September 19, 2008.

“Ventilation and Indoor air Quality in New California Homes”, National Center of Healthy Housing, October 20, 2008.

“Indoor Air Quality in New Homes”, California Energy and Air Quality Conference, October 29, 2008.

“Mechanical Outdoor air Ventilation Systems and IAQ in New Homes”, ACI Home Performance Conference, Kansas City, MO, April 29, 2009.

“Ventilation and IAQ in New Homes with and without Mechanical Outdoor Air Systems”, Healthy Buildings 2009, Syracuse, CA, September 14, 2009.

“Ten Ways to Improve Your Air Quality”, Northern California Facilities Exposition, Santa Clara, CA, September 30, 2009.

“New Developments in Ventilation and Indoor Air Quality in Residential Buildings”, Westcon meeting, Alameda, CA, March 17, 2010.

“Intermittent Residential Mechanical Outdoor Air Ventilation Systems and IAQ”, ASHRAE SSPC 62.2 Meeting, Austin, TX, April 19, 2010.

“Measured IAQ in Homes”, ACI Home Performance Conference, Austin, TX, April 21, 2010.

“Respiration: IEQ and Ventilation”, AIHce 2010, How IH Can LEED in Green buildings, Denver, CO, May 23, 2010.

“IAQ Considerations for Net Zero Energy Buildings (NZEB)”, Northern California Facilities Exposition, Santa Clara, CA, September 22, 2010.

“Energy Conservation and Health in Buildings”, Berkeley High School Green Career Week, Berkeley, CA, April 12, 2011.

“What Pollutants are Really There ?”, ACI Home Performance Conference, San Francisco, CA, March 30, 2011.

“Energy Conservation and Health in Residences Workshop”, Indoor Air 2011, Austin, TX, June 6, 2011.

“Assessing IAQ and Improving Health in Residences”, US EPA Weatherization Plus Health, September 7, 2011.

“Ventilation: What a Long Strange Trip It’s Been”, Westcon, May 21, 2014.

“Chemical Emissions from E-Cigarettes: Direct and Indirect Passive Exposures”, Indoor Air 2014, Hong Kong, July, 2014.

“Infectious Disease Aerosol Exposures With and Without Surge Control Ventilation System Modifications”, Indoor Air 2014, Hong Kong, July, 2014.

“Chemical Emissions from E-Cigarettes”, IMF Health and Welfare Fair, Washington, DC, February 18, 2015.

“Chemical Emissions and Health Hazards Associated with E-Cigarettes”, Roswell Park Cancer Institute, Buffalo, NY, August 15, 2014.

“Formaldehyde Indoor Concentrations, Material Emission Rates, and the CARB ATCM”, Harris Martin’s Lumber Liquidators Flooring Litigation Conference, WQ Minneapolis Hotel, May 27, 2015.

“Chemical Emissions from E-Cigarettes: Direct and Indirect Passive Exposure”, FDA Public Workshop: Electronic Cigarettes and the Public Health, Hyattsville, MD June 2, 2015.

“Creating Healthy Homes, Schools, and Workplaces”, Chautauqua Institution, Athenaeum Hotel, August 24, 2015.

“Diagnosing IAQ Problems and Designing Healthy Buildings”, University of California Berkeley, Berkeley, CA, October 6, 2015.

“Diagnosing Ventilation and IAQ Problems in Commercial Buildings”, BEST Center Annual Institute, Lawrence Berkeley National Laboratory, January 6, 2016.

“A Review of Studies of Ventilation and Indoor Air Quality in New Homes and Impacts of Environmental Factors on Formaldehyde Emission Rates From Composite Wood Products”, AIHce2016, May, 21-26, 2016.

“Admissibility of Scientific Testimony”, Science in the Court, Proposition 65 Clearinghouse Annual Conference, Oakland, CA, September 15, 2016.

“Indoor Air Quality and Ventilation”, ASHRAE Redwood Empire, Napa, CA, December 1, 2016.

EXHIBIT B

Shawn Smallwood, PhD
3108 Finch Street
Davis, CA 95616

City of Los Angeles
Department of City Planning
221 N. Figueroa St., Room 1350
Los Angeles, CA 90012

19 April 2020

RE: 3440 Wilshire Project

To Whom It May Concern,

I write to comment on the City of Los Angeles (2016) Initial Study and Negative Declaration (IS/MND) prepared for the 3440 Wilshire Project, which I understand would add 1,472,509 ft² of floor space between a 23-story building and a 28-story building, and including 10,738 ft² of commercial floor space and 839 residential units on 7.36 acres of land. I estimate the project's façades would support about 24,000 m² of glass windows and balcony rails, which would pose collision hazards to birds. Adding to the collision hazards would be the abundant use of window recessing, over-window balconies, between-building interior space, and use of transparent glass and abundant interior lighting at night. I write to comment on bird-window collisions that would result from this project – a type of impact that is not addressed in the IS/MND.

My qualifications for preparing expert comments are the following. I hold a Ph.D. degree in Ecology from University of California at Davis, where I subsequently worked for four years as a post-graduate researcher in the Department of Agronomy and Range Sciences. My research has been on animal density and distribution, habitat selection, habitat restoration, interactions between wildlife and human infrastructure and activities, conservation of rare and endangered species, and on the ecology of invading species. I perform research on wildlife mortality caused by wind turbines, electric distribution lines, agricultural practices, and road traffic. I authored numerous papers on special-status species issues, including "Using the best scientific data for endangered species conservation" (Smallwood et al. 1999), and "Suggested standards for science applied to conservation issues" (Smallwood et al. 2001). I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and the Raptor Research Foundation, and I've been a part-time lecturer at California State University, Sacramento. I was Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation, and I was on the Editorial Board of Environmental Management. I have performed wildlife surveys in California for thirty-three years, including at many proposed project sites. My CV is attached.

BIOLOGICAL IMPACTS ASSESSMENT

I disagree with the determinations of ‘No Impact’ to Initial Study questions 4a and 4d made by City of Los Angeles (2016). City of Los Angeles reasoned that special-status species do not occur in the urbanized landscape of the City, so the proposed project would risk no significant impacts to special-status species of wildlife. The City further reasoned that the urbanized location of the project does not support a wildlife movement corridor, so the project would risk no significant impacts to wildlife movement. However, whether a site supports a wildlife movement corridor is not the standard at issue with Initial Study question 4d; rather, it is whether the project would interfere with wildlife movement. City of Los Angeles apparently neglected to consider that birds fly. Birds fly to forage, defend territories, disperse, and migrate. Birds, including special-status species of birds, inhabit the airspaces of Los Angeles, some as residents of Los Angeles and others as dispersers or migrants. Inserting two high-rises into the airspaces used by birds would interfere with wildlife movement while also killing many birds. Collision mortality would be worsened by constructing two high-rises as planned – high-rises composed of glass façades.

City of Los Angeles (2016) mischaracterizes bird occurrences in the urban environment of Los Angeles. Based on recent eBird records, 44 special-status species of birds have been documented right around the site of the proposed project (Table 1). Fifteen of these species have been known to collide with windows (Table 1). Many of these species are undoubtedly already experiencing annual mortality caused by window collisions in Los Angeles, but the proposed new project would substantially add window-collision hazards to birds flying over Los Angeles. A fair argument can be made for the need to prepare an EIR to assess project impacts from bird-window collisions, and to formulate appropriate mitigation.

WINDOW COLLISIONS

Recent advances in structural glass engineering have contributed to a proliferation of glass windows on building façades. This proliferation is readily observable in newer buildings and in recent project planning documents, and it is represented by a worldwide 20% increase in glass manufacturing for building construction since 2016. Increasing window to wall ratios and glass façades have become popular for multiple reasons, including a growing demand for ‘daylighting.’ Not only is glass a major feature of the Project, but depictions of the project are of buildings gleaming in transparent glass in daylight and lit from the interior in the evening hours (IS/MND Appendix A updated in January 2020).

The IS/MND has not been prepared with the benefit of survey visits by wildlife biologists, so it inadequately informs the public about avian use of the area. Surveys are needed to learn how many of each bird species fly through the area and at what times of day (and night). Nocturnal surveys can be performed using a thermal-imaging camera or radar. Such surveys would inform of collision risk, and could inform mitigation strategies involving interior light management and design modifications to facades facing the prevailing approach directions of migrating birds. Below I review the bird-

window collision issue, hypothesized causal factors and recommended mitigation solutions. I also predict bird-window collision rates based on studies performed across the USA at structures ranging widely in height, window-to-wall ratio, types of glass, orientation, and structural context. My aim is to make a robust prediction from this range of study conditions, and to present the associated large confidence interval that I believe is appropriate in the face of uncertainty over how many birds fly through the project area and what proportion of the birds are more susceptible than others to window collision.

Glass-façades of buildings intercept and kill many birds, but these façades are differentially hazardous to birds based on spatial extent, contiguity, orientation, and other factors. At Washington State University, Johnson and Hudson (1976) found 266 bird fatalities of 41 species within 73 months of monitoring of a three-story glass walkway (no fatality adjustments attempted). Prior to marking the windows to warn birds of the collision hazard, the collision rate was 84.7 per year. At that rate, and not attempting to adjust the fatality estimate for the proportion of fatalities not found, 4,235 birds were likely killed over the 50 years since the start of their study, and that's at a relatively small building façade (Figure 1). Accounting for the proportion of fatalities not found, the number of birds killed by this walkway over the last 50 years would have been about 12,705. And this is just for one 3-story, glass-sided walkway between two college campus buildings.

Figure 1. *A walkway connecting two buildings at Washington State University where one of the earliest studies of bird collision mortality found 85 bird fatalities per year prior to marking windows (254 annual deaths adjusted for the proportion not found). Given that the window markers have long since disappeared, this walkway has likely killed at least 12,705 birds since 1968, and continues to kill birds. Notice that the transparent glass on both sides of the walkway gives the impression of unimpeded airspace that can be navigated safely by birds familiar with flying between tree branches. Also note the reflected images of trees, which can mislead birds into seeing safe perch sites. Further note the distances of ornamental trees, which allow birds taking off from those trees to reach full speed upon arrival at the windows.*



Table 1. Reports of special-status species occurrences within close proximity of the proposed project site.

Common name	Species name	Status	eBird post(s)	Known window collision fatalities
California gull	<i>Larus californicus</i>	TWL	Nearby	
Caspian tern	<i>Hydroprogne caspia</i>	BCC	Nearby	
Turkey vulture	<i>Cathartes aura</i>	FGC 3503.5	Nearby	
Osprey	<i>Pandion haliaetus</i>	TWL, FGC 3503.5	Nearby	
Swainson's hawk	<i>Buteo swainsoni</i>	CT, FGC 3503.5	Nearby	
Red-tailed hawk	<i>Buteo jamaicensis</i>	FGC 3503.5	Adjacent	Yes
Red-shouldered hawk	<i>Buteo lineatus</i>	FGC 3503.5	Nearby	Yes
Northern harrier	<i>Circus cyaneus</i>	SSC3, FGC 3503.5	Nearby	
White-tailed kite	<i>Elanus leucurus</i>	CFP, FGC 3503.5	Regional	
Sharp-shinned hawk	<i>Accipiter striatus</i>	FGC 3503.5	Nearby	Yes
Cooper's hawk	<i>Accipiter cooperi</i>	FGC 3503.5	Nearby	Yes
American kestrel	<i>Falco sparverius</i>	FGC 3503.5	Nearby	Yes
Merlin	<i>Falco columbarius</i>	FGC 3503.5	Adjacent	Yes
Prairie falcon	<i>Falco mexicanus</i>	FGC 3503.5	Regional	
Peregrine falcon	<i>Falco peregrinus</i>	CE, CFP, FGC 3503.5	Nearby	Yes
Barn owl	<i>Tyto alba</i>	FGC 3503.5	Nearby	
Great-horned owl	<i>Bubo virginianus</i>	FGC 3503.5	Nearby	
Burrowing owl	<i>Athene cunicularia</i>	BCC, SSC2, FGC 3503.5	Nearby	
Western screech-owl	<i>Megascops kennicottii</i>	FGC 3503.5	Nearby	
Vaux's swift	<i>Chaetura vauxi</i>	SCC2	Nearby	
Black swift	<i>Cypseloides niger</i>	SSC3	Nearby	
Allen's hummingbird	<i>Selasphorus sasin</i>	BCC	Nearby	Yes
Costa's hummingbird	<i>Calypte costae</i>	BCC	Nearby	Yes
Nuttall's woodpecker	<i>Picoides nuttallii</i>	BCC	Nearby	
Lewis's woodpecker	<i>Melanerpes lewis</i>	BCC	Regional	
Horned lark	<i>Eremophila alpestris actia</i>	TWL	Regional	
California gnatcatcher	<i>Polioptila c. californica</i>	FT, SSC	Regional	
Willow flycatcher	<i>Empidonax trailii</i>	FE, CE	Nearby	
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	SSC2	Nearby	
Olive-sided flycatcher	<i>Contopus cooperi</i>	SSC2	Nearby	

Common name	Species name	Status	eBird post(s)	Known window collision fatalities
Purple martin	<i>Progne subis</i>	SSC2	Nearby	Yes
Oak titmouse	<i>Baeolophus inornatus</i>	BCC	Nearby	Yes
Loggerhead shrike	<i>Lanius ludovicianus</i>	BCC, SSC2	Nearby	
Least Bell's vireo	<i>Vireo belli pusillus</i>	FE, CE	Regional	
Yellow warbler	<i>Setophaga petechia</i>	SSC2	Nearby	Yes
Yellow-breasted chat	<i>Icteria virens</i>	SSC3	Nearby	Yes
Summer tanager	<i>Piranga rubra</i>	SSC1	Nearby	Yes
Bell's sage sparrow	<i>Amphispiza b. belli</i>	TWL	Regional	
Oregon vesper sparrow	<i>Poocetes gramineus affinis</i>	SSC2	Regional	
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC2	Regional	Yes
Southern California rufous-crowned sparrow	<i>Aimophila ruficeps canescens</i>	BCC, SSC	Nearby	
Tricolored blackbird	<i>Agelaius tricolor</i>	CT, BCC	Nearby	
Yellow-headed blackbird	<i>X. xanthocephalus</i>	SSC3	Regional	
Lawrence's goldfinch	<i>Spinus lawrencei</i>	BCC	Nearby	

¹ Listed as FE and FT = federal endangered and threatened species, BCC = U.S. Fish and Wildlife Service Bird Species of Conservation Concern, CE and CT = California endangered and threatened species, SSC = California species of special concern (not threatened with extinction, but rare, very restricted in range, declining throughout range, peripheral portion of species' range, associated with habitat that is declining in extent), CFP = California Fully Protected (CDFW Code 3511), FGC 3503.5 = California Department of Fish and Wildlife Code 3503.5 (Birds of prey), and SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3, respectively (Shuford and Gardali 2008), and TWL = Taxa to Watch List (Shuford and Gardali 2008).

Window collisions are often characterized as either the second or third largest source or human-caused bird mortality. The numbers behind these characterizations are often attributed to Klem's (1990) and Dunn's (1993) estimates of about 100 million to 1 billion bird fatalities in the USA, or more recently Loss et al.'s (2014) estimate of 365-988 million bird fatalities in the USA or Calvert et al.'s (2013) and Machtans et al.'s (2013) estimates of 22.4 million and 25 million bird fatalities in Canada, respectively. However, these estimates and their interpretation warrant examination because they were based on opportunistic sampling, volunteer study participation, and fatality monitoring by more inexperienced than experienced searchers.

Klem's (1990) estimate was based on speculation that 1 to 10 birds are killed per building per year, and this speculated range was extended to the number of buildings estimated by the US Census Bureau in 1986. Klem's speculation was supported by fatality monitoring at only two houses, one in Illinois and the other in New York. Also, the basis of his fatality rate extension has changed greatly since 1986. Whereas his estimate served the need to alert the public of the possible magnitude of the bird-window collision issue, it was highly uncertain at the time and undoubtedly outdated more than three decades hence. Indeed, by 2010 Klem (2010) characterized the upper end of his estimated range – 1 billion bird fatalities – as conservative. Furthermore, the estimate lumped species together as if all birds are the same and the loss of all birds to windows has the same level of impact.

Homes with birdfeeders are associated with higher rates of window collisions than are homes without birdfeeders (Kummer and Bayne 2015, Kummer et al. 2016a), so the developed area might pose even greater hazard to birds if it includes numerous birdfeeders. Another factor potentially biasing national or North American estimates low was revealed by Bracey et al.'s (2016) finding that trained fatality searchers found 2.6× the number of fatalities found by homeowners on the days when both trained searchers and homeowners searched around homes. The difference in carcass detection was 30.4-fold when involving carcasses volitionally placed by Bracey et al. (2016) in blind detection trials. This much larger difference in trial carcass detection rates likely resulted because their placements did not include the sounds that typically alert homeowners to actual window collisions, but this explanation also raises the question of how often homeowner participants with such studies miss detecting window-caused fatalities because they did not hear the collisions.

By the time Loss et al. (2014) performed their effort to estimate annual USA bird-window fatalities, many more fatality monitoring studies had been reported or were underway. Loss et al. (2014) were able to incorporate many more fatality rates based on scientific monitoring, and they were more careful about which fatality rates to include. However, they included estimates based on fatality monitoring by homeowners, which in one study were found to detect only 38% of the available window fatalities (Bracey et al. 2016). Loss et al. (2014) excluded all fatality records lacking a dead bird in hand, such as injured birds or feather or blood spots on windows. Loss et al.'s (2014) fatality metric was the number of fatalities per building (where in this context a building can include a house, low-rise, or high-rise structure), but they assumed that this metric was based on window collisions. Because most of the bird-window collision studies were

limited to migration seasons, Loss et al. (2014) developed an admittedly assumption-laden correction factor for making annual estimates. Also, only 2 of the studies included adjustments for carcass persistence and searcher detection error, and it was unclear how and to what degree fatality rates were adjusted for these factors. Although Loss et al. (2014) attempted to account for some biases as well as for large sources of uncertainty mostly resulting from an opportunistic rather than systematic sampling data source, their estimated annual fatality rate across the USA was highly uncertain and vulnerable to multiple biases, most of which would have resulted in fatality estimates biased low.

In my review of bird-window collision monitoring, I found that the search radius around homes and buildings was very narrow, usually 2 meters. Based on my experience with bird collisions in other contexts, I would expect that a large portion of bird-window collision victims would end up farther than 2 m from the windows, especially when the windows are higher up on tall buildings. In my experience, searcher detection rates tend to be low for small birds deposited on ground with vegetation cover or woodchips or other types of organic matter. Also, vertebrate scavengers entrain on anthropogenic sources of mortality and quickly remove many of the carcasses, thereby preventing the fatality searcher from detecting these fatalities. Adjusting fatality rates for these factors – search radius bias, searcher detection error, and carcass persistence rates – would greatly increase nationwide estimates of bird-window collision fatalities.

Buildings can intercept many nocturnal migrants as well as birds flying in daylight. As mentioned above, Johnson and Hudson (1976) found 266 bird fatalities of 41 species within 73 months of monitoring of a four-story glass walkway at Washington State University (no adjustments attempted). Somerlot (2003) found 21 bird fatalities among 13 buildings on a university campus within only 61 days. Monitoring twice per week, Hager et al. (2008) found 215 bird fatalities of 48 species, or 55 birds/building/year, and at another site they found 142 bird fatalities of 37 species for 24 birds/building/year. Gelb and Delacretaz (2009) recorded 5,400 bird fatalities under buildings in New York City, based on a decade of monitoring only during migration periods, and some of the high-rises were associated with hundreds of fatalities each. Klem et al. (2009) monitored 73 building façades in New York City during 114 days of two migratory periods, tallying 549 collision victims, nearly 5 birds per day. Borden et al. (2010) surveyed a 1.8 km route 3 times per week during 12-month period and found 271 bird fatalities of 50 species. Parkins et al. (2015) found 35 bird fatalities of 16 species within only 45 days of monitoring under 4 building façades. From 24 days of survey over a 48 day span, Porter and Huang (2015) found 47 fatalities under 8 buildings on a university campus. Sabo et al. (2016) found 27 bird fatalities over 61 days of searches under 31 windows. In San Francisco, Kahle et al. (2016) found 355 collision victims within 1,762 days under a 5-story building. Ocampo-Peñuela et al. (2016) searched the perimeters of 6 buildings on a university campus, finding 86 fatalities after 63 days of surveys. One of these buildings produced 61 of the 86 fatalities, and another building with collision-deterrent glass caused only 2 of the fatalities, thereby indicating a wide range in impacts likely influenced by various factors. There is ample evidence available to support my prediction that the proposed project would result in many collision fatalities of birds.

Project Impact Prediction

Predicting the number of bird collisions at a new project is challenging because the study of window collisions remains in its early stages. Researchers have yet to agree on a collision rate metric. Some have reported findings as collisions per building per year and some as collisions per building per day. Some have reported findings as collisions per m² of window. The problem with the temporal factor in the collision rate metrics has been monitoring time spans varying from a few days to 10 years, and even in the case of the 10-year span, monitoring was largely restricted to spring and fall migration seasons. Short-term monitoring during one or two seasons of the year cannot represent a 'year,' but monitoring has rarely spanned a full year. Using 'buildings' in the metric treats buildings as all the same size, when we know they are not. Using square meters of glass in the metric treats glass as the only barrier upon which birds collide against a building's façade, when we know it is not. It also treats all glass as equal, even though we know that collision risk varies by type of glass as well as multiple factors related to contextual settings.

Without the benefit of more advanced understanding of window collision factors, my prediction of project impacts will be uncertain. Klem's (1990) often-cited national estimate of avian collision rate relied on an assumed average collision rate of 1 to 10 birds per building per year, but studies since then have all reported higher rates of collisions 12 to 352 birds per building per year. Because the more recent studies were likely performed at buildings known or suspected to cause many collisions, collision rates from them could be biased high. By the time of these comments I had reviewed and processed results of bird collision monitoring at 181 buildings and façades for which bird collisions per m² of glass per year could be calculated and averaged (Johnson and Hudson 1976, O'Connell 2001, Somerlot 2003, Hager et al. 2008, Borden et al. 2010, Hager et al. 2013, Porter and Huang 2015, Parkins et al. 2015, Kahle et al. 2016, Ocampo-Peñuela et al. 2016, Sabo et al. 2016, Barton et al. 2017, Schneider et al. 2018). These study results averaged 0.077 bird deaths per m² of glass per year (95% CI: 0.04-0.11). Looking over the proposed building design, I estimated the buildings would include at least 24,000 m² of glass windows, which applied to the mean fatality rate would predict **1,848 bird deaths per year (95% CI: 960-2,640)** at the buildings. The 50-year toll from this average annual fatality rate would be 92,400 bird deaths (95% CI: 48,000-132,000), which would continue until the buildings are either renovated to reduce bird collisions or they come down. The vast majority of these deaths would be of birds newly protected under Fish and Game Code section 3513, which was amended by Governor Newsom's signing of AB 454 on 27 September 2019 to reinstate as state law the recently repealed federal Migratory Bird Treaty Act. If the project moves forward as proposed, and annually kills hundreds of birds protected by AB 454, the project will cause significant unmitigated impacts.

As mentioned earlier, the accuracy of my window collision predictions depends on factors known or hypothesized to affect window collision rates. However, from the national average collision rate, I used all the variation in collision rates that was available and which resulted from a wide range in building height, type of glass, indoor and outdoor landscaping, interior light management, window to wall ratio, and

structural context of the façade. This variation contributed to a robust bird-window collision rate represented by a wide 95% confidence interval. According to the confidence interval, which again was based on the wide range of conditions in the underlying data, the proposed project built as designed at 100 locations would be predicted to kill between 960 and 2,640 birds per year at 95 of those 100 locations, leaving the other 5 to kill birds at rates either lower or higher than this range. Even at the low end of the interval, the death toll would be excessive, amounting to 48,000 bird deaths over 50 years. This impact would be significant, especially considering that the predicted fatality rate can be prevented by implementing appropriate mitigation measures. A fair argument can be made for the need to prepare an EIR to assess project impacts from bird-window collisions, and to formulate appropriate mitigation.

Below I will discuss hypothesized bird-window collision factors, and I will recommend mitigation measures.

Bird-Window Collision Factors

Below is a list of collision factors I found in the scientific literature. Following this list are specific notes and findings taken from the literature and my own experience.

- (1) Inherent hazard of a structure in the airspace used for nocturnal migration or other flights
- (2) Window transparency, falsely revealing passage through structure or to indoor plants
- (3) Window reflectance, falsely depicting vegetation, competitors, or open airspace
- (4) Black hole or passage effect
- (5) Window or façade extent, or proportion of façade consisting of window or other reflective surface
- (6) Size of window
- (7) Type of glass
- (8) Lighting, which is correlated with window extent and building operations
- (9) Height of structure (collision mechanisms shift with height above ground)
- (10) Orientation of façade with respect to winds and solar exposure
- (11) Structural layout causing confusion and entrapment
- (12) Context in terms of urban-rural gradient, or surrounding extent of impervious surface vs vegetation
- (13) Height, structure, and extent of vegetation grown near home or building
- (14) Presence of birdfeeders or other attractants
- (15) Relative abundance
- (16) Season of the year
- (17) Ecology, demography and behavior
- (18) Predatory attacks or cues provoking fear of attack
- (19) Aggressive social interactions

(1) Inherent hazard of structure in airspace.—Not all of a structure's collision risk can be attributed to windows. Overing (1938) reported 576 birds collided with the Washington Monument in 90 minutes on one night, 12 September 1937. The average annual fatality

count had been 328 birds from 1932 through 1936. Gelb and Delacretaz (2009) and Klem et al. (2009) also reported finding collision victims at buildings lacking windows, although many fewer than they found at buildings fitted with windows. The takeaway is that any building going up at the project site would likely kill birds, although the impacts of a glass-sided building would likely be much greater.

(2) Window transparency.—Widely believed as one of the two principal factors contributing to avian collisions with buildings is the transparency of glass used in windows on the buildings (Klem 1989). Gelb and Delacretaz (2009) felt that many of the collisions they detected occurred where transparent windows revealed interior vegetation.

(3) Window reflectance.—Widely believed as one of the two principal factors contributing to avian collisions with buildings is the reflectance of glass used in windows on the buildings (Klem 1989). Reflectance can deceptively depict open airspace, vegetation as habitat destination, or competitive rivals as self-images (Klem 1989). Gelb and Delacretaz (2009) felt that many of the collisions they detected occurred toward the lower parts of buildings where large glass exteriors reflected outdoor vegetation. Klem et al. (2009) and Borden et al. (2010) also found that reflected outdoor vegetation associated positively with collisions.

(4) Black hole or passage effect.—Although this factor was not often mentioned in the bird-window collision literature, it was suggested in Sheppard and Phillips (2015). The black hole or passage effect is the deceptive appearance of a cavity or darkened ledge that certain species of bird typically approach with speed when seeking roosting sites. The deception is achieved when shadows from awnings or the interior light conditions give the appearance of cavities or protected ledges. This factor appears potentially to be nuanced variations on transparency or reflectance or possibly an interaction effect of both of these factors.

(5) Window or façade extent.—Klem et al. (2009), Borden et al. (2010), Hager et al. (2013), and Ocampo-Peñuela et al. (2016) reported increased collision fatalities at buildings with larger reflective façades or higher proportions of façades composed of windows. However, Porter and Huang (2015) found a negative relationship between fatalities found and proportion of façade that was glazed.

(6) Size of window.—According to Kahle et al. (2016), collision rates were higher on large-pane windows compared to small-pane windows.

(7) Type of glass.—Klem et al. (2009) found that collision fatalities associated with the type of glass used on buildings. Otherwise, little attention has been directed towards the types of glass in buildings.

(8) Lighting.—Parkins et al. (2015) found that light emission from buildings correlated positively with percent glass on the façade, suggesting that lighting is linked to the extent of windows. Zink and Eckles (2010) reported fatality reductions, including an 80% reduction at a Chicago high-rise, upon the initiation of the Lights-out Program.

However, Zink and Eckles (2010) provided no information on their search effort, such as the number of searches or search interval or search area around each building.

(9) Height of structure.—I found little if any hypothesis-testing related to building height, including whether another suite of factors might relate to collision victims of high-rises. Are migrants more commonly the victims of high-rises or of smaller buildings?

(10) Orientation of façade.—Some studies tested façade orientation, but not convincingly. Confounding factors such as the extent and types of windows would require large sample sizes of collision victims to parse out the variation so that some portion of it could be attributed to orientation of façade. Whether certain orientations cause disproportionately stronger or more realistic-appearing reflections ought to be testable through measurement, but counting dead birds under façades of different orientations would help.

(11) Structural layout.—Bird-safe building guidelines have illustrated examples of structural layouts associated with high rates of bird-window collisions, but little attention has been directed towards hazardous structural layouts in the scientific literature. An exception was Johnson and Hudson (1976), who found high collision rates at 3 stories of glassed-in walkways atop an open breezeway, located on a break in slope with trees on one side of the structure and open sky on the other, Washington State University.

(12) Context in urban-rural gradient.—Numbers of fatalities found in monitoring have associated negatively with increasing developed area surrounding the building (Hager et al. 2013), and positively with more rural settings (Kummer et al. 2016a).

(13) Height, structure and extent of vegetation near building.—Correlations have sometimes been found between collision rates and the presence or extent of vegetation near windows (Hager et al. 2008, Borden et al. 2010, Kummer et al. 2016a, Ocampo-Peñuela et al. 2016). However, Porter and Huang (2015) found a negative relationship between fatalities found and vegetation cover near the building. In my experience, what probably matters most is the distance from the building that vegetation occurs. If the vegetation that is used by birds is very close to a glass façade, then birds coming from that glass will be less likely to attain sufficient speed upon arrival at the façade to result in a fatal injury. Too far away and there is probably no relationship. But 30 to 50 m away, birds alighting from vegetation can attain lethal speeds by the time they arrive at the windows.

(14) Presence of birdfeeders.—Dunn (1993) reported a weak correlation ($r = 0.13$, $P < 0.001$) between number of birds killed by home windows and the number of birds counted at feeders. However, Kummer and Bayne (2015) found that experimental installment of birdfeeders at homes increased bird collisions with windows 1.84-fold.

(15) Relative abundance.—Collision rates have often been assumed to increase with local density or relative abundance (Klem 1989), and positive correlations have been

measured (Dunn 1993, Hager et al. 2008). However, Hager and Craig (2014) found a negative correlation between fatality rates and relative abundance near buildings.

(16) Season of the year.—Borden et al. (2010) found 90% of collision fatalities during spring and fall migration periods. The significance of this finding is magnified by 7-day carcass persistence rates of 0.45 and 0.35 in spring and fall, rates which were considerably lower than during winter and summer (Hager et al. 2012). In other words, the concentration of fatalities during migration seasons would increase after applying seasonally-explicit adjustments for carcass persistence. Fatalities caused by collisions into the glass façades of the project's building would likely be concentrated in fall and spring migration periods.

(17) Ecology, demography and behavior.—Klem (1989) noted that certain types of birds were not found as common window-caused fatalities, including soaring hawks and waterbirds. Cusa et al. (2015) found that species colliding with buildings surrounded by higher levels of urban greenery were foliage gleaners, and species colliding with buildings surrounded by higher levels of urbanization were ground foragers. Sabo et al. (2016) found no difference in age class, but did find that migrants are more susceptible to collision than resident birds.

(18) Predatory attacks.—Panic flights caused by raptors were mentioned in 16% of window strike reports in Dunn's (1993) study. I have witnessed Cooper's hawks chasing birds into windows, including house finches next door to my home and a northern mockingbird chased directly into my office window. Predatory birds likely to collide with the project's windows would include Peregrine falcon, red-shouldered hawk, Cooper's hawk, and sharp-shinned hawk.

(19) Aggressive social interactions.—I found no hypothesis-testing of the roles of aggressive social interactions in the literature other than the occasional anecdotal account of birds attacking their self-images reflected from windows. However, I have witnessed birds chasing each other and sometimes these chases resulting in one of the birds hitting a window.

Window Collision Solutions

Given the magnitude of bird-window collision impacts, there are obviously great opportunities for reducing and minimizing these impacts going forward. Existing structures can be modified or retrofitted to reduce impacts, and proposed new structures can be more carefully sited, designed, and managed to minimize impacts. However, the costs of some of these measures can be high and can vary greatly, but most importantly the efficacies of many of these measures remain uncertain. Both the costs and effectiveness of all of these measures can be better understood through experimentation and careful scientific investigation. **Post-construction fatality monitoring should be an essential feature of any new building project.** Below is a listing of mitigation options, along with some notes and findings from the literature.

Any new project should be informed by preconstruction surveys of daytime and nocturnal flight activity. Such surveys can reveal the one or more façades facing the prevailing approach direction of birds, and these revelations can help prioritize where certain types of mitigation can be targeted. It is critical to formulate effective measures prior to construction, because post-construction options will be limited, likely more expensive, and probably less effective.

(1) Retrofitting to reduce impacts

- (1A) Marking windows
- (1B) Managing outdoor landscape vegetation
- (1C) Managing indoor landscape vegetation
- (1D) Managing nocturnal lighting

(1A) Marking windows.—Whereas Klem (1990) found no deterrent effect from decals on windows, Johnson and Hudson (1976) reported a fatality reduction of about 69% after placing decals on windows. In an experiment of opportunity, Ocampo-Peñuela et al. (2016) found only 2 of 86 fatalities at one of 6 buildings – the only building with windows treated with a bird deterrent film. At the building with fritted glass, bird collisions were 82% lower than at other buildings with untreated windows. Kahle et al. (2016) added external window shades to some windowed façades to reduce fatalities 82% and 95%. Many external and internal glass markers have been tested experimentally, some showing no effect and some showing strong deterrent effects (Klem 1989, 1990, 2009, 2011; Klem and Saenger 2013; Rössler et al. 2015).

Following up on the results of Johnson and Hudson (1976), I decided to mark windows of my home, where I have documented 5 bird collision fatalities between the time I moved in and 6 years later. I marked my windows with decals delivered to me via US Postal Service from a commercial vendor. I have documented no fatalities at my windows during the 8 years hence. On 8 December 2018, I photographed a ruby-crowned kinglet pulling up short of my window (Figure 2), right at one of my installed markers. In my assessment, markers can be effective in some situations.

Figure 2. *Ruby-crowned kinglet puts on the brakes in front of a decal I applied to mark windows of my home, 8 December 2018. This window killed birds prior to marking, but I have found no window collision victims since marking the windows. Windows with attractive built-in marking are commercially available.*



(2) Siting and Designing to minimize impacts

- (2A) Deciding on location of structure
- (2B) Deciding on façade and orientation
- (2C) Selecting type and sizes of windows
- (2D) Designing to minimize transparency through two parallel façades
- (2E) Designing to minimize views of interior plants
- (2F) Landscaping to increase distances between windows and trees and shrubs

(3) Monitoring for adaptive management to reduce impacts

- (3A) Systematic monitoring for fatalities to identify seasonal and spatial patterns
- (3B) Adjust light management, window marking and other measures as needed.

Guidelines on Building Design

If the project goes forward, it should at a minimum adhere to available guidelines on building design intended to minimize collision hazards to birds. The American Bird Conservancy (ABC) produced an excellent set of guidelines recommending actions to: (1) Minimize use of glass; (2) Placing glass behind some type of screening (grilles, shutters, exterior shades); (3) Using glass with inherent properties to reduce collisions, such as patterns, window films, decals or tape; and (4) Turning off lights during migration seasons (Sheppard and Phillips 2015). The City of San Francisco (San Francisco Planning Department 2011) also has a set of building design guidelines, based on the excellent guidelines produced by the New York City Audubon Society (Orff et al. 2007). The ABC document and both the New York and San Francisco documents provide excellent alerting of potential bird-collision hazards as well as many visual examples. The San Francisco Planning Department's (2011) building design guidelines are more comprehensive than those of New York City, but they could have gone further. For example, the San Francisco guidelines probably should have also covered scientific monitoring of impacts as well as compensatory mitigation for impacts that could not be avoided, minimized or reduced. Monitoring and the use of compensatory mitigation should be incorporated at any new building project because the measures recommended in the available guidelines remain of uncertain effectiveness, and even if these measures are effective, they will not reduce collision fatalities to zero. The only way to assess effectiveness and to quantify post-construction fatalities is to monitor the project for fatalities.

CUMULATIVE IMPACTS

City of Los Angeles (2016) denies that wildlife habitat occurs in the City. The IS/MND therefore provides no analysis of cumulative impacts on birds caused by window collisions in the City, nor any analysis of the proposed project's contribution to cumulative impacts of window collisions. This missing analysis is a critical shortfall, because bird abundance across North America has declined 29% over the last 48 years (Rosenberg et al. 2019). The proposed project alone is predicted to kill 1,848 bird deaths per year (95% CI: 960-2,640), which would add to many thousands more killed by windows in Los Angeles. City of Los Angeles needs to provide an estimate of the extent of windows already constructed, as well as an estimate of projected future extent

of windows in the City. From such estimates, the City's cumulative toll on birds colliding with windows can be estimated.

Given the predicted avian death toll resulting from the project, and the obvious need for a cumulative effects analysis, a fair argument can be made for the need to prepare an EIR to assess project impacts and formulate appropriate mitigation.

MITIGATION

Bird surveys need to be performed to adequately characterize flight patterns across the project area. These surveys need to inform an EIR, which should require adherence to the available guidelines on minimizing bird-window collisions (see earlier comments). Compensatory mitigation should be formulated for those collision fatalities that cannot be avoided through implementation of guidelines. Unavoidable collision fatalities should be measured through two or more years of post-construction fatality monitoring, and the EIR should tie levels of compensatory mitigation to threshold fatality rates.

Fund Wildlife Rehabilitation Facilities

Compensatory mitigation ought also to include funding contributions to wildlife rehabilitation facilities to cover the costs of injured animals that will be delivered to these facilities for care. Most of the wildlife injuries will likely be caused by window collisions. But the project's impacts can also be offset by funding the treatment of injuries to animals caused by other buildings, electric lines, cars, and house cats.

Thank you for your attention,



Shawn Smallwood, Ph.D.

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Curriculum Vitae

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Born May 3, 1963 in
Sacramento, California.
Married, father of two.

Ecologist

Expertise

- Finding solutions to controversial problems related to wildlife interactions with human industry, infrastructure, and activities;
- Wildlife monitoring and field study using GPS, thermal imaging, behavior surveys;
- Using systems analysis and experimental design principles to identify meaningful ecological patterns that inform management decisions.

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 477 professional publications, including:
 - 81 peer reviewed publications
 - 24 in non-reviewed proceedings
- 370 reports, declarations, posters and book reviews
- 8 in mass media outlets
- 87 public presentations of research results at meetings
- Reviewed many professional papers and reports
- Testified in 4 court cases.

Editing for scientific journals: Guest Editor, *Wildlife Society Bulletin*, 2012-2013, of invited papers representing international views on the impacts of wind energy on wildlife and how to mitigate the impacts. Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007. Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004. Associate Editor, *Biological Conservation*, 9/1994 to 9/1995.

Member, Alameda County Scientific Review Committee (SRC), August 2006 to April 2011. The

five-member committee investigated causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and recommended mitigation and monitoring measures. The SRC reviewed the science underlying the Alameda County Avian Protection Program, and advised the County on how to reduce wildlife fatalities.

Consulting Ecologist, 2004-2007, California Energy Commission (CEC). Provided consulting services as needed to the CEC on renewable energy impacts, monitoring and research, and produced several reports. Also collaborated with Lawrence-Livermore National Lab on research to understand and reduce wind turbine impacts on wildlife.

Consulting Ecologist, 1999-2013, U.S. Navy. Performed endangered species surveys, hazardous waste site monitoring, and habitat restoration for the endangered San Joaquin kangaroo rat, California tiger salamander, California red-legged frog, California clapper rail, western burrowing owl, salt marsh harvest mouse, and other species at Naval Air Station Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; National Radio Transmitter Facility, Dixon; and, Naval Outlying Landing Field Imperial Beach.

Fulbright Research Fellow, Indonesia, 1988. Tested use of new sampling methods for numerical monitoring of Sumatran tiger and six other species of endemic felids, and evaluated methods used by other researchers.

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EXHIBIT C



Technical Consultation, Data Analysis and
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April 21, 2020

Richard Drury
Lozeau | Drury LLP
1939 Harrison Street, Suite 150
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Subject: Comments on the 3440 Wilshire Project (Case No. ENV-2016-3693-MND)

Dear Mr. Drury,

We have reviewed the January 2020 Initial Study/Mitigated Negative Declaration ("IS/MND") for the 3440 Wilshire Project ("Project") located in the City of Los Angeles ("City"). The Project proposes to demolish an existing 3-story parking structure with 1,191 spaces totaling 266,571-SF and maintain four existing commercial office buildings with ground floor retail space and an existing 5-story parking structure with 707 spaces. Furthermore, the Project proposes to construct up to 640 residential units totaling 701,315-SF, 10,738-SF of commercial space, including 5,538-SF of retail space, a 3,700-SF high turnover restaurant, and a 1,500-SF fast food restaurant, as well as 2 commercial kiosks totaling 1,878-SF, and 1,214 parking spaces on the 7.26-acre site.

Our review concludes that the IS/MND fails to adequately evaluate the Project's hazards, air quality, health risk, and greenhouse gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. A DEIR should be prepared to adequately assess and mitigate the potential hazards, air quality, health risk, and greenhouse gas impacts that the project may have on the surrounding environment.

Hazards and Hazardous Materials

A 2014 Phase I Environmental Site Assessment (ESA) performed for the Project site (Appendix H) identified an 8,000-gallon oil storage underground storage tank (UST) and a three USTs associated with a former gas station on the site. The 8,000-gallon UST was reportedly removed in 1988, according to the Phase I.

No record of removal of the three gas station USTs was cited in the Phase I – the Phase I only vaguely states (p. 1):

“An Application for Permit; Abandonment by Removal Fire Department-City of Los Angeles, was also reviewed as part of our previous assessment, which discussed the removal of one waste oil UST and two gasoline USTs, dated June 8, 1988.”

Only the application for removal is cited in the Phase I – no documentation of the actual removal of the USTs is cited in the Phase I. In fact, the Phase I can only state with respect to the gas station USTs (p. 1):

“It is suspected that these USTs were related to the gas & oil station noted on the 1961 Sanborn Map.”

“It should also be noted that based on our regulatory review, the Subject [Project site] was identified as a registered storage tank site featuring a “inactive” regulatory status for two previous onsite “regulated unleaded” USTs. These gasoline USTs are suspected to be associated with the removal of the aforementioned gasoline USTs noted in the permit.”

The Phase I failed to confirm the presence of the of the USTs at the Project site. A Phase II ESA is necessary for inclusion in a DEIR to include the results of a geophysical survey, a report commonly used to identify large underground objects such as a UST, to confirm the presence or absence of USTs at the Project site. A Phase II is also necessary to include the results of soil and soil vapor sampling from the locations where the presence (or the former presence) of the USTs is likely, based on the geophysical survey.

Air Quality

Unsubstantiated Reductions to Number of Daily Trips

Review of the Traffic Study, provided as Appendix K-1 to the IS/MND, reveals that the analysis includes an unsubstantiated reduction to the Project’s estimated trip generation. Specifically, the Traffic Study includes a 25% “Transit Credit” reduction for both the retail and multifamily housing trip generation (see excerpt below) (Appendix K-1, pp. 24, Table 4).

TABLE 4 3440 WILSHIRE PROJECT TRIP GENERATION - ITE 10TH EDITION										
Land Use	ITE Land Use Code	Size	Trip Generation Rates [a]							Daily
			Daily	AM Peak Hour		PM Peak Hour				
			Rate	In%	Out%	Rate	In%	Out%		
PROPOSED PROJECT										
Retail	820	18,454 ksf	37.75	0.94	62%	38%	3.81	48%	52%	697
Less: Internal Capture [b]			15%		15%	15%		15%	15%	(105)
Less: Transit Credit [c]			25%	25%			25%			(148)
Total Driveway Trips										444
Less: Pass-by [d]			50%	50%			50%			(222)
Net External Vehicle Trips										222
Multifamily Houseing (High-Rise) [e]	222	641 DU	4.45	0.23	12%	88%	0.3	70%	30%	2,852
Internal Capture [b]			15%		15%	15%		15%	15%	(428)
Less: Transit Credit [f]			25%							(606)
Net External Vehicle Trips										1,818
TOTAL DRIVEWAY TRIPS										2,262
NET INCREMENTAL EXTERNAL TRIPS										2,040

According to the Traffic Study, this reduction is based on the Los Angeles Department of Transportation's ("LADOT") *Traffic Study Policies and Procedures* (Appendix K-1, pp. 24). However, this is incorrect. The LADOT's *Traffic Study Policies and Procedures* document is from 2016 and has since been replaced and updated by the LADOT's 2019 *Transportation Assessment Guidelines* ("TAG").¹ According to this more recent document, "LADOT, **at its discretion, may allow up to** a 25% transit/walk trip generation reduction" applied "**on a case by case basis**" (emphasis added) (p. 39). However, review of the Traffic Study demonstrates that no verification of this 25% reduction was provided by LADOT and, as a result, we are unable to certify that it is correct. Thus, the number of daily trips calculated for the Project may be underestimated and should not be utilized in the model or relied upon to determine Project significance.

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The IS/MND's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2.² CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act (CEQA) requires that such changes be justified by substantial evidence.³ Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters were utilized in calculating the Project's air pollutant

¹ "Los Angeles Department of Transportation (LADOT) Transportation Assessment Guidelines." July 2019, LADOT, available at: https://ladot.lacity.org/sites/default/files/documents/ta_guidelines_-20190731_0.pdf.

² CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

³ CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 1, 9.

emissions and make known which default values were changed as well as provide justification for the values selected.⁴

Review of the Project’s air modeling demonstrates that the IS/MND underestimates emissions associated with Project activities. As previously stated, the IS/MND’s air quality analysis relies on air pollutant emissions calculated using CalEEMod. When reviewing the Project’s CalEEMod output files, provided as Appendix C to the IS/MND, we found that several of the values inputted into the model were not consistent with information disclosed in the IS/MND. As a result, the Project’s construction and operational emissions are underestimated. An EIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

Use of an Incorrect Construction Schedule

According to the IS/MND, the proposed Project’s building construction period for Tower 1 would last approximately 19 months, beginning in June 2022 and ending in January 2024, and the building construction period for Tower 2 would last approximately 19 months, beginning in June 2024 and ending in January 2026 (see excerpt below) (p. A-15, Table A-8).

**Table A-8
Construction Schedule**

Phase	Tower 1		Tower 2	
	Scheduled	Length	Scheduled	Length
Demolition	Jan 2022 – March 2022	2 months	Under Tower 1	
Site Prep	Within demolition		Under Tower 1	
Grading	March 2022 – June 2022	3 months	Under Tower 1	
Construction	June 2022 – January 2024	19 months	June 2024 – January 2026	19 months
Architectural Coatings	August 2023 – January 2024	5 months	August 2025 – January 2026	5 months
Construction schedule, including start, end, and duration dates are estimates only. Client provided information, September 2018.				

As you can see in the excerpt above, the IS/MND proposes two 19-month construction periods for the two towers, along with 2 months of site prep and demolition and 3 months of grading, for a total of 43-months of active construction. However, review of the IS/MND’s CalEEMod output files demonstrates that the model included a construction schedule that lasted over 43-months and failed to include the 5-month break between the construction of Tower 1 and construction of Tower 2 (see excerpt below) (Appendix C, pp. 6-7, 37, 71-72).

⁴ CAPCOA (November 2017) CalEEMod User’s Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, fn 1, p. 11, 12 – 13. A key feature of the CalEEMod program is the “remarks” feature, where the user explains why a default setting was replaced by a “user defined” value. These remarks are included in the report.

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	1/31/2022	5	21	
2	Site Preparation	Site Preparation	2/1/2022	2/28/2022	5	20	
3	Grading	Grading	3/1/2022	5/31/2022	5	66	
4	Building Construction	Building Construction	6/1/2022	1/2/2026	5	936	
5	Architectural Coating	Architectural Coating	3/1/2025	1/2/2026	5	220	

As you can see in the excerpt above, the Project's construction schedule is inconsistent with the information provided in the IS/MND, as the length of active construction exceeds 43-months. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.⁵ According to the "User Entered Comments & Non-Default Data" table, the justification provided is: "Consultant assumptions" (Appendix C, pp. 1, 31, 66). However, the construction schedule used in the model is inconsistent with the information provided in the IS/MND, as discussed above. As we cannot verify "consultant assumptions," we are unable to verify this longer construction schedule.

By spreading out construction emissions over a 48-month period, rather than the 43-month period indicated by the IS/MND, maximum daily emissions associated with construction are artificially reduced. Thus, the construction schedule included in the model is incorrect, and as a result, the model may underestimate the Project's construction-related emissions.

Underestimated Number of Hauling Truck Trips

Review of the Project's CalEEMod output files demonstrates that several of the hauling, vendor, and worker trips were manually altered (see excerpt below) (Appendix C, pp. 3, 33, 68).

Table Name	Column Name	Default Value	New Value
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	17,125.00	13,700.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	196.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	28.00	20.00
tblTripsAndVMT	WorkerTripNumber	788.00	200.00
tblTripsAndVMT	WorkerTripNumber	158.00	5.00

As you can see in the excerpt above, numerous hauling, vendor, and worker trip values were manually altered. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.⁶ According to the "User Entered Comments & Non-Default Data" table, the justification provided for this change is: "Developer information" (Appendix C, pp. 2, 32, 67). However, the Project

⁵ CalEEMod User Guide, available at: <http://www.caleemod.com/>, p. 2, 9

⁶ CalEEMod User Guide, available at: <http://www.caleemod.com/>, p. 2, 9

documents fail to address these changes. Furthermore, while the Traffic Study includes estimates of peak daily trips for each construction phase, this fails to substantiate the changes to the total numbers of hauling, vendor, and worker trips for each phase (Appendix K-1, p. 45, Table 13).

Furthermore, the Traffic Study estimates a maximum daily number of hauling truck trips of 1 for Construction (see excerpt below) (Appendix K-1, p. 45, Table 13).

Peak Daily Activity Under Each Phase				
	Demolition & Site Preparation	Grading	Construction	Architectural Coating
<i>Construction Workers</i>	15	20	200	5
Passenger Car Equivalent (PCE) factor	1.0	1.0	1.0	1.0
<i>Haul Trucks</i>	30	55	1	0
Passenger Car Equivalent (PCE) factor	2.5	2.5	2.5	2.5
<i>Delivery/Equipment Trucks</i>	4	4	20	40
Passenger Car Equivalent (PCE) factor	2.0	2.0	2.0	2.0

Thus, the model should have included at least 1 hauling trip for construction. However, review of the Project's CalEEMod output files demonstrates that 0 hauling truck trips were included for construction (see excerpt below) (Appendix C, pp. 8, 39, 73).

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	12	15.00	4.00	1,978.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	20.00	4.00	13,700.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Building Construction	16	200.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	5.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

As you can see in the excerpt above, the model failed to include any hauling trips for construction. Thus, the model is inconsistent with the IS/MND. This inconsistency, as well as the unsubstantiated changes described above, presents an issue; the number of worker, hauling, and vendor trips and associated vehicle miles traveled ("VMT") are used by CalEEMod to determine the exhaust emissions associated with on-road vehicle use and fugitive dust emissions.⁷ Thus, by failing to include the correct number of hauling, vendor, and worker trips, the model underestimates the Project's construction-related emissions and should not be relied upon to determine Project significance.

⁷ CAPCOA (Oct 2017) CalEEMod User's Guide: Appendix A, p. 13, http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6.

Unsubstantiated Changes to Acres of Grading

Review of the Project's CalEEMod output files demonstrates that the amount of grading included in the model was manually reduced from 33 to 2.33 acres, and the amount of grading included in the model was manually reduced from 30 to 0 acres (see excerpt below) (Appendix C, pp. 2, 32, 67).

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	33.00	2.33
tblGrading	AcresOfGrading	30.00	0.00

As you can see in the excerpt above, the number of acres of grading for the site preparation and grading construction phases were reduced in the model. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.⁸ According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "Developer information" (Appendix C, pp. 2, 32, 67). However, the IS/MND and associated appendices fail to mention or justify these changes, and as a result, we cannot verify the altered values. This presents an issue, as the CalEEMod User's Guide states that grading is used by the model to calculate fugitive dust emissions associated with dozers, graders, scrapers, and haul trucks.⁹ Thus, by potentially underestimating the acres of grading required by the Project, the model underestimates the Project's construction-related emissions and should not be relied upon to determine Project significance.

Unsubstantiated Application of Construction Mitigation Measures

Review of the Project's CalEEMod output files demonstrates that the following construction-related mitigation measures were included in the model: "Replace Ground Cover," "Water Exposed Area," and "Clean Paved Roads" (see excerpt below) (Appendix C, pp. 8-9, 39, 73-74).

3.1 Mitigation Measures Construction

Replace Ground Cover
Water Exposed Area
Clean Paved Roads

Furthermore, the model included a 46% reduction of particulate matter emissions as a result of cleaning paved roads (see excerpt below) (Appendix C, pp. 2, 32, 67).

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	46

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.¹⁰ According to the "User Entered Comments & Non-Default Data" table, these measures are

⁸ CalEEMod User Guide, available at: <http://www.caleemod.com/>, p. 2, 9

⁹ "CalEEMod User's Guide." CAPCOA, November 2017, available at: http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 31, 33.

¹⁰ CalEEMod User Guide, available at: <http://www.caleemod.com/>, p. 2, 9

justified by stating: “Assumes SCAQMD Rule 403 control efficiencies” (Appendix C, pp. 2, 32, 67). Furthermore, according to the IS/MND,

“[I]t is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Rule 403 control requirements include measures to prevent the generation of visible dust plumes. Measures include, but are not limited to, applying water and/or soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system or other control measures to remove bulk material from tires and vehicle undercarriages before vehicles exit the Project Site, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce regional PM_{2.5} and PM₁₀ emissions associated with construction activities by approximately 61 percent” (emphasis added) (p. B-41).

As you can see in the excerpt above, the Project has the option to either apply water and/or soil binders but has not actually committed to either one. Furthermore, this explanation fails to justify the inclusion of the “Clean Paved Roads” mitigation measure or address the 46% reduction included in the model. Finally, the IS/MND states that compliance with Rule 403 would reduce particulate matter emissions by 61%, but also fails to explain or justify this calculation. As a result, we are unable to verify the inclusion of these mitigation measures and reductions in the model. Thus, emissions may be underestimated and the model should not be relied upon to determine Project significance.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The IS/MND concludes that the Project’s construction and operational health risk impacts would be less than significant as a result of LST analysis, without conducting a quantified construction or operational health risk assessment (“HRA”) (p. B-46). In an attempt to justify the omission of a construction HRA, the IS/MND states:

“Because there is such a short-term exposure period, construction TAC emissions would result in a less-than significant impact. **Therefore, construction of the Project would not expose sensitive receptors to substantial diesel PM concentrations, and this impact would be less than significant**” (p. B-46).

Furthermore, regarding the omission of an operational HRA, the IS/MND states:

“[T]he SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulate emissions (e.g., truck stops and warehouse distribution facilities) and has provided guidance for analyzing mobile source diesel emissions.[48] The Project would not generate a substantial number of truck trips since it would not be a truck stop or distribution center. Based on the limited activity of TAC sources, the Project would not warrant the need for a health risk assessment associated with on-site activities. **Therefore, Project impacts would be less than significant**” (p. B-48).

However, this justification and subsequent less than significant impact finding is incorrect for several reasons.

First, while the LST method assesses the impact of pollutants at a local level, it only evaluates impacts from criteria air pollutants. According to the Final Localized Significance Threshold Methodology document prepared by the SCAQMD, the LST analysis is only applicable to NO_x, CO, PM₁₀, and PM_{2.5} emissions, which are collectively referred to as criteria air pollutants.¹¹ Because the LST method can only be applied to criteria air pollutants, this method cannot be used to determine whether emissions from diesel particulate matter (“DPM”), a known human carcinogen, will result in a significant health risk impact to nearby sensitive receptors. As a result, health risk impacts from exposure to toxic air contaminants (“TACs”), such as DPM, were not analyzed for the proposed Project, thus leaving a gap within the IS/MND’s analysis.

Second, the IS/MND’s claim that “the SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulate emissions (e.g., truck stops and warehouse distribution facilities) and has provided guidance for analyzing mobile source diesel emissions.[48]” is incorrect and unsubstantiated (p. B-48). Specifically, the reference cited as a source for this justification, footnote 48, SCAQMD’s *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions*, fails to substantiate this argument. According to the SCAQMD website discussing Mobile Source Toxics Analysis and this document in particular, “[i]t is suggested that projects with diesel powered mobile sources use the following guidance document to quantify potential cancer risks from the diesel particulate emissions.”¹² Review of the IS/MND and CalEEMod model reveals that the proposed Project will, in fact, include mobile emissions during both construction and operation (see excerpts below) (Appendix C, pp. 8, 26).

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	12	15.00	4.00	1,978.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	20.00	4.00	13,700.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Building Construction	16	200.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	5.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Apartments High Rise	1,817.60	1,817.60	1817.60	6,991,856	6,991,856
Enclosed Parking with Elevator	0.00	0.00	0.00		
Strip Mall	66.48	66.48	66.48	229,312	229,312
Fast Food Restaurant w/o Drive Thru	201.08	201.08	201.08	602,965	602,965
High Turnover (Sit Down Restaurant)	264.22	264.22	264.22	847,516	847,516
Total	2,349.38	2,349.38	2,349.38	8,671,650	8,671,650

As you can see in the excerpts above, the proposed Project is anticipated to produce mobile source emissions as a result of worker, vendor, and hauling trips during Project construction, as well as roughly 2,349 daily trips throughout Project operation, according to the model. Thus, the IS/MND’s claim that “[t]he Project would not generate a substantial number of truck trips since it would not be a truck stop

¹¹ “Final Localized Significance Threshold Methodology.” SCAQMD, Revised July 2008, *available at*: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf>.

¹² “Mobile Source Toxics Analysis.” SCAQMD, *available at*: <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis>.

or distribution center” is incorrect. As a result, per the SCAQMD’s *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions*, as cited by the IS/MND, the proposed Project should have conducted a quantified HRA.

Third, the omission of a quantified HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment (“OEHHA”), the organization responsible for providing guidance on conducting HRAs in California. In February 2015, OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*.¹³ This document describes the types of projects that warrant the preparation of an HRA. Construction of the Project will produce emissions of DPM through the exhaust stacks of construction equipment over a construction period of approximately 43-months, as stated by the IS/MND (p. A-15, Table A-8). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.¹⁴ Therefore, per OEHHA guidelines, we recommend that health risk impacts from Project construction be evaluated by a revised CEQA evaluation. Furthermore, once construction of the Project is complete, the Project will operate for many years. As previously stated, the Traffic Study indicates that operation of the Project would generate a net increase of approximately 2,262 daily vehicle trips, which will generate additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions (Appendix K-1, 19, Table 4). The OEHHA document recommends that exposure from projects lasting more than 6 months be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (“MEIR”).¹⁵ Even though we were not provided with the expected lifetime of the Project, we can reasonably assume that the Project will operate for at least 30 years, if not more. Therefore, we recommend that health risk impacts from Project operation also be evaluated in a revised CEQA evaluation, as a 30-year exposure duration vastly exceeds the 2-month and 6-month requirements set forth by OEHHA. These recommendations reflect the most recent health risk policy, and as such, we recommend that an updated assessment of health risks to nearby sensitive receptors from Project construction and operation be included in a revised CEQA evaluation for the Project.

Fourth, by claiming a less than significant impact without conducting a quantified HRA for Project construction and operation, the IS/MND fails to compare the excess health risk to the SCAQMD’s specific numeric threshold of 10 in one million.¹⁶ Thus, the IS/MND cannot conclude less than significant health risk impacts resulting from Project construction and operation without quantifying emissions to compare to the proper threshold.

¹³ “Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments.” OEHHA, February 2015, available at: http://oehha.ca.gov/air/hot_spots/hotspots2015.html

¹⁴ “Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments.” OEHHA, February 2015, available at: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-18

¹⁵ “Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments.” OEHHA, February 2015, available at: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-6, 8-15

¹⁶ “South Coast AQMD Air Quality Significance Thresholds.” SCAQMD, April 2019, available at: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>

Screening-Level Assessment Indicates Significant Impact

In an effort to demonstrate the potential risk posed by Project construction and operation to nearby sensitive receptors, we prepared a simple screening-level HRA. The results of our assessment, as described below, provide substantial evidence that the Project's construction and operational DPM emissions may result in a potentially significant health risk impact not previously identified by the IS/MND.

In order to conduct our screening level risk assessment, we relied upon AERSCREEN, which is a screening level air quality dispersion model.¹⁷ The model replaced SCREEN3, and AERSCREEN is included in the OEHHA¹⁸ and the California Air Pollution Control Officers Associated (CAPCOA)¹⁹ guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

We prepared a preliminary HRA of the Project's construction and operational health-related impact to residential sensitive receptors using the annual PM₁₀ exhaust estimates from SWAPE's updated CalEEMod. According to the IS/MND, the closest sensitive receptor is located approximately 60 feet, or 18 meters, east of the Project site (p. B-29). Consistent with recommendations set forth by OEHHA, we assumed exposure begins during the third trimester stage of life. The Project's construction CalEEMod output files indicate that construction activities will generate approximately 342 pounds of DPM over the 1,459-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation:

$$\text{Emission Rate} \left(\frac{\text{grams}}{\text{second}} \right) = \frac{342.2 \text{ lbs}}{1,459 \text{ days}} \times \frac{453.6 \text{ grams}}{\text{lbs}} \times \frac{1 \text{ day}}{24 \text{ hours}} \times \frac{1 \text{ hour}}{3,600 \text{ seconds}} = 0.001231 \text{ g/s}$$

Using this equation, we estimated a construction emission rate of 0.001231 grams per second ("g/s"). Subtracting the 1,459-day construction period from the total residential duration of 30 years, we assumed that after Project construction, the sensitive receptor would be exposed to the Project's operational DPM for an additional 26 years, approximately. The Project's operational CalEEMod emissions, calculated by subtracting the existing emissions from the proposed Project, indicate that operational activities will generate approximately 193 pounds of DPM per year throughout operation.

¹⁷ "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at*: http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf

¹⁸ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at*: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>

¹⁹ "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at*: http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

Applying the same equation used to estimate the construction DPM rate, we estimated the following emission rate for Project operation:

$$\text{Emission Rate } \left(\frac{\text{grams}}{\text{second}} \right) = \frac{192.8 \text{ lbs}}{365 \text{ days}} \times \frac{453.6 \text{ grams}}{\text{lbs}} \times \frac{1 \text{ day}}{24 \text{ hours}} \times \frac{1 \text{ hour}}{3,600 \text{ seconds}} = 0.002773 \text{ g/s}$$

Using this equation, we estimated an operational emission rate of 0.002773 g/s. Construction and operational activity was simulated as a 7.26-acre rectangular area source in AERSCREEN with dimensions of 182.5 by 161 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.²⁰ As previously stated, there are residential receptors located approximately 18 meters from the Project boundary. However, review of the AERSCREEN output files demonstrates that the *maximally* exposed receptor is located 100 meters from the Project site. The single-hour concentration estimated by AERSCREEN for Project construction is approximately 1.302 µg/m³ DPM at approximately 100 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.1302 µg/m³ for Project construction at the MEIR. For Project operation, the single-hour concentration estimated by AERSCREEN is 2.933 µg/m³ DPM at approximately 100 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.2933 µg/m³ for Project operation at the MEIR.

We calculated the excess cancer risk to the MEIR using applicable HRA methodologies prescribed by OEHHA. Consistent with the construction schedule included in the IS/MND, the annualized average concentration for construction was used for the entire third trimester of pregnancy (0.25 years), the entire infantile stage of life (0 – 2 years), and the first 1.75 years of the child stages of life (2 – 16 years). The annualized average concentration for operation was used for the remainder of the 30-year exposure period, which makes up the remainder of the child stages of life (2 – 16 years) and entire adult stage of life (16 – 30 years).

Consistent with OEHHA²¹, SCAQMD, BAAQMD, and SJVAPCD guidance, we used Age Sensitivity Factors (“ASF”) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air

²⁰ “Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised.” EPA, 1992, *available at*: http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf; *see also* “Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments.” OEHHA, February 2015, *available at*: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf> p. 4-36.

²¹ “The Office of Environmental Health Hazards Assessment issued updated guidance for the preparation of health risk assessments in March 2015 (OEHHA 2015)” (p. 5.2-29).

pollution.^{22, 23, 24, 25} According to this guidance, the quantified cancer risk should be multiplied by a factor of ten during the third trimester of pregnancy and during the first two years of life (infant) as well as multiplied by a factor of three during the child stage of life (2 to 16 years). We also included the quantified cancer risk without adjusting for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution in accordance with older OEHHA guidance from 2003. This guidance utilizes a less health protective scenario than what is currently recommended by SCAQMD, the air quality district responsible for the City, and several other air districts in the state. Furthermore, in accordance with guidance set forth by OEHHA, we used the 95th percentile breathing rates for infants.²⁶ Finally, according to SCAQMD guidance, we used a Fraction of Time At Home (“FAH”) Value of 1 for the 3rd trimester and infant receptors.²⁷ We used a cancer potency factor of 1.1 (mg/kg-day)⁻¹ and an averaging time of 25,550 days. The results of our calculations are shown below.

The Maximally Exposed Individual at an Existing Residential Receptor						
Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.1302	361	1.8E-07	10	1.8E-06
3rd Trimester Duration	0.25			1.8E-07	3rd Trimester Exposure	1.8E-06
Construction	2.00	0.1302	1090	4.3E-06	10	4.3E-05
Infant Exposure Duration	2.00			4.3E-06	Infant Exposure	4.3E-05

²² “Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments.” OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>.

²³ “Draft Environmental Impact Report (DEIR) for the Proposed The Exchange (SCH No. 2018071058).” SCAQMD, March 2019, available at: <http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2019/march/RVC190115-03.pdf?sfvrsn=8>, p. 4.

²⁴ “California Environmental Quality Act Air Quality Guidelines.” BAAQMD, May 2017, available at: http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, p. 56; see also “Recommended Methods for Screening and Modeling Local Risks and Hazards.” BAAQMD, May 2011, available at: <http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/BAAQMD%20Modeling%20Approach.ashx>, p. 65, 86.

²⁵ “Update to District’s Risk Management Policy to Address OEHHA’s Revised Risk Assessment Guidance Document.” SJVAPCD, May 2015, available at: <https://www.valleyair.org/busind/pto/staff-report-5-28-15.pdf>, p. 8, 20, 24.

²⁶ “Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics ‘Hot Spots’ Information and Assessment Act,” June 5, 2015, available at: <http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6>, p. 19.

“Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments.” OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>

²⁷ “Risk Assessment Procedures for Rules 1401, 1401.1, and 212.” SCAQMD, August 2017, available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/riskassessmentprocedures_2017_080717.pdf, p. 7.

Construction	1.75	0.1302	572	2.0E-06	3	5.9E-06
Operation	12.25	0.2933	572	3.1E-05	3	9.3E-05
Child Exposure Duration	14.00			3.3E-05	Child Exposure	9.9E-05
Operation	14.00	0.2933	261	1.2E-05	1	1.2E-05
Adult Exposure Duration	14.00			1.2E-05	Adult Exposure	1.2E-05
Lifetime Exposure Duration	30.00			4.9E-05	Lifetime Exposure	1.6E-04

* We, along with CARB and SCAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

As demonstrated in the table above, the excess cancer risk to adults, children, infants, and during the 3rd trimester of pregnancy at the MEIR located approximately 100 meters away, over the course of Project construction and operation, utilizing age sensitivity factors, are approximately 12, 99, 43, and 1.8 in one million, respectively. The excess cancer risk over the course of a residential lifetime (30 years), utilizing age sensitivity factors, is approximately 160 in one million. The infant, child, adult, and lifetime cancer risks all exceed the SCAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the IS/MND. Utilizing age sensitivity factors is the most conservative, health-protective analysis according to the most recent guidance by OEHHA and recommendations from the air district. Results without age sensitivity factors are presented in the table above, although we **do not** recommend utilizing these values for health risk analysis. Regardless, the excess cancer risk posed to adults, children, infants, and during the third trimester of pregnancy at the MEIR, located approximately 100 meters away, over the course of Project construction and operation, without age sensitivity factors, are approximately 12, 33, 4.3, and 0.18 in one million, respectively. The excess cancer risk over the course of a residential lifetime (30 years) at the MEIR, without age sensitivity factors, is approximately 49 in one million. The child, adult, and lifetime cancer risks, without age sensitivity factors, exceed the SCAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified. While we recommend the use of age sensitivity factors, health risk impacts exceed the SCAQMD threshold regardless.

An agency must include an analysis of health risks that connects the Project's air emissions with the health risk posed by those emissions. Our analysis represents a screening-level HRA, which is known to be conservative and tends to err on the side of health protection.²⁸ The purpose of the screening-level construction and operational HRA shown above is to demonstrate the link between the proposed Project's emissions and the potential health risk. Our screening-level HRA demonstrates that construction and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. Therefore, since our screening-level HRA indicates a potentially significant impact, the City should prepare a CEQA analysis with a revised HRA which makes a reasonable effort to connect the Project's air quality emissions and

²⁸ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>, p. 1-5

the potential health risks posed to nearby receptors. Thus, the City should prepare an updated, quantified air pollution model as well as an updated, quantified refined health risk assessment which adequately and accurately evaluates health risk impacts associated with both Project construction and operation.

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

The IS/MND concludes that the Project's construction and operation would result in annual greenhouse gas ("GHG") emissions of 8,698 metric tons of CO₂ equivalent per year (MT CO₂e/yr) (p. B-112, B-113, Table B.8-4). In addition, the IS/MND relies upon the Project's consistency with CARB's Climate Change Scoping Plan, SCAG's 2016–2040 RTP/SCS, the City's LA Green Plan, and the City's Sustainable City pLAn in order to determine the significance of the Project's GHG impact (p. B-111). Specifically, the IS/MND states:

"[G]iven the Project's consistency with State, SCAG, and City GHG emission reduction goals and objectives, the Project is consistent with applicable plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs. In the absence of adopted standards and established significance thresholds, and given this consistency, it is concluded that the Project's incremental contribution to greenhouse gas emissions and their effects on climate change would not be cumulatively considerable" (emphasis added) (p. B-139).

As you can see in the excerpt above, the IS/MND claims that there are no SCAQMD-established significance thresholds, and as a result, relies upon the Project's consistency with applicable plans, policies, and regulations. However, these justifications and the subsequent less than significant impact conclusion are incorrect for several reasons.

- 1) CARB's Scoping Plan, 2016–2040 RTP/SCS, LA Green Plan, and Sustainable City pLAn cannot be relied upon to determine Project significance;
- 2) Incorrect reliance on the LA Green Plan;
- 3) Incorrect reliance on the Sustainable City pLAn;
- 4) Failure to demonstrate consistency with the Climate Change Scoping Plan, 2016–2040 RTP/SCS, LA Green Plan, and Sustainable City pLAn;
- 5) Failure to apply the relevant SCAQMD threshold;
- 6) Incorrect and unsubstantiated air model demonstrates a potentially significant GHG impact; and
- 7) SWAPE's updated analysis demonstrates a potentially significant GHG impact.

(1) The Climate Change Scoping Plan, 2016–2040 RTP/SCS, LA Green Plan, and Sustainable City pLAn are not Qualified CAPs

As discussed above, the IS/MND relies upon the Project's consistency with CARB's Climate Change Scoping Plan, SCAG's 2016–2040 RTP/SCS, the City's LA Green Plan, and the Sustainable City pLAn to determine Project GHG significance. However, these plans do not qualify as adequate GHG reduction plans or Climate Action Plans ("CAP"). CEQA Guidelines §§ 15064.4(b)(3) and 15183(b) allow a lead agency to consider a project's consistency with a statewide, regional, or local plan adopted to achieve

the reduction or mitigation of GHG emissions. When read together, CEQA Guidelines §§ 15064.4(b)(3) and 15183.5(b)(1) indicate that qualified GHG reduction plans or CAPs should include the following features:

- (1) **Inventory:** Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);
- (2) **Establish GHG Reduction Goal:** Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- (3) **Analyze Project Types:** Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- (4) **Craft Performance Based Mitigation Measures:** Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- (5) **Monitoring:** Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels;

Collectively, these features connect qualitative measures to quantitative results, which become binding through proper monitoring and enforcement—all resulting in GHG reductions that demonstrate that the project’s impacts are not cumulatively considerable. Here, however, the IS/MND fails to demonstrate that these plans include the above-listed requirements. As such, the IS/MND fails to demonstrate that compliance with these plans can be used to determine the Project’s GHG significance. Thus, the IS/MND’s GHG analysis regarding CARB’s Climate Change Scoping Plan, SCAG’s 2016–2040 RTP/SCS, the City’s LA Green Plan, and the Sustainable City pLAn should not be relied upon to determine Project significance.

(2) Incorrect Reliance on the LA Green Plan

As discussed above, the IS/MND relies upon the Project’s consistency with the City’s LA Green Plan to determine the significance of the Project’s GHG impact (p. B-138). However, this is incorrect, as the LA Green Plan fails to include project-level measures.

Review of the IS/MND’s consistency evaluation with the LA Green Plan demonstrates that the measures discussed are predominantly city-level actions or measures (see excerpt below) (p. B-135, B-136, B-137).

Table B.8-9
Consistency with Applicable GHG Emissions Goals and Actions of the LA Green Plan

Action		Description	Consistency Analysis
Focus Area: Energy			
E6	Present a comprehensive set of green building policies to guide and support private sector development.	The City initiated an effort to establish green building requirements, paired with incentives, for medium- to large- private projects. Buildings account for a majority of electricity use. Each building site relates to a wide range of environmental issues faced by the City, so addressing each site in a comprehensive manner will provide a variety of environmental benefits.	Consistent. While this action primarily applies to the City, the Project would be designed and operated to meet the applicable requirements of the State Green Building Standards Code and the City's Green Building Code.
Focus Area: Water			
W1	Meet all additional demand for water resulting from growth through water conservation and recycling.	The Mayor's Office and LADWP developed the <i>Securing LA's Water Supply</i> plan, which is an aggressive, multi-faceted approach to developing a locally sustainable water supply. The plan includes a set of key short-term and long-term strategies to secure our water future, such as: Short-Term Conservation Strategies: - Enforcing prohibited uses of water (levying fines and sanctions against water abusers and increase water conservation awareness). - Expanding the list of prohibited uses of water (possible further restrictions on watering landscape and washing/rinsing vehicles without a self-closing nozzle). - Extending outreach efforts, water conservation incentives, and rebates. - Encouraging regional conservation measures (encourage all water agencies in the region to adopt water conservation ordinances which include prohibited uses and enforcement). Long-Term Conservation Strategies:	Consistent. While this action primarily applies to the City and LADWP, the Project would incorporate water conservation features to reduce indoor water use by at least 20 percent. Water conservation measures include: Energy Star-certified appliances in residential units and use of ultra low flow toilets and hand wash faucets in public facilities. Further detail is provided in Section B.19, Utilities and Service Systems - Water , of the MND.

As you can see in the above excerpt, actions E6 and W1 required by the LA Green Plan are aimed at the City and are not project-level measures. Furthermore, regarding the LA Green Plan, the IS/MND states:

“To facilitate implementation of the LA Green Plan, **the City** has a Climate LA Plan that lays out **departmental programs to implement** the Action Plan’s initiatives. **The City** also adopted the Los Angeles Green Building Code, as discussed below” (emphasis added) (p. B-109).

This excerpt further demonstrates that the LA Green Plan includes *city-wide initiatives*, not *project-level measures*. As a result, the IS/MND’s reliance on the LA Green Plan to determine the Project’s GHG significance is incorrect, and the less than significant impact determination should not be relied upon.

(3) Incorrect Reliance on the Sustainable City pLAN

As discussed above, the IS/MND relies upon the Project’s consistency with the Sustainable City pLAN to determine the Project’s GHG significance (p. B-138). However, this is incorrect for two reasons.

First, the April 2015 Sustainable City pLAn referenced in the IS/MND is outdated and superseded by the L.A. Green New Deal. According to the L.A. Green New Deal:

“When the Mayor released the first Sustainable City pLAn in 2015 he committed to annual progress reports and a major update to the pLAn every four years...This report is the first four-year update to the 2015 pLAn. It augments, expands, and elaborates in even more detail L.A.’s vision for a sustainable future and it tackles the climate emergency with accelerated targets and new aggressive goals. This is L.A.’s Green New Deal.”²⁹

As you can see in the excerpt above, the Sustainable City pLAn requires a major update every 4 years and has been replaced by the LA Green New Deal. As such, the IS/MND’s reliance on the Sustainable City pLAn and GHG significance determination is incorrect.

Second, both the Sustainable City pLAn and the L.A. Green New Deal fail to include project-level measures for land use development projects.³⁰ Regarding the Project’s consistency with the Sustainable City pLAn, the IS/MND states:

“Specific targets related to housing and development and mobility and transit include the decrease of vehicle miles traveled per capita by 5 percent by 2025, and increasing trips made by walking, biking or transit by at least 35 percent by 2025. The Project would generally comply with these aspirations as the Project is an infill development consisting of residential, hotel, and commercial uses on the Project Site, which is located near regional and local transit services” (emphasis added) (p. B-138).

As you can see, the Sustainable City pLAn contains city-level goals that *relate* to housing and development, not project-level measures. Similarly, review of the L.A. Green New Deal demonstrates that it also fails to include project-level measures. As such, the IS/MND’s reliance on the Sustainable City pLAn is incorrect and the IS/MND GHG significance determination should not be relied upon.

(4) Failure to Demonstrate Consistency with CARB’s Scoping Plan and SCAG’s 2016–2040 RTP/SCS

As previously stated, the IS/MND claims that the proposed Project is consistent with CARB’s Climate Change Scoping Plan and SCAG’s 2016–2040 RTP/SCS, and as a result, the Project will result in less than significant GHG impacts. However, review of the aforementioned plans reveals that the Project is inconsistent with several goals and policies of the plans, including but not limited to those listed below:

²⁹ “L.A.’s Green New Deal.” 2019, available at: http://plan.lamayor.org/sites/default/files/pLAn_2019_final.pdf, p. 8.

³⁰ “L.A.’s Green New Deal.” 2019, available at: http://plan.lamayor.org/sites/default/files/pLAn_2019_final.pdf, p. 8.

CARB 2017 Scoping Plan³¹

Measures – Construction

Enforce idling time restrictions for construction vehicles	Here, the IS/MND states that “[i]n 2004, CARB adopted an ATCM [airborne toxic control measure] to limit heavy-duty diesel motor vehicle idling” (p. B-18). Furthermore, the IS/MND states that “Section 2485 in CCR Title 13 states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) used during construction shall be limited to five minutes at any location” (p. B-19). However, the IS/MND fails to mention any idling time restrictions for construction vehicles other than heavy-duty vehicles (over 10,000 pounds). Without evaluating the feasibility of implementing this measure across all vehicles, the proposed Project has not adequately demonstrated compliance. Furthermore, simply stating that these plans and policies have adopted idling time restriction requirements does not guarantee that the Project would enforce these restrictions. Thus, the Project fails to demonstrate that these policies would be implemented, monitored, and enforced.
Require construction vehicles to operate with the highest tier engines commercially available	Here, while the IS/MND discusses the USEPA Tier 1 through Tier 4 engine emission reductions, the IS/MND fails to specify the use of Tier 4 Final mitigation or evaluate the feasibility of obtaining these cleaner engines (p. B-16). As a result, the proposed Project fails to require construction vehicles to operate with the highest tier engines commercially available. Thus, the Project is not consistent with this measure.
Divert and recycle construction and demolition waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible	Here, the IS/MND states that construction of the proposed Project “would generate approximately 1,560 tons of construction waste” (p. B-256). The IS/MND goes on to state that “California Assembly Bill (AB) 939, also known as the Integrated Waste Management Act, requires each city and county in the state to divert 50 percent of its solid waste from landfill disposal through source reduction, recycling, and composting” (p. B-256).

³¹ California Air Resources Board (“CARB”) (Jan. 2017) 2017 Scoping Plan, Appendix B-Local Action, *available at*: https://ww3.arb.ca.gov/cc/scopingplan/2030sp_appb_localaction_final.pdf, p. 8-10.

	However, the IS/MND fails to include any information regarding construction and demolition waste reduction beyond what is already required. The IS/MND also fails to indicate how the proposed Project will implement, monitor, and enforce these requirements. Furthermore, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u>...Recycling of asphalt, concrete, metal, wood and carboard waste generated during demolition and construction” (emphasis added) (p. B-67). However, the IS/MND fails to require this measure, stating that measures <i>could include</i> recycling during demolition and construction. The IS/MND also fails to evaluate the feasibility of this measure, or discuss the Project’s implementation, monitoring, and enforcement. Thus, the proposed Project does not reduce demolition and construction waste “to the greatest extent feasible,” and the Project is not consistent with this measure.
Minimize tree removal, and mitigate indirect GHG emissions increases that occur due to vegetation removal, loss of sequestration, and soil disturbance	According to the IS/MND, “There are 30 trees in the public right-of-way (sidewalk or called a street tree), of which one is a protected species and will not be removed. Of the 29 non-protected street trees, 19 trees would be removed and replaced. There are 29 trees on the private portion of the Project Site, none of which are protected species. Of these, 24 would be removed. The amount of soils removed or exported would be 137,000 cubic yards” (pp. 2). However, the IS/MND fails to discuss ways to minimize tree removal or mitigate GHG emissions increases due to vegetation removal, loss of sequestration, and soil disturbance. Thus, the Project is not consistent with this measure.
Increase use of electric and renewable fuel powered construction equipment and require renewable diesel fuel where commercially available	Here, the IS/MND states that “[h]eavy duty construction equipment needed during construction of the Project would include air compressors, concrete pumps, forklifts, lifts, welders, backhoes, dozers, forklifts, lifts, loaders, and rollers, the majority of which would be diesel fueled. Construction equipment fuels would be provided by local or regional suppliers and vendors” (p. B-74). However, the IS/MND fails to address renewable diesel fuel or evaluate if it is available. Thus, the Project is not consistent with this measure.

Require diesel equipment fleets to be lower emitting than any current emission standard	Here, the IS/MND fails to require that diesel equipment fleets be lower emitting than current standards. Thus, the Project is not consistent with this measure.
Measures – Operation	
Comply with lead agency’s standards for mitigating transportation impacts under SB 743	Here, the IS/MND states that “[t]he City of Los Angeles Department of Transportation (LADOT) has developed the Transportation Impact Study Guidelines (TISG) (December 2016) to provide the public, private consultants, and City staff with standards, guidelines, objectives, and criteria to be used in the preparation of a transportation impact study” (p. B-110). However, this is incorrect, as the LADOT has most recently released its Transportation Assessment Guidelines (TAG) in July 2019 that supersede the previous 2016 guidance. Thus, the IS/MND’s analysis relies upon outdated guidance. Furthermore, the TAG relies upon the California Office of Planning and Research (OPR) 2018 Technical Advisory, which “recommends that a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold.” ³² According to the LADOT’s TAG document, “[t]he California Natural Resources Agency certified and adopted the CEQA Guidelines in December of 2018, and are now in effect.” ³³ In order to comply with the transportation standards under SB 743, the Project should have demonstrated a per capita VMT that is at least 15% below existing development. Thus, the Project is not consistent with this measure.
Dedicate on-site parking for shared vehicles	Here, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u> ...Provision of electric vehicle charging stations in the parking structure; 5% of total spaces will be designated for low emitting, fuel efficient and carpool/van pool vehicles” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <i>could include</i> designated parking for shared vehicles. The IS/MND also fails to evaluate the feasibility of implementing, monitoring, and

³² “Technical Advisory on Evaluating Transportation Impacts in CEQA” California Office of Planning and Research (OPR), December 2018, available at: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf, p. 10.

³³ “Transportation Assessment Guidelines” Los Angeles Department of Transportation (LADOT), July 2019, available at: https://ladot.lacity.org/sites/default/files/documents/ta_guidelines_-20190731_0.pdf, p. 15.

	enforcing this measure. Thus, we cannot verify this measure and the Project is not consistent.
Require on-site renewable energy generation	Here, the IS/MND states that the “LADWP is required to commit to the use of renewable energy sources for compliance with the California Renewable Energy Resources Act” (p. B-62, B-79, B-120 Table B.8-6). The IS/MND goes on to state, “[w]ith respect to on-site renewable energy sources, because of the Project’s location, there are no local sources of energy from the following sources: biodiesel, biomass hydroelectric and small hydro, digester gas, fuel cells, landfill gas, municipal solid waste, ocean thermal, ocean wave, and tidal current technologies, or multi-fuel facilities using renewable fuels” (p. B-80). However, while other locations may be “more suitable for large-scale solar power generation” and there may be a “lack of sufficient wind in the Los Angeles basin,” the IS/MND fails to discuss potentially feasible options, such as small-scale solar generation or other sources (B-80). Furthermore, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u>...15% of the roof area set aside for future solar panels” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <i>could include</i> rooftop solar panels. The IS/MND also fails to evaluate the measure’s feasibility, or discuss the Project’s potential to implement, monitor, and enforce it. As a result, the Project fails to comply with this measure.
Require cool roofs and “cool parking” that promotes cool surface treatment for new parking facilities as well as existing surface lots undergoing resurfacing	Here, the IS/MND fails to address “cool parking” or the promotion of cool surface treatment for parking facilities. While the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u>...Installation of a “cool roof” that reflects the sun’s heat and reduces urban heat island effect,” the IS/MND fails to require this measure, stating that measures <i>could include</i> a cool roof (emphasis added) (p. B-67-68). The IS/MND also fails to evaluate the feasibility of implementing, monitoring, and enforcing the measure on the Project site. Thus, the Project is not consistent with this measure.

Require solar-ready roofs	Here, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u> ...15% of the roof area set aside for future solar panels” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <i>could include</i> rooftop solar panels. The IS/MND also fails to evaluate the feasibility of this measure, or the Project’s potential to implement, monitor, and enforce the measure on the Project site. Thus, the Project is not consistent with this measure.
Require organic collection in new developments	Here, while the IS/MND discusses recycling, it fails to mention organic collection (p. B-258-259). Thus, the Project is not consistent with this measure.
Require low-water landscaping in new developments (see CALGreen Divisions 4.3 and 5.3 and the Model Water Efficient Landscape Ordinance [MWELO], which is referenced in CALGreen). Require water efficient landscape maintenance to conserve water and reduce landscape waste.	Here, the IS/MND states that “[l]andscaping water use is estimated per California Code of Regulations Title 23, Division 2, Chapter 2.7. Model Water Efficient Landscape Ordinance” (p. B-249, Table B.19-1). The IS/MND also states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u> ...Use of indigenous and/or water-appropriate plants in landscaping” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <i>could include</i> use of indigenous and/or water-appropriate plants in landscaping. The IS/MND also fails to discuss the Project’s potential to implement, monitor, and enforce the Model Water Efficient Landscape Ordinance or the feasibility of using indigenous and/or water-appropriate plants. As a result, the Project is not consistent with this measure.
Achieve Zero Net Energy performance building standards prior to dates required by the Energy Code	Here, the IS/MND states that the CARB Scoping Plan First Update “discussed new residential and commercial building energy efficiency improvements, specifically identifying progress towards zero net energy buildings” (p. B-100). However, the IS/MND fails to indicate that the proposed Project would even attempt to achieve Zero Net Energy performance, as required by the Energy Code. Thus, the Project is not consistent with this measure.
Encourage new construction, including municipal building construction, to achieve third-party green building certifications,	Here, the IS/MND fails to mention green building certifications, such as the GreenPoint Rated program,

such as the GreenPoint Rated program, LEED rating system, or Living Building Challenge	LEED rating system, or Living Building Challenge. As a result, the Project is not consistent with this measure.
Require the design of bike lanes to connect to the regional bicycle network	Here, the IS/MND states that “S. Oxford Avenue contains a bike lane that extends from W. 3 rd Street northwards. W. 7 th Street contains a bike lane from S. Catalina Street eastwards” (p. B-238). However, the IS/MND fails to indicate that the proposed Project would require or even include the design of bike lanes to connect to the regional bicycle network. Thus, the Project is not consistent with this measure.
Expand urban forestry and green infrastructure in new land development	Here, the IS/MND fails to mention or evaluate the Project’s potential to expand urban forestry and green infrastructure. Thus, the Project is not consistent with this measure.
Require preferential parking spaces for park and ride to incentivize carpooling, vanpooling, commuter bus, electric vehicles, and rail service use	Here, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u> ...Provision of electric vehicle charging stations in the parking structure; 5% of total spaces will be designated for low emitting, fuel efficient and carpool/van pool vehicles” (emphasis added) (p. B-67-68). However, the IS/MND fails mention requiring preferential parking spaces for park and ride. Thus, we cannot verify this measure will be required and the Project may not be consistent.
Develop a rideshare program targeting commuters to major employment centers	Here, the IS/MND fails to mention or evaluate the feasibility of implementing, monitoring, and enforcing a rideshare program on the Project site, specifically targeting commuters to major employment centers. Thus, the proposed Project is not consistent with this measure.
Require the design of bus stops/shelters/express lanes in new developments to promote the usage of mass-transit	Here, the IS/MND fails to mention or require the design of bus stops/shelters/express lanes for the proposed Project. Thus, the proposed Project is not consistent with this measure.
Require gas outlets in residential backyards for use with outdoor cooking appliances such as gas barbeques if natural gas service is available	Here, the IS/MND fails to mention or require gas outlets in residential backyards. Thus, the proposed Project is not consistent with this measure.
Require the installation of electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment	Here, the IS/MND fails to mention or require the installation of electrical outlets on the exterior walls of both the front and back of residences. Thus, the proposed Project is not consistent with this measure.

Require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage	Here, the IS/MND fails to mention or require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage. Thus, the proposed Project is not consistent with this measure.
Require electric vehicle charging station (Conductive/inductive) and signage for non-residential developments	Here, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u> ...Provision of electric vehicle charging stations in the parking structure” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <u>could include</u> electric charging stations. The IS/MND also fails to evaluate the feasibility of implementing, monitoring, and enforcing this measure on the Project site. Furthermore, the IS/MND states that “Project Site signage would include building identification, wayfinding, and security markings” (p. A-13). However, the IS/MND fails to demonstrate that the Project would include signage dedicated to electric vehicle charging stations. Finally, the IS/MND failed to discuss how the measure would be implemented, monitored, and enforced. Thus, the Project is not consistent with this measure.
Provide electric outlets to promote the use of electric landscape maintenance equipment to the extent feasible on parks and public/quasi-public lands	Here, the IS/MND fails to mention electric outlets or the promotion of electric landscape maintenance equipment. Thus, the Project is not consistent with this measure.
Require each residential unit to be “solar ready,” including installing the appropriate hardware and proper structural engineering	Here, the IS/MND mentions solar ready buildings in regard to the City’s Green Building Code (Section 99.04.211) (p. B-80). However, the IS/MND fails to <u>require</u> that each residential unit will be “solar ready” or mention installation of the appropriate hardware and proper structural engineering. Thus, we cannot confirm that this will actually be implemented, monitored, and enforced on the Project site, and the Project is not consistent with this measure.
Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans	Here, the IS/MND states that “[s]pecific measures to be incorporated into the Project <u>to the extent feasible could include, but are not limited to:</u> ...Use of Energy Star appliances in residential units” (emphasis added) (p. B-67-68). The IS/MND goes on to state that “Energy Star-certified and high-efficiency clothes washers and dishwashers, nonresidential kitchen faucets (except

	restaurant kitchens) with a maximum flow rate of 1.5 gallons per minute, and installation of tankless and on-demand water heaters in commercial kitchens and restrooms, when appropriate” (emphasis added) (p. B-125, Table B.8-6). However, the IS/MND fails to require this measure, stating that measures <u>could include</u> use of energy star appliances in residential units. Finally, the IS/MND fails to mention or address whole-house fans. Thus, as the IS/MND fails to actually <i>require</i> this measure, or discuss the Project’s potential to implement, monitor, and enforce the measure, we cannot verify its inclusion and the Project may be inconsistent.
Require each residential and commercial building equip buildings with energy efficient AC units and heating systems with programmable thermostats/timers	Here, the IS/MND states, “[a]s required under SB 350, doubling of the energy efficiency savings from final end uses of retail customers by 2030 would primarily rely on the existing suite of building energy efficiency standards under the California Code of Regulations (CCR), Title 24, Part 6 (consistency with this regulation is discussed below) and utility-sponsored programs such as rebates for high-efficiency appliances, heating ventilation and air-conditioning (HVAC) systems and insulation. The Project would support this action/strategy because it includes compliance with specific requirements of the Los Angeles Green Code” (p. B-121, Table B.8-6). However, the IS/MND fails to indicate any <i>project-specific</i> requirements for energy efficient AC units or heating systems with programmable thermostats/timers. Thus, the Project is not consistent with this measure.
Require large-scale residential developments and commercial buildings to report energy use, and set specific targets for per-capita energy use	Here, the IS/MND fails to mention or require the residential and commercial buildings included in the proposed Project to report energy use or set specific targets or per-capita energy use. Thus, the Project is not consistent with this measure.
Require each residential and commercial building to utilize low flow water fixtures such as low flow toilets and faucets (see CALGreen Divisions 4.3 and 5.3 as well as Appendices A4.3 and A5.3)	Here, the IS/MND states that “[s]pecific measures to be incorporated into the Project to the extent feasible could include, but are not limited to:...Use of ultra-low-flow toilets and low-flow metered hand-wash faucets in public facilities” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <u>could include</u> use of ultra-low-flow toilets and low-flow faucets. The IS/MND also fails to evaluate the

	feasibility of this measure or elaborate on the Project's potential to implement, monitor, and enforce it. Thus, the Project is not consistent with this measure.
Require the use of energy-efficient lighting for all street, parking, and area lighting	The IS/MND fails to require the use of energy-efficient lighting for street, parking, and area lighting. While the IS/MND states that "[s]pecific measures to be incorporated into the Project <u>to the extent feasible could include, but are not limited to:</u> ...Use of energy efficient lighting," it fails to evaluate the feasibility of this measure or elaborate on the Project's potential to implement, monitor, and enforce the measure (emphasis added) (p. B-67-B-68). Thus, the Project is not consistent with this measure.
Require the landscaping design for parking lots to utilize tree cover and compost/mulch	Here, the IS/MND fails to mention or consider tree cover or compost/mulch in the landscaping design for parking lots. Thus, the Project is not consistent with this measure.
Incorporate water retention in the design of parking lots and landscaping, including using compost/mulch	Here, the IS/MND fails to incorporate water retention into the design of parking lots and landscaping, including the use of compost/mulch. Thus, the Project is not consistent with this measure.
Require the development project to propose an off-site mitigation project which should generate carbon credits equivalent to the anticipated GHG emission reductions. This would be implemented via an approved protocol for carbon credits from California Air Pollution Control Officers Association (CAPCOA), the California Air Resources Board, or other similar entities determined acceptable by the local air district	Here, the IS/MND fails to mention or require off-site mitigation projects or carbon credits. The IS/MND also fails to discuss the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR) or other similar carbon credit registries. Thus, the Project is not consistent with this measure.
Require the project to purchase carbon credits from the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR) or other similar carbon credit registry determined to be acceptable by the local air district	Here, the IS/MND fails to mention the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR) or other similar carbon credit registries. Thus, the Project is not consistent with this measure.
Consider generating or purchasing local and California-only carbon credits as the preferred mechanism to implement its offsite mitigation measure for GHG	Here, the IS/MND fails to mention or consider carbon credits, or California-only carbon credits. Thus, the Project is not consistent with this measure.

emissions and that will facilitate the State's efforts in achieving the GHG emission reduction goal	
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SCAG 2016 – 2040 RTP/SCS ³⁴	
Measures – Air Quality (transportation control measures TCM)	
Reduce emissions with the use of clean fuels and reducing petroleum dependency.	Here, while the IS/MND mentions several policies that increase the use of clean fuels and reduce petroleum dependency, the IS/MND fails to demonstrate how the Project would implement this measure (p. B-64, B-94, B-127). Thus, the Project is not consistent with this measure.
Use watering trucks to minimize dust; watering should be sufficient to confine dust plumes to the project work areas	Here, the IS/MND states that “it is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Rule 403 control requirements include measures to prevent the generation of visible dust plumes. Measures include, but are not limited to, applying water and/or soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system or other control measures to remove bulk material from tires and vehicle undercarriages before vehicles exit the Project Site, and maintaining effective cover over exposed areas” (p. B-41). Thus, the Project has the option to <i>either</i> apply water <i>and/or</i> soil binders but has not actually committed to either. The IS/MND also fails to discuss the Project’s potential to implement, monitor, and enforce the use of watering trucks to minimize dust. As a result, the Project is not consistent with this measure.
Revegetate disturbed lands, including vehicular paths created during construction to avoid future off-road vehicular activities.	Here, the IS/MND states that “it is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Rule 403 control requirements include measures to prevent the generation of visible dust plumes. Measures include, but are not limited to, applying water and/or soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system or other control measures to remove bulk material from tires and vehicle undercarriages

³⁴ Southern California Association of Governments (“SCAG”) (Apr. 2016) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, *available at*: https://ww3.arb.ca.gov/cc/scopingplan/2030sp_appb_localaction_final.pdf, p.

	before vehicles exit the Project Site, and maintaining effective cover over exposed areas” (p. B-41). As such, the Project has the option to reestablish ground cover <u>and/or</u> implement one of the other measures listed but has not committed to any one measure. The IS/MND also fails to discuss the Project’s potential to implement, monitor, and enforce the measure. Thus, the Project is not consistent with this measure.
As appropriate, require that portable engine-driven equipment units used at the project work site, with the exception of on-road and offroad motor vehicles, obtain ARB Portable Equipment Registration with the state or local district permit.	Here, the IS/MND fails to require that portable engine-driven equipment units obtain ARB Portable Equipment Registration. Thus, the Project is not consistent with this measure.
Measures – Greenhouse Gases	
Incorporate Best Available Control Technology (BACT) during design, construction and operation of projects to minimize greenhouse gas emissions.	Here, the IS/MND states that CARB’s Airborne Toxic Control Measure “requires that best available control technology turnovers or retrofits be fully implemented by 2023 for large and medium equipment fleets and by 2028 for small fleets” (p. B-65). However, stating that this requirement exists does not demonstrate that the Project would implement, monitor, and enforce the measure during design, construction, and operation. Furthermore, the Project is anticipated to begin construction in 2022, so the 2023 and 2028 requirements would not be achieved by the time that construction of the Project begins (Appendix C, pp. 6, 37, 71). Thus, the Project is not consistent with this measure.
Use energy- and fuel-efficient vehicles and equipment.	Here, while the IS/MND discusses the USEPA Tier 1 through Tier 4 engine emission reductions, the IS/MND fails to require the use or evaluate the feasibility of obtaining these cleaner engines (p. B-16). As a result, the proposed Project fails to require the use of energy- and fuel-efficient vehicles and equipment. Thus, the Project is not consistent with this measure.
Incorporate design measures to reduce greenhouse gas emissions from solid waste management through encouraging solid waste recycling and reuse.	Regarding solid waste recycling, the IS/MND states, “In compliance with LAMC provisions, the Project shall provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of nonhazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, and

	metals” (p. B-257). The IS/MND goes on to state, “In compliance with AB341, recycling bins shall be provided at appropriate locations to promote recycling of paper, metal, glass and other recyclable material. These bins shall be emptied and recycled accordingly as a part of the Project’s regular solid waste disposal program. The Project Applicant shall only contract for waste disposal services with a company that recycles solid waste in compliance with AB3 41” (p. B-257). However, the IS/MND fails to discuss the Project’s potential to implement, monitor, and enforce this measure. Furthermore, the IS/MND fails to mention how the Project would encourage the reuse of solid waste. Thus, the Project is not consistent with this measure.
Incorporate design measures to reduce energy consumption and increase use of renewable energy	Here, the IS/MND states that the “LADWP is required to commit to the use of renewable energy sources for compliance with the California Renewable Energy Resources Act” (p. B-62, B-79, B-120 Table B.8-6). The IS/MND goes on to state, “[w]ith respect to on-site renewable energy sources, because of the Project’s location, there are no local sources of energy from the following sources: biodiesel, biomass hydroelectric and small hydro, digester gas, fuel cells, landfill gas, municipal solid waste, ocean thermal, ocean wave, and tidal current technologies, or multi-fuel facilities using renewable fuels” (p. B-80). However, while other locations may be “more suitable for large-scale solar power generation” and there may be a “lack of sufficient wind in the Los Angeles basin,” the IS/MND fails to discuss potentially feasible options, such as small-scale solar generation or other sources (B-80). Furthermore, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to:</u>...15% of the roof area set aside for future solar panels” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <i>could include</i> rooftop solar panels. The IS/MND also fails to evaluate the measure’s feasibility, or discuss the Project’s potential to implement, monitor, and enforce it. As a result, the Project fails to comply with this measure.

Plant shade trees in or near construction projects where feasible.	Here, the IS/MND fails to mention planting shade trees during construction. Thus, the Project is not consistent with this measure.
Construct buildings to Leadership in Energy and Environmental Design (LEED) certified standards.	Here, the IS/MND fails to mention or consider constructing buildings to LEED standards. Thus, the Project is not consistent with this measure.
Measures – Transportation, Traffic and Safety	
Promote ride sharing programs e.g., by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and designating adequate passenger loading and unloading and waiting areas.	Here, the IS/MND states that “[s]pecific measures to be incorporated into the <u>Project to the extent feasible could include, but are not limited to</u> :...Provision of electric vehicle charging stations in the parking structure; 5% of total spaces will be designated for low emitting, fuel efficient and carpool/van pool vehicles” (emphasis added) (p. B-67-68). However, the IS/MND fails to require this measure, stating that measures <i>could include</i> designated parking for shared vehicles. The IS/MND also fails to evaluate the feasibility of this measure or the Project’s potential to implement, monitor, and enforce this measure on the Project site. Finally, the IS/MND fails to mention designating passenger loading and unloading and waiting areas. Thus, the Project is not consistent with this measure.
Encourage bicycling to transit facilities by providing additional bicycle parking, locker facilities, and bike lane access to transit facilities when feasible.	Here, the IS/MND states that “S. Oxford Avenue contains a bike lane that extends from W. 3 rd Street northwards. W. 7 th Street contains a bike lane from S. Catalina Street eastwards” (p. B-238). The IS/MND goes on to state that “[t]he Project would provide residents and visitors with convenient access to public transit and opportunities for walking and biking, including the installation of bicycle parking spaces in accordance with LAMC requirements” (p. B-136). However, the IS/MND fails to evaluate the feasibility of this measure or the Project’s potential to implement, monitor, and enforce this measure on the Project site. The IS/MND also fails to indicate that the Project would provide locker facilities and bike lane access to transit facilities. Thus, the Project is not consistent with this measure.
Encourage the use of public transit systems by - enhancing safety and cleanliness on vehicles and in and around stations - providing shuttle service to public transit	Here, the IS/MND states that “[t]he Project would provide residents and visitors with convenient access to public transit and opportunities for walking and biking” (p. B-136). However, the IS/MND fails to describe what specific measures the Project would incorporate to achieve this.

• offering public transit incentives • providing public education and publicity about public transportation services.	The IS/MND also fails to mention how the Project would enhance safety and cleanliness on vehicles and in and around stations, provide shuttle service to public transit, offer public transit incentives, or provide public education and publicity about public transportation services. Thus, the Project is not consistent with this measure.
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As the above tables indicate, the IS/MND fails to provide sufficient information and analysis to determine Project consistency with various measures under CARB's Climate Change Scoping Plan and SCAG's 2016–2040 RTP/SCS. Thus, we cannot verify that “the Project is consistent with applicable plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs” as indicated in the IS/MND (p. B-139). As a result, we recommend that an updated CEQA evaluation include further information and analysis in order to conclude consistency for the proposed Project.

(5) Inconsistent with Evolving Scientific Knowledge and Regulatory Schemes

As a result of reliance upon CARB's Climate Change Scoping Plan, SCAG's 2016–2040 RTP/SCS, the City's LA Green Plan, and the Sustainable City pLAn, the IS/MND fails to compare the Project's GHG emissions to correct SCAQMD thresholds. As explained below, consistent with CEQA Guidelines, the SCAQMD's interim thresholds should have been used by the IS/MND to evaluate the Project's GHG impact. It is commonly recognized by California air districts that a project's impact on climate change is cumulative in nature.³⁵ According to the Technical Advisory prepared by the Office of Planning and Research

³⁵ See e.g., SCAQMD (Oct. 2008), *supra* fn. 28, p. 1-4-5 (citing the OPR Technical Advisor: “When assessing whether a project's effects on climate change are ‘cumulatively considerable’ even though its GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects.”), [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgattachmente.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf); Bay Area Air Quality Management District (“BAAQMD”) (May 2017) CEQA Air Quality Guidelines, p. 2-1 (“No single project could generate enough GHG emissions to noticeably change the global average temperature [but rather] [t]he combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts.”), http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en; San Luis Obispo County Air Pollution Control District (“SLOAPCD”) (Mar. 28, 2012) GHG Threshold and Supporting Evidence, p. 5 (“No single land use project could generate enough GHG emissions to noticeably change the global average temperature. Cumulative GHG emissions, however, contribute to global climate change and its significant adverse environmental impacts. Thus, the primary goal in adopting GHG significance thresholds, analytical methodologies, and mitigation measures is to ensure new land use development provides its fair share of the GHG reductions needed to address cumulative environmental impacts from those emissions.”), <https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/Greenhouse%20Gas%20Thresholds%20and%20Supporting%20Evidence%204-2-2012.pdf>; Sacramento Metropolitan Air Quality Management District (“SMAQMD”) (May 2018) Guide to Air Quality Assessment in Sacramento County, p. 6-1-3, (“(GHG) emissions adversely affect the environment through contributing, on a cumulative basis, to global climate change ... *the District recommends that lead agencies address the impacts of climate change on a proposed project and its ability to adapt to these changes in CEQA documents...* [thus urging] evaluating whether the GHG emissions associated with a proposed project will be responsible for making a cumulatively considerable contribution to global climate change.”[emphasis original]), <http://www.airquality.org/LandUseTransportation/Documents/Ch6GHGFinal5-2018.pdf>.

("OPR"), "[t]he potential effects of a project may be individually limited but cumulatively considerable[]" and that "[l]ead agencies should not dismiss a proposed project's direct and/or indirect climate change impacts without careful consideration, supported by substantial evidence ... [including] analysis should be provided for any project that may significantly contribute to new GHG emissions, either individually or cumulatively, directly or indirectly."³⁶ Furthermore, OPR rightfully acknowledge, consistent with state regulatory schemes and CEQA case law, that "thresholds cannot be used to determine automatically whether a given effect will or will not be significant; instead, thresholds of significance can be used only as a measure of whether a certain environmental effect will normally be determined to be significant or normally will be determined to be less than significant by the agency."³⁷ Recognizing this principle, CEQA Guidelines 15064.7(c) permits the use of thresholds developed by other public agencies.

Similarly, the California Supreme Court has made clear that CEQA demands robust GHG analysis to assess a project's impact on climate change, and while lead agencies have discretion, that discretion must be exercised "based to the extent possible on scientific and factual data" and "stay[ing] in step with evolving scientific knowledge and state regulatory schemes." *Cleveland National Forest Foundation v. San Diego Assn. of Governments* ("Cleveland II") (2017) 3 Cal.5th 497, 504, 515, 518 (quoting CEQA Guidelines § 15064(b)); *see also* 519 (noting to meet the State's long-term climate goals, "regulatory clarification, together with improved methods of analysis, may well change the manner in which CEQA analysis of long-term [GHG] emission impacts is conducted."). Hence, a GHG analysis which "understates the severity of a project's impacts impedes meaningful public discussion and skews the decision maker's perspective concerning the environmental consequences of the project, the necessity for mitigation measures, and the appropriateness of project approval." *Id.*, on remand ("Cleveland III"), 17 Cal.App.5th 413, 444; *see also* *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564 (quoting *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392).

SCAQMD's multi-tiered approach under its *Interim Threshold* was not officially adopted as a valid threshold or part of a plan "adopted by the relevant public agency through a public review process" as CEQA requires.³⁸ Moreover, SCAQMD developed its thresholds when AB 32 was the governing statute for GHG reductions in California. AB 32 requires California to reduce GHG emissions to 1990 levels by 2020. Health & Saf. Code § 38500 *et seq.* However, in September 2016, before the release of the IS/MND, Governor Brown signed Senate Bill 32, enacting Health & Saf. Code § 38566. This statute ("SB 32") requires California to achieve a new, more aggressive 40 percent reduction in GHG emissions over the 1990 level by the end of 2030.

Consistent with the edicts of SB 32, other air control districts have adopted more aggressive GHG thresholds for project-level analysis, including but not limited to the Sacramento Metropolitan Air Quality Management District (SMAQMD), the Bay Area Air Quality Management District (BAAQMD), and

³⁶ OPR (June 19, 2008) Technical Advisory on CEQA and Climate Change, p. 6, <http://opr.ca.gov/docs/june08-ceqa.pdf>.

³⁷ OPR (Nov. 2017) Proposed Updates to the CEQA Guidelines, p. 7 (citing CEQA Guidelines §§ 15064 and 15064.7 and *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108-1109), http://opr.ca.gov/docs/20171127_Comprehensive_CEQA_Guidelines_Package_Nov_2017.pdf.

³⁸ SCAQMD (Dec. 5, 2008), *supra* fn. 50, p. 3.

the San Luis Obispo Air Pollution Control District (SLOAPCD) (as summarized in the tables below). Given the cumulative nature of GHG emissions and consistent with CEQA Guidelines § 15064.7(c), these recommended thresholds are appropriate for projects in the SCAQMD regions.

SMAQMD (May 2018) Guide to Air Quality Assessment ³⁹		
Land Development and Construction Projects		
Construction Phase		Operational Phase
Greenhouse Gas Emissions (GHG) Thresholds		
GHG as CO ₂ e	1,100 metric tons/year	1,100 metric tons/year
Stationary Source Only		
Construction Phase		Operational Phase
Greenhouse Gas Emissions (GHG) Thresholds		
GHG as CO ₂ e	1,100 metric tons/year	10,000 metric tons/year

- 1) Construction phase of all project types – 1,100 MT CO₂e/yr.
- 2) Operational phase of a land development project – 1,100 MT CO₂e/yr (noting a 72-room hotel and a 122-unit high-rise apartment building would each be equivalent to the 1,100 MT CO₂e/yr threshold).⁴⁰
- 3) Stationary source operational emissions – 10,000 MT CO₂e/yr.

BAAQMD (May 2017) CEQA Air Quality Guidelines ⁴¹	
GHGs – Projects other than Stationary Sources	Compliance with Qualified GHG Reduction Strategy OR 1,100 MT of CO ₂ e/yr OR 4.6 MT CO ₂ e/SP/yr (residents+employees)
GHGs – Stationary Sources	10,000 MT/yr

While providing 10,000 MT CO₂e/yr for stationary-source projects, other projects (e.g., residential, commercial, public land uses):

- 1) CAP: Compliance with a qualified GHG Reduction Strategy; or
- 2) Bright Line: Annual emissions less than 1,100 MT CO₂e/year; or
- 3) Efficiency Level: 4.6 MT CO₂e/SP/year (residents + employees).⁴²

³⁹ SMAQMD (May 2018), *supra* fn. 50, p. 6-10-12; see also SMAQMD Thresholds of Significance Table, <http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable5-2015.pdf>.

⁴⁰ SMAQMD (Apr. 2018) SMAQMD Operational Screening Levels (showing that a 190-room hotel like Option A or a 160-unit high-rise apartment like Option B would exceed the 72-room and 122-unit thresholds), <http://www.airquality.org/LandUseTransportation/Documents/Ch4+Ch6OperationalScreening4-2018.pdf>.

⁴¹ BAAQMD (May 2017), *supra* fn. 50, p. 2-2-4. Like the SCAQMD area, BAAQMD is designated as a nonattainment area for state/national ozone and particulate matter (PM) and thresholds would seem particularly apt for the 5th and Hill Project. Compare *id.* at p. 2-1 with SCAQMD NAAQS/CAAQS Attainment Status (noting “extreme” and “serious” nonattainment for multiple ozone and PM standards), <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf>.

⁴² The BAAQMD has not formally adopted an efficiency level after 2020. However, other projects within BAAQMD’s jurisdiction have extrapolated 2030 efficiency thresholds in order to comply with SB 32 reduction targets. For example, the Park View Towers Project’s Addendum to the Final Supplemental Environmental Impact Report utilizes a 2030 efficiency threshold of 2.6 MT CO₂e/year. Based on this efficiency threshold, the proposed Project would exceed threshold and result in a significant impact. Park View Tower’s Addendum available at: <http://www.sanjoseca.gov/DocumentCenter/View/80743>

GHG Emissions Threshold Summary	
Residential and Commercial Projects	Compliance with Qualified GHG Reduction Strategy
	OR
	Bright-Line Threshold of 1,150 MT of CO ₂ e/yr.
Industrial (Stationary Sources)	OR
	Efficiency Threshold of 4.9 MT CO ₂ e/SP*/yr.
	10,000 MT of CO ₂ e/yr.

- 1) CAP: Consistency with qualitative reduction strategies (e.g., Climate Action Plans).
- 2) Bright-Line Threshold: 1,150 MT CO₂e/year after inclusion of emission-reducing features of a proposed project, those still exceeding the threshold would have to reduce their emissions below that level to be considered less than significant.
- 3) Efficiency-Based Threshold: 4.9 MT CO₂e/SP/year dependent on per capita basis for residential projects or the sum of jobs and residents for mixed-use projects (noting 0.64 employees per 1,000 SF of hotel development).

Although more demanding, the above-listed thresholds adopted by these air districts are analogous with the application of SCAQMD's screening threshold for mixed-use developments (3,000 MT CO₂e/year) and SCAQMD's Tier 4 efficiency target goals (4.8 MT CO₂e/SP/year for target year 2020 and 3.0 MT CO₂e/SP/year for target year 2035).⁴⁴ The actions taken by other air districts to reduce GHG emissions through more stringent thresholds is the most persuasive rationale as to why the *Interim Thresholds* apply as the current standard set of evolving scientific knowledge and regulatory schemes. Even though the SCAQMD's interim thresholds may be outdated and may not be officially adopted, they are consistent with the methods of analysis that are regularly practiced by other air districts and furthers CEQA's demand for "conservative analysis" to afford "fullest possible protection of the environment."⁴⁵ Hence, the IS/MND's GHG analysis is not consistent with evolving standards, nor is the conclusion that the Project has a less than significant GHG impact supported by substantial evidence.

⁴³ SLOAPCD (Mar. 28, 2012), *supra* fn. 50, p. 25-30, 42.

⁴⁴ See SCAQMD (Dec. 5, 2008) Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2); see also SCAQMD (Oct. 2008) Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgattachmente.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf); SCAQMD (Sep. 28, 2010) Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group # 15, [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf).

⁴⁵ "Warehouse Truck Trip Study Data Results and Usage Presentation: Inland Empire Logistics Council." SCAQMD, June 2014, http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/final-ielc_6-19-2014.pdf?sfvrsn=2, p. 3; see also *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 390 ("The foremost principle under CEQA is that the Legislature intended the act to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.") (internal citations omitted).

(6) Incorrect and Unsubstantiated Air Model Demonstrate a Potentially Significant Impact

Notwithstanding the IS/MND CalEEMod's underestimated emissions, as discussed above, the Project's CalEEMod output files demonstrate that the Project would result in a potentially significant GHG impact.

The IS/MND's CalEEMod output files demonstrate that the Project's mitigated emissions include roughly 8,699 MT CO₂e/yr (amortized construction and operational emissions). When we compare the Project's GHG emissions to the 3,000 MT CO₂e/year mixed-use threshold (SCAQMD Tier 3 Option #1), we find that the Project's GHG emissions exceed the threshold (see table below).

IS/MND Annual Greenhouse Gas Emissions	
Project Phase	Proposed Project (MT CO ₂ e/year)
Construction (amortized over 30 years)	139.8
Area	11.1
Energy	4,530.7
Mobile	3,281.0
Waste	190.1
Water	546.0
Total	8,698.7
Threshold	3,000
Exceed?	Yes

As demonstrated in the table above, the proposed Project, even when modeled with underestimated emissions, would exceed the SCAQMD's 3,000 MT CO₂e/yr mixed-use threshold. Hence, a service population analysis is warranted. According to CAPCOA's *CEQA & Climate Change* report, service population is defined as "the sum of the number of residents and the number of jobs supported by the project."⁴⁶ According to the IS/MND, the Project would require 50 employees (p. B-35). According to the IS/MND's CalEEMod model, the residential land use would house 1,830 people. Thus, we estimate a service population of 1,880.⁴⁷ Dividing the Project's GHG emissions by a service population of 1,880 people, we find that the Project would emit approximately 4.63 MT CO₂e/SP/yr (see table below).⁴⁸

IS/MND Service Population Efficiency Analysis	
Project Phase	Proposed Project (MT CO ₂ e/year)
Total	8,698.67
Service Population	1,880

⁴⁶ CAPCOA (Jan. 2008) *CEQA & Climate Change*, p. 71-72, <http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf>.

⁴⁷ Calculated: 50 employees + 1,830 residents = 1,880 service population.

⁴⁸ Calculated: (8,698.7 MT CO₂e/year) / (1,880 service population) = (4.63 MT CO₂e/SP/year)

Service Population Efficiency	4.63
Threshold	3.00
<i>Exceed?</i>	<i>Yes</i>

When we compare the Project's per service population GHG emissions to the SCAQMD 2035 efficiency target of 3.0 MT CO₂e/SP/yr, we find that the Project would result in a significant GHG impact not previously identified or addressed by the IS/MND. According to CEQA Guidelines § 15064.4(b), if there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, a full CEQA analysis must be prepared for the project. Therefore, an updated CEQA analysis must be prepared for the Project, and mitigation should be implemented where necessary, per CEQA Guidelines.

(7) Updated Analysis Demonstrates a Potentially Significant GHG Impact

Applicable thresholds and site-specific modeling demonstrate that the proposed Project would result in a potentially significant GHG impact not previously identified or addressed by the IS/MND. The updated CalEEMod output files, modeled by SWAPE with Project-specific information, disclose the Project's mitigated emissions, which include approximately 7,667 MT CO₂e of total construction emissions (sum of 2022, 2023, 2024, 2025, and 2026) and approximately 9,247 MT CO₂e/yr of annual operational emissions (sum of area, energy, mobile, waste, and water-related emissions). When we compare the Project's GHG emissions to the 3,000 MT CO₂e/yr mixed-use threshold (SCAQMD Tier 3 Option #1), we find that the Project's GHG emissions exceed the threshold (see table below).

SWAPE Annual Greenhouse Gas Emissions	
Project Phase	Proposed Project (MT CO₂e/year)
Construction (amortized over 30 years)	255.6
Area	11.1
Energy	4,530.7
Mobile	3,968.9
Waste	190.1
Water	546.0
Total	9,502.4
Threshold	3,000
<i>Exceed?</i>	<i>Yes</i>

As demonstrated in the table above, the proposed Project would exceed the SCAQMD's 3,000 MT CO₂e/yr mixed-use threshold. Hence, a service population analysis is warranted. When dividing the Project's GHG emissions (amortized construction + operational) by a service population value of 1,880 people, we find that the Project would emit approximately 5.05 MT CO₂e/SP/yr.⁴⁹ This exceeds the

⁴⁹ Calculated: (9,502 MT CO₂e/year) / (1,880 service population) = (5.05 MT CO₂e/SP/year).

SCAQMD 2035 efficiency target of 3.0 MT CO₂e/SP/yr and the inapplicable SCAQMD 2020 threshold of 4.8 MT CO₂e/SP/yr (see table below).

SWAPE Service Population Efficiency Analysis	
Project Phase	Proposed Project (MT CO₂e/yr)
Total	9502.37
Service Population	1880.00
Service Population Efficiency	5.05
Threshold	3.00
Exceed?	Yes

As the table above demonstrates, the Project's GHG emissions exceed the SCAQMD's 2035 service population efficiency threshold of 3.0 MT CO₂e/SP/yr, thus resulting in a significant impact not previously assessed or identified in the IS/MND. Thus, an updated GHG analysis should be prepared in a Project-specific EIR and additional mitigation should be incorporated accordingly (see below).

Feasible Mitigation Measures Available to Reduce Construction Emissions

Our analysis demonstrates that, when Project activities are modeled correctly, the Project's health risk and GHG impacts would be potentially significant. Therefore, additional mitigation measures must be identified and incorporated in an IS/MND to reduce these emissions to a less than significant level.

Additional mitigation measures can be found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*, which attempt to reduce GHG levels, as well as reduce criteria air pollutants such as particulate matter, VOCs, and NO_x.⁵⁰ Mitigation for criteria pollutant emissions should include consideration of the following measures in an effort to reduce construction emissions.⁵¹

Require Implementation of Diesel Control Measures

The Northeast Diesel Collaborative (NEDC) is a regionally coordinated initiative to reduce diesel emissions, improve public health, and promote clean diesel technology. The NEDC recommends that contracts for all construction projects require the following diesel control measures:⁵²

- All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85 percent.

⁵⁰ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

⁵¹ For measures to reduce operational DPM emissions, see section titled "Additional Feasible Mitigation Measures Available to Reduce Operational Emissions" on p. 42 of this letter. These measures would effectively reduce operational emissions, DPM emissions, and GHG emissions.

⁵² Diesel Emission Controls in Construction Projects, available at: <http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf>

- All diesel vehicles, construction equipment, and generators on site shall be fueled with ultra-low sulfur diesel fuel (ULSD) or a biodiesel blend⁵³ approved by the original engine manufacturer with sulfur content of 15 parts per million (ppm) or less.

Repower or Replace Older Construction Equipment Engines

The NEDC recognizes that availability of equipment that meets the EPA's newer standards is limited.⁵⁴ Due to this limitation, the NEDC proposes actions that can reduce emissions from existing equipment in the *Best Practices for Clean Diesel Construction* report.⁵⁵ These actions include but are not limited to:

- Repowering equipment (i.e. replacing older engines with newer, cleaner engines and leaving the body of the equipment intact).

Engine repower may be a cost-effective emissions reduction strategy when a vehicle or machine has a long useful life and the cost of the engine does not approach the cost of the entire vehicle or machine. Examples of good potential replacement candidates include marine vessels, locomotives, and large construction machines.⁵⁶ Older diesel vehicles or machines can be repowered with newer diesel engines or in some cases with engines that operate on alternative fuels. The original engine is taken out of service and a new engine with reduced emission characteristics is installed. Significant emission reductions can be achieved, depending on the newer engine and the vehicle or machine's ability to accept a more modern engine and emission control system.

- Replacement of older equipment with equipment meeting the latest emission standards.

Engine replacement can include substituting a cleaner highway engine for a nonroad engine. Diesel equipment may also be replaced with other technologies or fuels. Examples include hybrid switcher locomotives, electric cranes, LNG, CNG, LPG or propane yard tractors, forklifts or loaders. Replacements often require some re-engineering work due to differences in size and configuration. Typically, there are benefits in fuel efficiency, reliability, warranty, and maintenance costs.⁵⁷

Install Retrofit Devices on Existing Construction Equipment

PM emissions from alternatively-fueled construction equipment can be further reduced by installing retrofit devices on existing and/or new equipment. The most common retrofit technologies are retrofit devices for engine exhaust after-treatment. These devices are installed in the exhaust system to reduce

⁵³ Biodiesel blends are only to be used in conjunction with the technologies which have been verified for use with biodiesel blends and are subject to the following requirements:

<http://www.arb.ca.gov/diesel/verdev/reg/biodieselcompliance.pdf>

⁵⁴ <https://www.northeastdiesel.org/pdf/construction/BestPractices4CleanDieselConstructionAug2012.pdf>

⁵⁵ <https://www.northeastdiesel.org/pdf/construction/BestPractices4CleanDieselConstructionAug2012.pdf>

⁵⁶ Repair, Rebuild, and Repower, EPA, available at: <https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#repair>

⁵⁷ Cleaner Fuels, EPA, available at: <https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#cleaner>

emissions and should not impact engine or vehicle operation.⁵⁸ It should be noted that actual emissions reductions and costs will depend on specific manufacturers, technologies and applications.

Use Electric and Hybrid Construction Equipment

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*⁵⁹ report also proposes the use of electric and/or hybrid construction equipment to mitigate DPM emissions. When construction equipment is powered by grid electricity rather than fossil fuel, direct emissions from fuel combustion are replaced with indirect emissions associated with the electricity used to power the equipment. When construction equipment is powered by hybrid-electric drives, emissions from fuel combustion are also greatly reduced. Electric construction equipment is available commercially from companies such as Peterson Pacific Corporation,⁶⁰ which specialize in mechanical processing equipment like grinders and shredders. Equipment powered by hybrid-electric drives is commercially available from companies such as Caterpillar.⁶¹ For example, Caterpillar reports that during an 8-hour shift, its D7E hybrid dozer burns 19.5 percent fewer gallons of fuel than a conventional dozer while achieving a 10.3 percent increase in productivity. The D7E model burns 6.2 gallons per hour compared to a conventional dozer which burns 7.7 gallons per hour.⁶² Fuel usage and savings are dependent on the make and model of the equipment.

Implement a Construction Vehicle Inventory Tracking System

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*⁶³ report recommends that the Project Applicant provide a detailed plan that discusses a construction vehicle inventory tracking system to ensure compliances with construction mitigation measures. The system should include strategies such as requiring engine run time meters on equipment, documenting the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment and daily logging of the operating hours of the equipment. Specifically, for each on-road construction vehicle, nonroad construction equipment, or generator, the contractor should submit to the developer's representative a report prior to bringing said equipment on site that includes:⁶⁴

- Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number.
- The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level.

⁵⁸ Retrofit Technologies, EPA, available at: <https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#retrofit>

⁵⁹ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

⁶⁰ Peterson Electric Grinders Brochure, available at: http://www.petersoncorp.com/wp-content/uploads/peterson_electric_grinders1.pdf

⁶¹ Electric Power Products, available at: http://www.cat.com/en_US/products/new/power-systems/electric-power-generation.html

⁶² <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

⁶³ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

⁶⁴ Diesel Emission Controls in Construction Projects, available at: <http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf>

- The Certification Statement⁶⁵ signed and printed on the contractor's letterhead.

Furthermore, the contractor should submit to the developer's representative a monthly report that, for each on-road construction vehicle, nonroad construction equipment, or generator onsite, includes: ⁶⁶

- Hour-meter readings on arrival on-site, the first and last day of every month, and off-site date.
- Any problems with the equipment or emission controls.
- Certified copies of fuel deliveries for the time period that identify: source of supply, quantity of fuel, and quantity of fuel (including sulfur content as percent by weight).

Enhanced Exhaust Control Practices

In addition, we also recommend that the Project implement the following mitigation measures that are recommended by the Sacramento Metropolitan Air Quality Management District ("SMAQMD")⁶⁷:

1. The project representative shall submit to the lead agency a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project.
 - The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment.
 - The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.
 - This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment.
 - The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
2. The project representative shall provide a plan for approval by the lead agency demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average.
 - This plan shall be submitted in conjunction with the equipment inventory.
 - Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
 - The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

⁶⁵ Diesel Emission Controls in Construction Projects, *available at*: <http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf> The NEDC Model Certification Statement can be found in Appendix A.

⁶⁶ Diesel Emission Controls in Construction Projects, *available at*: <http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf>

⁶⁷ http://www.airquality.org/ceqa/Ch3EnhancedExhaustControl_10-2013.pdf

3. The project shall ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour.
 - Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented and a summary provided to the lead agency monthly.
 - A visual survey of all in-operation equipment shall be made at least weekly.
 - A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.
4. The District and/or other officials may conduct site inspections to determine compliance.

Use of Spray Equipment with Greater Transfer Efficiencies

Various coatings and adhesives are required to be applied by specified methods such as electrostatic spray, high-volume, low-pressure (HVLP) spray, roll coater, flow coater, dip coater, etc. in order to maximize the transfer efficiency. Transfer efficiency is defined as the ratio of the weight of coating solids adhering to an object to the total weight of coating solids used in the application process, expressed as a percentage. For spray applications, the rules typically require the use of either electrostatic spray equipment or HVLP spray equipment. Specifically, the SCAQMD has been able to certify HVLP spray applicators and other application technologies at efficiency rates of 65 percent or greater.⁶⁸ Thus, a revised CEQA evaluation should consider this measure to reduce air quality impacts.

These measures offer a cost-effective, feasible way to incorporate lower-emitting equipment into the Project's construction fleet, which reduces construction emissions. A revised CEQA evaluation should be prepared to include additional mitigation, as well as include an updated air quality analysis that ensures the necessary mitigation measures are implemented. The revised CEQA evaluation should also demonstrate a commitment to the implementation of these measures prior to Project approval to ensure that construction-related emissions are reduced to the maximum extent possible.

Feasible Mitigation Measures Available to Reduce Operational Emissions

In an effort to reduce the Project's operational emissions, we identified several mitigation measures that are applicable to the Project. Feasible mitigation measures can be found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*, which attempt to reduce emissions.⁶⁹ Therefore, to reduce the Project's operational emissions, consideration of the following measures should be made:

- Integrate affordable and below market rate housing
- Energy-related mitigation:
 - Install programmable thermostat timers
 - Establish onsite renewable energy systems, including solar power and wind power
 - Limit outdoor lighting requirements

⁶⁸ <http://www.agmd.gov/home/permits/spray-equipment-transfer-efficiency>

⁶⁹ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

- Reduce unnecessary outdoor lighting by utilizing design features such as limiting the hours of operation of outdoor lighting.
- Provide education on energy efficiency to residents, customers, and/or tenants. Provide information on energy management services for large energy users.
- Meet “reach” goals for building energy efficiency and renewable energy use.
- Limit the use of outdoor lighting to only that needed for safety and security purposes.
- Require use of electric or alternatively fueled sweepers with HEPA filters.
- Include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use.
- Prohibit gas powered landscape equipment and implement electric yard equipment
- Transportation-related mitigation:
 - Provide EV parking
 - Require residential area parking permits
 - Implement ride-sharing, vanpool, shuttle, bike-sharing programs
 - Provide bike parking near transit
 - Provide local shuttles
 - Implement area or cordon pricing
 - Install a park-and-ride lot
- Water-related mitigation:
 - Install an infiltration basin to provide an opportunity for 100% of the storm water to infiltrate on-site.
 - Install a system to reutilize gray water
 - Use locally-sourced water supply
 - Plant native and drought-resistant trees and vegetation
- Develop and follow a “green streets guide” that requires:
 - Use of minimal amounts of concrete and asphalt;
 - Use of groundcovers rather than pavement to reduce heat reflection.⁷⁰
- Implement Project design features such as:
 - Shade HVAC equipment from direct sunlight;
 - Install high-albedo white thermoplastic polyolefin roof membrane;
 - Install formaldehyde-free insulation; and
 - Use recycled-content gypsum board.
 - Require all buildings to become “LEED” and “WELL” certified.
- Plant low-VOC emitting shade trees, e.g., in parking lots to reduce evaporative emissions from parked vehicles.

⁷⁰ Cool Houston Plan;

http://www.harcresearch.org/sites/default/files/documents/projects/CoolHoustonPlan_0.pdf

Finally, the Kimball Business Park Project Final Environmental Impact Report includes various feasible mitigation measures that would reduce on-site area emissions that are applicable to the proposed Project's retail land use, and include, but are not limited to:⁷¹

- Increase in insulation such that heat transfer and thermal bridging is minimized.
- Limit air leakage through the structure/within the heating and cooling distribution system.
- Installation of dual-paned or other energy efficient windows.
- Installation of automatic devices to turn off lights where they are not needed.

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduces emissions released during Project operation. A revised CEQA evaluation should be prepared to include additional mitigation measures, as well as include an updated air quality analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to below thresholds. The revised CEQA evaluation should also demonstrate commitment to the implementation of these measures prior to Project approval, to ensure that the Project's significant emissions are reduced to the maximum extent possible.

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,



Matt Hagemann, P.G., C.Hg.



Paul E. Rosenfeld, Ph.D.

⁷¹ Mitigation Monitoring Plan for the Kimball Business Park Project Final Environmental Impact Report, July 2016.

Start date and time 04/14/20 12:43:23

AERSCREEN 16216

3440 Wilshire Construction

3440 Wilshire Construction

----- DATA ENTRY VALIDATION -----

METRIC

ENGLISH

** AREADATA **

Emission Rate: 0.123E-02 g/s 0.977E-02 lb/hr

Area Height: 3.00 meters 9.84 feet

Area Source Length: 182.50 meters 598.75 feet

Area Source Width: 161.00 meters 528.22 feet

Vertical Dimension: 1.50 meters 4.92 feet

Model Mode: URBAN

Population: 3990000

Dist to Ambient Air: 1.0 meters 3. feet

** BUILDING DATA **

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters 0.0 feet

Probe distance: 5000. meters 16404. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 250.0 / 310.0 K -9.7 / 98.3 Deg F

Minimum Wind Speed: 0.5 m/s

Anemometer Height: 10.000 meters

Dominant Surface Profile: Urban

Dominant Climate Type: Average Moisture

Surface friction velocity (u^*): not adjusted

DEBUG OPTION ON

AERSCREEN output file:

2020.04.14_3440Wilshire_Construction.out

*** AERSCREEN Run is Ready to Begin

No terrain used, AERMAP will not be run

SURFACE CHARACTERISTICS & MAKEMET

Obtaining surface characteristics...

Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season	Albedo	Bo	zo
Winter	0.35	1.50	1.000
Spring	0.14	1.00	1.000
Summer	0.16	2.00	1.000
Autumn	0.18	2.00	1.000

Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl

Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl

Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl

Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl

Buildings and/or terrain present or rectangular area source, skipping probe

FLOWSECTOR started 04/14/20 12:47:05

Running AERMOD

Processing Winter

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 20

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 45

***** WARNING MESSAGES *****

*** NONE ***

Running AERMOD

Processing Spring

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 20

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 45

***** WARNING MESSAGES *****

*** NONE ***

Running AERMOD

Processing Summer

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 20

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*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 45

***** WARNING MESSAGES *****

*** NONE ***

Running AERMOD

Processing Autumn

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 20

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 45

***** WARNING MESSAGES *****

*** NONE ***

FLOWSECTOR ended 04/14/20 12:47:22

REFINE started 04/14/20 12:47:22

AERMOD Finishes Successfully for REFIN stage 3 Winter sector 0

***** WARNING MESSAGES *****

*** NONE ***

REFINE ended 04/14/20 12:47:24

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

Ending date and time 04/14/20 12:47:25

Concentration			Distance		Elevation	Diag	Season/Month		Zo sector		Date	
H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
REF	TA	HT										HT
	0.97582E+00		1.00	0.00	35.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.10648E+01		25.00	0.00	35.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.11561E+01		50.00	0.00	0.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.12336E+01		75.00	0.00	10.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.13019E+01		100.00	0.00	30.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
*	0.13097E+01		103.00	0.00	30.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.11610E+01		125.00	0.00	40.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.79891E+00		150.00	0.00	40.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.61151E+00		175.00	0.00	40.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.50071E+00		200.00	0.00	40.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.42521E+00		225.00	0.00	40.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.36990E+00		250.00	0.00	35.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.32680E+00		275.00	0.00	35.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.29210E+00		300.00	0.00	30.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.26364E+00		325.00	0.00	30.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.23992E+00		350.00	0.00	30.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0

310.0	2.0										
	0.21964E+00	375.00	0.00	25.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.20234E+00	400.00	0.00	15.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.18720E+00	425.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.17397E+00	450.00	0.00	10.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.16229E+00	475.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.15182E+00	500.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.14251E+00	525.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.13410E+00	550.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.12659E+00	575.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.11969E+00	600.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.11344E+00	625.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.10775E+00	650.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.10251E+00	675.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.97725E-01	700.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.93277E-01	725.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.89180E-01	750.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0			
310.0	2.0										
	0.85398E-01	775.00	0.00	0.0	Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.81862E-01		800.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.78583E-01		825.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.75524E-01		850.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.72676E-01		875.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.69989E-01		900.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.67472E-01		925.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.65113E-01		950.01		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.62891E-01		975.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.60796E-01		1000.00		0.00	10.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.58815E-01		1025.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.56955E-01		1050.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.55198E-01		1075.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.53527E-01		1100.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.51937E-01		1125.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.50428E-01		1150.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.48995E-01		1175.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.47628E-01	1200.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.46316E-01	1225.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.45066E-01	1250.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.43879E-01	1275.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.42748E-01	1300.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.41667E-01	1325.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.40632E-01	1350.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.39635E-01	1375.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.38680E-01	1400.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.37765E-01	1425.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.36887E-01	1450.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.36044E-01	1475.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.35234E-01	1500.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.34457E-01	1525.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.33708E-01	1550.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.32988E-01	1575.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.32295E-01	1600.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		

310.0	2.0											
	0.31629E-01	1625.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.30986E-01	1650.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.30364E-01	1675.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.29762E-01	1700.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.29180E-01	1725.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28618E-01	1750.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28074E-01	1775.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27545E-01	1800.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27033E-01	1825.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.26538E-01	1850.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.26058E-01	1875.01	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.25595E-01	1900.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.25144E-01	1924.99	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.24709E-01	1950.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.24287E-01	1975.01	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.23877E-01	2000.00	0.00	15.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.23481E-01	2025.00	0.00	15.0		Winter	0-360	10011001				

-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.23095E-01		2050.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.22720E-01		2075.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.22355E-01		2100.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.21999E-01		2125.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.21652E-01		2150.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.21315E-01		2175.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.20987E-01		2200.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.20667E-01		2224.99		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.20356E-01		2250.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.20053E-01		2275.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.19757E-01		2300.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.19469E-01		2325.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.19188E-01		2350.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.18914E-01		2375.00		0.00	15.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.18646E-01		2400.00		0.00	10.0		Winter	0-360	10011001	

0.18133E-01	2450.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.17885E-01	2475.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.17642E-01	2500.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.17406E-01	2525.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.17174E-01	2550.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.16948E-01	2575.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.16727E-01	2600.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.16511E-01	2625.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.16300E-01	2650.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.16094E-01	2675.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.15893E-01	2700.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.15696E-01	2725.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.15503E-01	2750.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.15426E-01	2775.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.15238E-01	2800.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.15054E-01	2825.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.14873E-01	2850.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				

310.0	2.0											
	0.14696E-01	2875.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.14523E-01	2900.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.14353E-01	2925.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.14187E-01	2950.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.14024E-01	2975.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.13865E-01	3000.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.13708E-01	3025.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.13554E-01	3050.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.13404E-01	3075.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.13256E-01	3100.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.13111E-01	3125.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12969E-01	3150.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12829E-01	3175.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12692E-01	3200.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12558E-01	3225.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12426E-01	3250.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12296E-01	3275.00	0.00	0.0		Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12169E-01		3300.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12044E-01		3325.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11921E-01		3350.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11800E-01		3375.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11681E-01		3400.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11565E-01		3425.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11450E-01		3450.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11338E-01		3475.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11227E-01		3500.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11118E-01		3525.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11011E-01		3550.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.10906E-01		3575.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.10802E-01		3600.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.10701E-01		3625.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.10600E-01		3650.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.10502E-01		3675.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.10405E-01	3700.00	0.00	20.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.10309E-01	3725.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.10216E-01	3750.00	0.00	15.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.10123E-01	3775.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.10032E-01	3800.00	0.00	20.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.99423E-02	3825.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.98541E-02	3849.99	0.00	15.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.97672E-02	3875.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.96816E-02	3900.00	0.00	15.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.95973E-02	3925.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.95143E-02	3950.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.94325E-02	3975.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.93519E-02	4000.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.92726E-02	4025.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.91943E-02	4050.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.91172E-02	4074.99	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.90412E-02	4100.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		

310.0	2.0											
	0.89663E-02	4125.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.88925E-02	4149.99	0.00	20.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.88197E-02	4175.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.87480E-02	4200.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.86772E-02	4225.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.86075E-02	4249.99	0.00	45.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.85387E-02	4275.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.84708E-02	4300.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.84039E-02	4325.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.83379E-02	4349.99	0.00	45.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.82728E-02	4375.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.82085E-02	4400.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.81451E-02	4425.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.80826E-02	4449.99	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.80209E-02	4475.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.79600E-02	4500.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.78998E-02	4525.00	0.00	10.0		Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.78405E-02		4550.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.77820E-02		4575.00		0.00	20.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.77242E-02		4599.99		0.00	40.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.76671E-02		4625.00		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.76107E-02		4650.00		0.00	20.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.75551E-02		4674.99		0.00	45.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.75002E-02		4700.00		0.00	35.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.74460E-02		4725.00		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.73924E-02		4750.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.73395E-02		4774.99		0.00	45.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.72872E-02		4800.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.72356E-02		4825.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.71847E-02		4850.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.71343E-02		4875.00		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.70846E-02		4900.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.70354E-02		4924.99		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.69868E-02	4950.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.69389E-02	4975.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.68914E-02	5000.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						

Start date and time 04/14/20 12:47:46

AERSCREEN 16216

3440 Wilshire Operation

3440 Wilshire Operation

----- DATA ENTRY VALIDATION -----

METRIC

ENGLISH

** AREADATA **

Emission Rate: 0.277E-02 g/s 0.220E-01 lb/hr

Area Height: 3.00 meters 9.84 feet

Area Source Length: 182.50 meters 598.75 feet

Area Source Width: 161.00 meters 528.22 feet

Vertical Dimension: 1.50 meters 4.92 feet

Model Mode: URBAN

Population: 3990000

Dist to Ambient Air: 1.0 meters 3. feet

** BUILDING DATA **

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters 0.0 feet

Probe distance: 5000. meters 16404. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 250.0 / 310.0 K -9.7 / 98.3 Deg F

Minimum Wind Speed: 0.5 m/s

Anemometer Height: 10.000 meters

Dominant Surface Profile: Urban

Dominant Climate Type: Average Moisture

Surface friction velocity (u^*): not adjusted

DEBUG OPTION ON

AERSCREEN output file:

2020.04.14_3440Wilshire_Operational.out

*** AERSCREEN Run is Ready to Begin

No terrain used, AERMAP will not be run

SURFACE CHARACTERISTICS & MAKEMET

Obtaining surface characteristics...

Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season	Albedo	Bo	zo
Winter	0.35	1.50	1.000
Spring	0.14	1.00	1.000
Summer	0.16	2.00	1.000
Autumn	0.18	2.00	1.000

Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl

Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl

Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl

Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl

Buildings and/or terrain present or rectangular area source, skipping probe

FLOWSECTOR started 04/14/20 12:48:47

Running AERMOD

Processing Winter

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 20

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 45

***** WARNING MESSAGES *****

*** NONE ***

Running AERMOD

Processing Spring

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 20

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 45

***** WARNING MESSAGES *****

*** NONE ***

Running AERMOD

Processing Summer

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 20

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 45

***** WARNING MESSAGES *****

*** NONE ***

Running AERMOD

Processing Autumn

Processing surface roughness sector 1

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 0

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 5

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 10

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 15

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 20

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 25

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 30

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 35

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 40

***** WARNING MESSAGES *****

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 45

***** WARNING MESSAGES *****

*** NONE ***

FLOWSECTOR ended 04/14/20 12:49:04

REFINE started 04/14/20 12:49:04

AERMOD Finishes Successfully for REFIN stage 3 Winter sector 0

***** WARNING MESSAGES *****

*** NONE ***

REFINE ended 04/14/20 12:49:05

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

Ending date and time 04/14/20 12:49:07

Concentration			Distance		Elevation	Diag	Season/Month			Zo sector		Date	
H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS	HT
REF	TA	HT											
	0.21981E+01		1.00		0.00	35.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.23984E+01		25.00		0.00	35.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.26041E+01		50.00		0.00	0.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.27786E+01		75.00		0.00	10.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.29326E+01		100.00		0.00	30.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
*	0.29501E+01		103.00		0.00	30.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.26153E+01		125.00		0.00	40.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.17996E+01		150.00		0.00	40.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.13774E+01		175.00		0.00	40.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.11279E+01		200.00		0.00	40.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.95778E+00		225.00		0.00	40.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.83319E+00		250.00		0.00	35.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.73612E+00		275.00		0.00	35.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.65797E+00		300.00		0.00	30.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.59385E+00		325.00		0.00	30.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0
310.0	2.0												
	0.54042E+00		350.00		0.00	30.0		Winter		0-360		10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35		0.50	10.0

310.0	2.0										
	0.49475E+00	375.00	0.00	25.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.45576E+00	400.00	0.00	15.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.42167E+00	425.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.39187E+00	450.00	0.00	10.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.36555E+00	475.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.34198E+00	500.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.32101E+00	525.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.30207E+00	550.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.28514E+00	575.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.26960E+00	600.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.25552E+00	625.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.24271E+00	650.00	0.00	5.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.23091E+00	675.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.22013E+00	700.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.21011E+00	725.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.20088E+00	750.00	0.00	0.0	Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.19236E+00	775.00	0.00	0.0	Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.18440E+00		800.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17701E+00		825.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17012E+00		850.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16370E+00		875.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.15765E+00		900.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.15198E+00		925.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.14667E+00		950.01		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.14166E+00		975.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13694E+00		1000.00		0.00	10.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13248E+00		1025.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12829E+00		1050.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12433E+00		1075.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12057E+00		1100.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11699E+00		1125.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11359E+00		1150.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.11036E+00		1175.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.10728E+00	1200.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.10433E+00	1225.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.10151E+00	1250.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.98837E-01	1275.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.96290E-01	1300.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.93856E-01	1325.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.91524E-01	1350.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.89278E-01	1375.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.87127E-01	1400.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.85066E-01	1425.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.83088E-01	1450.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.81190E-01	1475.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.79364E-01	1500.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.77614E-01	1525.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.75928E-01	1550.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.74305E-01	1575.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.72746E-01	1600.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				

310.0	2.0											
	0.71244E-01	1625.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.69796E-01	1650.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.68396E-01	1675.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.67039E-01	1700.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.65729E-01	1725.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.64463E-01	1750.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.63238E-01	1775.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.62046E-01	1800.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.60892E-01	1825.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.59776E-01	1850.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.58697E-01	1875.01	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.57653E-01	1900.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.56638E-01	1924.99	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.55657E-01	1950.00	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.54706E-01	1975.01	0.00	10.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.53784E-01	2000.00	0.00	15.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.52891E-01	2025.00	0.00	15.0		Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.52022E-01		2050.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.51176E-01		2075.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.50354E-01		2100.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.49552E-01		2125.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.48772E-01		2150.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.48012E-01		2175.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.47272E-01		2200.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.46553E-01		2224.99		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.45852E-01		2250.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.45169E-01		2275.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.44504E-01		2300.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.43854E-01		2325.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.43221E-01		2350.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.42604E-01		2375.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.42001E-01		2400.00		0.00	10.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.41416E-01		2425.00		0.00	10.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.40845E-01	2450.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.40286E-01	2475.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.39740E-01	2500.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.39206E-01	2525.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.38685E-01	2550.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.38176E-01	2575.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.37678E-01	2600.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.37190E-01	2625.00	0.00	10.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.36716E-01	2650.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.36252E-01	2675.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.35798E-01	2700.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.35355E-01	2725.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.34920E-01	2750.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.34748E-01	2775.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.34324E-01	2800.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.33908E-01	2825.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.33502E-01	2850.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		

310.0	2.0											
	0.33104E-01	2875.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.32713E-01	2900.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.32331E-01	2925.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.31957E-01	2950.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.31590E-01	2975.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.31230E-01	3000.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.30877E-01	3025.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.30531E-01	3050.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.30192E-01	3075.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.29859E-01	3100.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.29532E-01	3125.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.29212E-01	3150.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28898E-01	3175.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28589E-01	3200.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28286E-01	3225.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27989E-01	3250.00	0.00	5.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27697E-01	3275.00	0.00	0.0		Winter	0-360	10011001				

-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.27410E-01		3300.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.27128E-01		3325.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.26851E-01		3350.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.26580E-01		3375.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.26313E-01		3400.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.26050E-01		3425.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.25792E-01		3450.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.25538E-01		3475.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.25289E-01		3500.00	0.00	5.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.25044E-01		3525.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.24803E-01		3550.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.24566E-01		3575.00	0.00	15.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.24332E-01		3600.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.24103E-01		3625.00	0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.23877E-01		3650.00	0.00	5.0		Winter		0-360	10011001	
-1.30											

0.23437E-01	3700.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.23222E-01	3725.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.23010E-01	3750.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.22802E-01	3775.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.22597E-01	3800.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.22395E-01	3825.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.22196E-01	3850.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.22001E-01	3875.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.21808E-01	3900.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.21618E-01	3925.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.21431E-01	3950.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.21247E-01	3975.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.21065E-01	4000.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.20886E-01	4025.00	0.00	5.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.20710E-01	4050.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.20537E-01	4075.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				
310.0 2.0						
0.20365E-01	4100.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				

310.0	2.0											
0.20197E-01	4125.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.20030E-01	4150.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.19867E-01	4175.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.19705E-01	4200.00	0.00	10.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.19545E-01	4225.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.19388E-01	4250.00	0.00	10.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.19233E-01	4275.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.19080E-01	4300.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.18930E-01	4325.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.18781E-01	4350.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.18634E-01	4375.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.18490E-01	4400.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.18347E-01	4425.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.18206E-01	4449.99	0.00	10.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.18067E-01	4475.00	0.00	0.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.17930E-01	4499.99	0.00	35.0	Winter	0-360	10011001						
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
0.17794E-01	4525.00	0.00	10.0	Winter	0-360	10011001						

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17661E-01		4550.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17529E-01		4575.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17399E-01		4600.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17270E-01		4625.00		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17143E-01		4650.00		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.17018E-01		4675.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16894E-01		4700.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16772E-01		4725.00		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16651E-01		4750.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16532E-01		4775.00		0.00	40.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16415E-01		4800.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16298E-01		4825.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16183E-01		4850.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.16070E-01		4875.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.15958E-01		4900.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.15847E-01		4925.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.15738E-01	4950.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.15630E-01	4975.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.15523E-01	5000.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	1,921.00	Space	1.00	768,400.00	0
Fast Food Restaurant w/o Drive Thru	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	4.60	1000sqft	0.09	4,600.00	0
Apartments High Rise	640.00	Dwelling Unit	1.10	701,315.00	1830
Strip Mall	5.54	1000sqft	0.09	5,538.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	11			Operational Year	2026
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MW hr)	1227.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics -

Land Use - Consistent with IS/MND's model.

Construction Phase - See SWAPE comment about construction schedule.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Same as Tower 1 Construction.

Off-road Equipment - Same as Tower 1 Construction.

Trips and VMT - See SWAPE comment about hauling, vendor, and worker trips.

Demolition - Consistent with IS/MND's model.

Grading - See SWAPE comment about acres of grading. Material export consistent with IS/MND's model.

Vehicle Trips - See SWAPE comment about trip rates.

Woodstoves - Consistent with IS/MND's model.

Construction Off-road Equipment Mitigation - See SWAPE comment about construction-related mitigation measures.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	220.00	414.00
tblConstructionPhase	NumDays	220.00	414.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	6.00	65.00
tblConstructionPhase	NumDays	3.00	21.00
tblFireplaces	NumberGas	544.00	0.00
tblFireplaces	NumberNoFireplace	64.00	641.00

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tblFireplaces	NumberWood	32.00	0.00
tblGrading	MaterialExported	0.00	137,000.00
tblLandUse	LandUseSquareFeet	640,000.00	701,315.00
tblLandUse	LandUseSquareFeet	5,540.00	5,538.00
tblLandUse	LotAcreage	17.29	1.00
tblLandUse	LotAcreage	0.11	0.09
tblLandUse	LotAcreage	10.32	1.10
tblLandUse	LotAcreage	0.13	0.09
tblOffRoadEquipment	LoadFactor	0.36	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TTP	40.60	41.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TTP	40.20	40.00

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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	51.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	4.98	3.79
tblVehicleTrips	ST_TR	696.00	69.95
tblVehicleTrips	ST_TR	158.37	39.97
tblVehicleTrips	ST_TR	42.04	8.35
tblVehicleTrips	SU_TR	3.65	3.79
tblVehicleTrips	SU_TR	500.00	69.95
tblVehicleTrips	SU_TR	131.84	39.97
tblVehicleTrips	SU_TR	20.43	8.35
tblVehicleTrips	WD_TR	4.20	3.79
tblVehicleTrips	WD_TR	716.00	69.95
tblVehicleTrips	WD_TR	127.15	39.97
tblVehicleTrips	WD_TR	44.32	8.35
tblWoodstoves	NumberCatalytic	32.00	0.00
tblWoodstoves	NumberNoncatalytic	32.00	0.00

2.0 Emissions Summary

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2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.7414	7.4701	6.2273	0.0238	1.3799	0.1711	1.5510	0.3951	0.1626	0.5577	0.0000	2,212.9645	2,212.9645	0.2063	0.0000	2,218.1229
2023	3.2017	5.3521	7.6597	0.0240	1.3774	0.1606	1.5380	0.3695	0.1546	0.5242	0.0000	2,172.1854	2,172.1854	0.1499	0.0000	2,175.9326
2024	0.4755	2.8155	4.1481	0.0132	0.7707	0.0738	0.8445	0.2069	0.0715	0.2784	0.0000	1,196.8547	1,196.8547	0.0746	0.0000	1,198.7203
2025	3.1028	4.6550	7.1194	0.0228	1.3824	0.1143	1.4966	0.3709	0.1107	0.4816	0.0000	2,062.5941	2,062.5941	0.1238	0.0000	2,065.6900
2026	0.0246	0.0185	0.0287	9.0000e-005	5.8000e-003	4.7000e-004	6.2700e-003	1.5500e-003	4.6000e-004	2.0100e-003	0.0000	8.2925	8.2925	4.8000e-004	0.0000	8.3046
Maximum	3.2017	7.4701	7.6597	0.0240	1.3824	0.1711	1.5510	0.3951	0.1626	0.5577	0.0000	2,212.9645	2,212.9645	0.2063	0.0000	2,218.1229

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2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.7414	7.4700	6.2273	0.0238	1.3799	0.1711	1.5510	0.3951	0.1626	0.5577	0.0000	2,212.963 9	2,212.963 9	0.2063	0.0000	2,218.122 3
2023	3.2017	5.3521	7.6597	0.0240	1.3774	0.1606	1.5380	0.3695	0.1546	0.5242	0.0000	2,172.184 8	2,172.184 8	0.1499	0.0000	2,175.932 0
2024	0.4755	2.8155	4.1481	0.0132	0.7707	0.0738	0.8445	0.2069	0.0715	0.2784	0.0000	1,196.854 4	1,196.854 4	0.0746	0.0000	1,198.720 0
2025	3.1028	4.6550	7.1194	0.0228	1.3824	0.1143	1.4966	0.3709	0.1107	0.4816	0.0000	2,062.593 5	2,062.593 5	0.1238	0.0000	2,065.689 4
2026	0.0246	0.0185	0.0287	9.0000e- 005	5.8000e- 003	4.7000e- 004	6.2700e- 003	1.5500e- 003	4.6000e- 004	2.0100e- 003	0.0000	8.2925	8.2925	4.8000e- 004	0.0000	8.3046
Maximum	3.2017	7.4700	7.6597	0.0240	1.3824	0.1711	1.5510	0.3951	0.1626	0.5577	0.0000	2,212.963 9	2,212.963 9	0.2063	0.0000	2,218.122 3

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-3-2022	4-2-2022	1.9273	1.9273
2	4-3-2022	7-2-2022	2.7310	2.7310
3	7-3-2022	10-2-2022	1.7318	1.7318
4	10-3-2022	1-2-2023	1.7450	1.7450
5	1-3-2023	4-2-2023	1.4852	1.4852
6	4-3-2023	7-2-2023	1.4853	1.4853

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7	7-3-2023	10-2-2023	2.5557	2.5557
8	10-3-2023	1-2-2024	3.0425	3.0425
9	1-3-2024	4-2-2024	0.0315	0.0315
10	4-3-2024	7-2-2024	0.4733	0.4733
11	7-3-2024	10-2-2024	1.3612	1.3612
12	10-3-2024	1-2-2025	1.3757	1.3757
13	1-3-2025	4-2-2025	1.2899	1.2899
14	4-3-2025	7-2-2025	1.2894	1.2894
15	7-3-2025	10-2-2025	2.3467	2.3467
16	10-3-2025	1-2-2026	2.8138	2.8138
		Highest	3.0425	3.0425

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.0637	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904
Energy	0.0401	0.3469	0.1788	2.1900e-003		0.0277	0.0277		0.0277	0.0277	0.0000	4,519.9312	4,519.9312	0.1050	0.0274	4,530.7266
Mobile	0.7146	3.4842	10.0734	0.0428	3.9838	0.0320	4.0159	1.0676	0.0297	1.0973	0.0000	3,964.4885	3,964.4885	0.1779	0.0000	3,968.9366
Waste						0.0000	0.0000		0.0000	0.0000	76.7306	0.0000	76.7306	4.5347	0.0000	190.0968
Water						0.0000	0.0000		0.0000	0.0000	13.9948	484.9258	498.9206	1.4489	0.0363	545.9621
Total	3.8184	3.9073	16.8706	0.0453	3.9838	0.0964	4.0802	1.0676	0.0941	1.1617	90.7254	8,980.1747	9,070.9000	6.2769	0.0637	9,246.8124

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2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.0637	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904
Energy	0.0401	0.3469	0.1788	2.1900e-003		0.0277	0.0277		0.0277	0.0277	0.0000	4,519.9312	4,519.9312	0.1050	0.0274	4,530.7266
Mobile	0.7146	3.4842	10.0734	0.0428	3.9838	0.0320	4.0159	1.0676	0.0297	1.0973	0.0000	3,964.4885	3,964.4885	0.1779	0.0000	3,968.9366
Waste						0.0000	0.0000		0.0000	0.0000	76.7306	0.0000	76.7306	4.5347	0.0000	190.0968
Water						0.0000	0.0000		0.0000	0.0000	13.9948	484.9258	498.9206	1.4489	0.0363	545.9621
Total	3.8184	3.9073	16.8706	0.0453	3.9838	0.0964	4.0802	1.0676	0.0941	1.1617	90.7254	8,980.1747	9,070.9000	6.2769	0.0637	9,246.8124

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	2/3/2022	5	24	
2	Site Preparation	Site Preparation	2/4/2022	3/4/2022	5	21	
3	Grading	Grading	3/5/2022	6/3/2022	5	65	
4	Tower 1 Construction	Building Construction	6/4/2022	1/4/2024	5	414	
5	Tower 1 Architectural Coating	Architectural Coating	8/1/2023	1/1/2024	5	110	
6	Tower 2 Construction	Building Construction	6/1/2024	1/1/2026	5	414	
7	Tower 2 Architectural Coating	Architectural Coating	8/1/2025	1/1/2026	5	110	

Acres of Grading (Site Preparation Phase): 31.5

Acres of Grading (Grading Phase): 32.5

Acres of Paving: 1

Residential Indoor: 1,420,163; Residential Outdoor: 473,388; Non-Residential Indoor: 18,207; Non-Residential Outdoor: 6,069; Striped Parking Area: 46,104 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Dumpers/Tenders	3	8.00	16	0.38
Demolition	Dumpers/Tenders	0		16	0.38
Demolition	Excavators	2	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Rubber Tired Loaders	1	8.00	203	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	6.00	221	0.50
Site Preparation	Bore/Drill Rigs	0		221	0.50

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Site Preparation	Cement and Mortar Mixers	1	6.00	9	0.56
Site Preparation	Cement and Mortar Mixers	0		9	0.56
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Bore/Drill Rigs	1	6.00	221	0.50
Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Grading	Concrete/Industrial Saws	1	4.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Sweepers/Scrubbers	1	6.00	64	0.46
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Welders	1	6.00	46	0.45
Tower 1 Construction	Aerial Lifts	2	6.00	63	0.31
Tower 1 Construction	Aerial Lifts	0		63	0.31
Tower 1 Construction	Air Compressors	2	6.00	78	0.48
Tower 1 Construction	Air Compressors	0		78	0.48
Tower 1 Construction	Cement and Mortar Mixers	2	6.00	9	0.56
Tower 1 Construction	Concrete/Industrial Saws	2	6.00	81	0.73
Tower 1 Construction	Cranes	2	8.00	231	0.29
Tower 1 Construction	Forklifts	2	7.00	89	0.20
Tower 1 Construction	Generator Sets	1	8.00	84	0.74
Tower 1 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tower 1 Construction	Welders	2	8.00	46	0.45

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Tower 1 Architectural Coating	Air Compressors	2	6.00	78	0.48
Tower 2 Construction	Aerial Lifts	2	6.00	63	0.31
Tower 2 Construction	Aerial Lifts	0		63	0.31
Tower 2 Construction	Air Compressors	2	6.00	78	0.48
Tower 2 Construction	Air Compressors	0		78	0.48
Tower 2 Construction	Cement and Mortar Mixers	2	6.00	9	0.56
Tower 2 Construction	Concrete/Industrial Saws	2	6.00	81	0.73
Tower 2 Construction	Cranes	1	8.00	231	0.29
Tower 2 Construction	Forklifts	2	7.00	89	0.20
Tower 2 Construction	Generator Sets	1	8.00	84	0.74
Tower 2 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tower 2 Construction	Welders	3	8.00	46	0.45
Tower 2 Architectural Coating	Air Compressors	2	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	12	30.00	0.00	1,978.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	0.00	17,125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tower 1 Construction	16	788.00	196.00	1.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Tower 1 Architectural Coating	2	158.00	0.00	1.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Tower 2 Construction	16	788.00	196.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tower 2 Architectural Coating	2	158.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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3.2 Demolition - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0357	0.3298	0.3175	5.9000e-004		0.0158	0.0158		0.0149	0.0149	0.0000	51.3984	51.3984	0.0127	0.0000	51.7165
Total	0.0357	0.3298	0.3175	5.9000e-004	0.2140	0.0158	0.2298	0.0324	0.0149	0.0473	0.0000	51.3984	51.3984	0.0127	0.0000	51.7165

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0111	0.3372	0.0883	1.0800e-003	0.0255	1.0500e-003	0.0265	7.0000e-003	1.0100e-003	8.0000e-003	0.0000	106.9304	106.9304	7.0300e-003	0.0000	107.1062
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4500e-003	1.0900e-003	0.0125	4.0000e-005	3.9400e-003	3.0000e-005	3.9800e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.4350	3.4350	9.0000e-005	0.0000	3.4373
Total	0.0126	0.3383	0.1008	1.1200e-003	0.0294	1.0800e-003	0.0305	8.0500e-003	1.0400e-003	9.0800e-003	0.0000	110.3654	110.3654	7.1200e-003	0.0000	110.5435

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3.2 Demolition - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2140	0.0000	0.2140	0.0324	0.0000	0.0324	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0357	0.3298	0.3175	5.9000e-004		0.0158	0.0158		0.0149	0.0149	0.0000	51.3984	51.3984	0.0127	0.0000	51.7165
Total	0.0357	0.3298	0.3175	5.9000e-004	0.2140	0.0158	0.2298	0.0324	0.0149	0.0473	0.0000	51.3984	51.3984	0.0127	0.0000	51.7165

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0111	0.3372	0.0883	1.0800e-003	0.0255	1.0500e-003	0.0265	7.0000e-003	1.0100e-003	8.0000e-003	0.0000	106.9304	106.9304	7.0300e-003	0.0000	107.1062
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4500e-003	1.0900e-003	0.0125	4.0000e-005	3.9400e-003	3.0000e-005	3.9800e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.4350	3.4350	9.0000e-005	0.0000	3.4373
Total	0.0126	0.3383	0.1008	1.1200e-003	0.0294	1.0800e-003	0.0305	8.0500e-003	1.0400e-003	9.0800e-003	0.0000	110.3654	110.3654	7.1200e-003	0.0000	110.5435

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3.3 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0167	0.0000	0.0167	1.8000e-003	0.0000	1.8000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0188	0.2039	0.1583	3.9000e-004		7.8400e-003	7.8400e-003		7.2200e-003	7.2200e-003	0.0000	34.2747	34.2747	0.0110	0.0000	34.5499
Total	0.0188	0.2039	0.1583	3.9000e-004	0.0167	7.8400e-003	0.0245	1.8000e-003	7.2200e-003	9.0200e-003	0.0000	34.2747	34.2747	0.0110	0.0000	34.5499

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4000e-004	4.8000e-004	5.4900e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5028	1.5028	4.0000e-005	0.0000	1.5038
Total	6.4000e-004	4.8000e-004	5.4900e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5028	1.5028	4.0000e-005	0.0000	1.5038

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3.3 Site Preparation - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0167	0.0000	0.0167	1.8000e-003	0.0000	1.8000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0188	0.2039	0.1583	3.9000e-004		7.8400e-003	7.8400e-003		7.2200e-003	7.2200e-003	0.0000	34.2747	34.2747	0.0110	0.0000	34.5498
Total	0.0188	0.2039	0.1583	3.9000e-004	0.0167	7.8400e-003	0.0245	1.8000e-003	7.2200e-003	9.0200e-003	0.0000	34.2747	34.2747	0.0110	0.0000	34.5498

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4000e-004	4.8000e-004	5.4900e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5028	1.5028	4.0000e-005	0.0000	1.5038
Total	6.4000e-004	4.8000e-004	5.4900e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5028	1.5028	4.0000e-005	0.0000	1.5038

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3.4 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2207	0.0000	0.2207	0.1106	0.0000	0.1106	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0922	0.9075	0.7023	1.5900e-003		0.0395	0.0395		0.0367	0.0367	0.0000	138.4906	138.4906	0.0413	0.0000	139.5222
Total	0.0922	0.9075	0.7023	1.5900e-003	0.2207	0.0395	0.2602	0.1106	0.0367	0.1473	0.0000	138.4906	138.4906	0.0413	0.0000	139.5222

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0686	2.2000	0.5466	6.5400e-003	0.1472	6.1700e-003	0.1533	0.0404	5.9000e-003	0.0463	0.0000	644.9542	644.9542	0.0446	0.0000	646.0693
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6700e-003	2.7500e-003	0.0317	1.0000e-004	9.9700e-003	8.0000e-005	0.0101	2.6500e-003	7.0000e-005	2.7200e-003	0.0000	8.6828	8.6828	2.4000e-004	0.0000	8.6888
Total	0.0723	2.2027	0.5783	6.6400e-003	0.1571	6.2500e-003	0.1634	0.0431	5.9700e-003	0.0490	0.0000	653.6371	653.6371	0.0448	0.0000	654.7581

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3.4 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2207	0.0000	0.2207	0.1106	0.0000	0.1106	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0922	0.9075	0.7023	1.5900e-003		0.0395	0.0395		0.0367	0.0367	0.0000	138.4905	138.4905	0.0413	0.0000	139.5220
Total	0.0922	0.9075	0.7023	1.5900e-003	0.2207	0.0395	0.2602	0.1106	0.0367	0.1473	0.0000	138.4905	138.4905	0.0413	0.0000	139.5220

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0686	2.2000	0.5466	6.5400e-003	0.1472	6.1700e-003	0.1533	0.0404	5.9000e-003	0.0463	0.0000	644.9542	644.9542	0.0446	0.0000	646.0693
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6700e-003	2.7500e-003	0.0317	1.0000e-004	9.9700e-003	8.0000e-005	0.0101	2.6500e-003	7.0000e-005	2.7200e-003	0.0000	8.6828	8.6828	2.4000e-004	0.0000	8.6888
Total	0.0723	2.2027	0.5783	6.6400e-003	0.1571	6.2500e-003	0.1634	0.0431	5.9700e-003	0.0490	0.0000	653.6371	653.6371	0.0448	0.0000	654.7581

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3.5 Tower 1 Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2280	1.9303	1.9333	3.5400e-003		0.0928	0.0928		0.0895	0.0895	0.0000	300.2032	300.2032	0.0524	0.0000	301.5120
Total	0.2280	1.9303	1.9333	3.5400e-003		0.0928	0.0928		0.0895	0.0895	0.0000	300.2032	300.2032	0.0524	0.0000	301.5120

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	6.0000e-005	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0196	0.0196	0.0000	0.0000	0.0196
Vendor	0.0428	1.3783	0.3722	3.7000e-003	0.0926	2.5900e-003	0.0952	0.0267	2.4700e-003	0.0292	0.0000	359.1674	359.1674	0.0215	0.0000	359.7037
Worker	0.2385	0.1788	2.0592	6.2400e-003	0.6476	5.1700e-003	0.6528	0.1720	4.7600e-003	0.1768	0.0000	563.9055	563.9055	0.0155	0.0000	564.2937
Total	0.2813	1.5572	2.4314	9.9400e-003	0.7402	7.7600e-003	0.7480	0.1987	7.2300e-003	0.2060	0.0000	923.0924	923.0924	0.0370	0.0000	924.0170

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3.5 Tower 1 Construction - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2280	1.9303	1.9333	3.5400e-003		0.0928	0.0928		0.0895	0.0895	0.0000	300.2028	300.2028	0.0524	0.0000	301.5117
Total	0.2280	1.9303	1.9333	3.5400e-003		0.0928	0.0928		0.0895	0.0895	0.0000	300.2028	300.2028	0.0524	0.0000	301.5117

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	6.0000e-005	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0196	0.0196	0.0000	0.0000	0.0196
Vendor	0.0428	1.3783	0.3722	3.7000e-003	0.0926	2.5900e-003	0.0952	0.0267	2.4700e-003	0.0292	0.0000	359.1674	359.1674	0.0215	0.0000	359.7037
Worker	0.2385	0.1788	2.0592	6.2400e-003	0.6476	5.1700e-003	0.6528	0.1720	4.7600e-003	0.1768	0.0000	563.9055	563.9055	0.0155	0.0000	564.2937
Total	0.2813	1.5572	2.4314	9.9400e-003	0.7402	7.7600e-003	0.7480	0.1987	7.2300e-003	0.2060	0.0000	923.0924	923.0924	0.0370	0.0000	924.0170

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3.5 Tower 1 Construction - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3685	3.1009	3.3254	6.1300e-003		0.1413	0.1413		0.1362	0.1362	0.0000	520.3796	520.3796	0.0891	0.0000	522.6065
Total	0.3685	3.1009	3.3254	6.1300e-003		0.1413	0.1413		0.1362	0.1362	0.0000	520.3796	520.3796	0.0891	0.0000	522.6065

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0326	0.0326	0.0000	0.0000	0.0326
Vendor	0.0551	1.8050	0.5787	6.2100e-003	0.1605	2.1100e-003	0.1626	0.0463	2.0100e-003	0.0483	0.0000	603.0669	603.0669	0.0329	0.0000	603.8884
Worker	0.3886	0.2804	3.2822	0.0104	1.1225	8.7100e-003	1.1313	0.2982	8.0200e-003	0.3062	0.0000	941.6689	941.6689	0.0242	0.0000	942.2750
Total	0.4438	2.0854	3.8610	0.0166	1.2831	0.0108	1.2939	0.3445	0.0100	0.3545	0.0000	1,544.7683	1,544.7683	0.0571	0.0000	1,546.1960

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3.5 Tower 1 Construction - 2023**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3685	3.1009	3.3254	6.1300e-003		0.1413	0.1413		0.1362	0.1362	0.0000	520.3790	520.3790	0.0891	0.0000	522.6059
Total	0.3685	3.1009	3.3254	6.1300e-003		0.1413	0.1413		0.1362	0.1362	0.0000	520.3790	520.3790	0.0891	0.0000	522.6059

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0326	0.0326	0.0000	0.0000	0.0326
Vendor	0.0551	1.8050	0.5787	6.2100e-003	0.1605	2.1100e-003	0.1626	0.0463	2.0100e-003	0.0483	0.0000	603.0669	603.0669	0.0329	0.0000	603.8884
Worker	0.3886	0.2804	3.2822	0.0104	1.1225	8.7100e-003	1.1313	0.2982	8.0200e-003	0.3062	0.0000	941.6689	941.6689	0.0242	0.0000	942.2750
Total	0.4438	2.0854	3.8610	0.0166	1.2831	0.0108	1.2939	0.3445	0.0100	0.3545	0.0000	1,544.7683	1,544.7683	0.0571	0.0000	1,546.1960

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3.5 Tower 1 Construction - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3300e-003	0.0447	0.0508	9.0000e-005		1.9200e-003	1.9200e-003		1.8500e-003	1.8500e-003	0.0000	8.0061	8.0061	1.3500e-003	0.0000	8.0399
Total	5.3300e-003	0.0447	0.0508	9.0000e-005		1.9200e-003	1.9200e-003		1.8500e-003	1.8500e-003	0.0000	8.0061	8.0061	1.3500e-003	0.0000	8.0399

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.0000e-004
Vendor	8.3000e-004	0.0277	8.6300e-003	1.0000e-004	2.4700e-003	3.0000e-005	2.5000e-003	7.1000e-004	3.0000e-005	7.4000e-004	0.0000	9.2410	9.2410	5.0000e-004	0.0000	9.2534
Worker	5.6600e-003	3.9300e-003	0.0470	1.6000e-004	0.0173	1.3000e-004	0.0174	4.5900e-003	1.2000e-004	4.7100e-003	0.0000	14.0380	14.0380	3.4000e-004	0.0000	14.0466
Total	6.4900e-003	0.0316	0.0557	2.6000e-004	0.0198	1.6000e-004	0.0199	5.3000e-003	1.5000e-004	5.4500e-003	0.0000	23.2795	23.2795	8.4000e-004	0.0000	23.3005

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3.5 Tower 1 Construction - 2024**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3300e-003	0.0447	0.0508	9.0000e-005		1.9200e-003	1.9200e-003		1.8500e-003	1.8500e-003	0.0000	8.0060	8.0060	1.3500e-003	0.0000	8.0399
Total	5.3300e-003	0.0447	0.0508	9.0000e-005		1.9200e-003	1.9200e-003		1.8500e-003	1.8500e-003	0.0000	8.0060	8.0060	1.3500e-003	0.0000	8.0399

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.0000e-004
Vendor	8.3000e-004	0.0277	8.6300e-003	1.0000e-004	2.4700e-003	3.0000e-005	2.5000e-003	7.1000e-004	3.0000e-005	7.4000e-004	0.0000	9.2410	9.2410	5.0000e-004	0.0000	9.2534
Worker	5.6600e-003	3.9300e-003	0.0470	1.6000e-004	0.0173	1.3000e-004	0.0174	4.5900e-003	1.2000e-004	4.7100e-003	0.0000	14.0380	14.0380	3.4000e-004	0.0000	14.0466
Total	6.4900e-003	0.0316	0.0557	2.6000e-004	0.0198	1.6000e-004	0.0199	5.3000e-003	1.5000e-004	5.4500e-003	0.0000	23.2795	23.2795	8.4000e-004	0.0000	23.3005

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3.6 Tower 1 Architectural Coating - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3358					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0209	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8305	27.8305	1.6700e-003	0.0000	27.8721
Total	2.3567	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8305	27.8305	1.6700e-003	0.0000	27.8721

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.1000e-004	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0514	0.0514	0.0000	0.0000	0.0514
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0327	0.0236	0.2759	8.8000e-004	0.0944	7.3000e-004	0.0951	0.0251	6.7000e-004	0.0257	0.0000	79.1557	79.1557	2.0400e-003	0.0000	79.2067
Total	0.0327	0.0237	0.2759	8.8000e-004	0.0944	7.3000e-004	0.0951	0.0251	6.7000e-004	0.0257	0.0000	79.2071	79.2071	2.0400e-003	0.0000	79.2581

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3.6 Tower 1 Architectural Coating - 2023**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3358					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0209	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8304	27.8304	1.6700e-003	0.0000	27.8721
Total	2.3567	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8304	27.8304	1.6700e-003	0.0000	27.8721

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.1000e-004	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0514	0.0514	0.0000	0.0000	0.0514
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0327	0.0236	0.2759	8.8000e-004	0.0944	7.3000e-004	0.0951	0.0251	6.7000e-004	0.0257	0.0000	79.1557	79.1557	2.0400e-003	0.0000	79.2067
Total	0.0327	0.0237	0.2759	8.8000e-004	0.0944	7.3000e-004	0.0951	0.0251	6.7000e-004	0.0257	0.0000	79.2071	79.2071	2.0400e-003	0.0000	79.2581

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3.6 Tower 1 Architectural Coating - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-004	1.2200e-003	1.8100e-003	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557
Total	0.0216	1.2200e-003	1.8100e-003	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	4.7000e-004
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.3600e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7037	0.7037	2.0000e-005	0.0000	0.7041
Total	2.8000e-004	2.0000e-004	2.3600e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7042	0.7042	2.0000e-005	0.0000	0.7046

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3.6 Tower 1 Architectural Coating - 2024**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-004	1.2200e-003	1.8100e-003	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557
Total	0.0216	1.2200e-003	1.8100e-003	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	4.7000e-004
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.3600e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7037	0.7037	2.0000e-005	0.0000	0.7041
Total	2.8000e-004	2.0000e-004	2.3600e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7042	0.7042	2.0000e-005	0.0000	0.7046

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3.7 Tower 2 Construction - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1952	1.5370	1.9226	3.3400e-003		0.0654	0.0654		0.0636	0.0636	0.0000	280.0072	280.0072	0.0405	0.0000	281.0192
Total	0.1952	1.5370	1.9226	3.3400e-003		0.0654	0.0654		0.0636	0.0636	0.0000	280.0072	280.0072	0.0405	0.0000	281.0192

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0315	1.0513	0.3280	3.6100e-003	0.0938	1.2100e-003	0.0951	0.0271	1.1600e-003	0.0282	0.0000	351.1576	351.1576	0.0189	0.0000	351.6308
Worker	0.2152	0.1495	1.7869	5.9000e-003	0.6563	5.0200e-003	0.6613	0.1743	4.6200e-003	0.1789	0.0000	533.4449	533.4449	0.0130	0.0000	533.7696
Total	0.2467	1.2007	2.1149	9.5100e-003	0.7501	6.2300e-003	0.7563	0.2014	5.7800e-003	0.2072	0.0000	884.6025	884.6025	0.0319	0.0000	885.4004

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3.7 Tower 2 Construction - 2024**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1952	1.5370	1.9226	3.3400e-003		0.0654	0.0654		0.0636	0.0636	0.0000	280.0069	280.0069	0.0405	0.0000	281.0189
Total	0.1952	1.5370	1.9226	3.3400e-003		0.0654	0.0654		0.0636	0.0636	0.0000	280.0069	280.0069	0.0405	0.0000	281.0189

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0315	1.0513	0.3280	3.6100e-003	0.0938	1.2100e-003	0.0951	0.0271	1.1600e-003	0.0282	0.0000	351.1576	351.1576	0.0189	0.0000	351.6308
Worker	0.2152	0.1495	1.7869	5.9000e-003	0.6563	5.0200e-003	0.6613	0.1743	4.6200e-003	0.1789	0.0000	533.4449	533.4449	0.0130	0.0000	533.7696
Total	0.2467	1.2007	2.1149	9.5100e-003	0.7501	6.2300e-003	0.7563	0.2014	5.7800e-003	0.2072	0.0000	884.6025	884.6025	0.0319	0.0000	885.4004

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3.7 Tower 2 Construction - 2025**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3149	2.4862	3.2875	5.7400e-003		0.0975	0.0975		0.0947	0.0947	0.0000	480.8299	480.8299	0.0683	0.0000	482.5363
Total	0.3149	2.4862	3.2875	5.7400e-003		0.0975	0.0975		0.0947	0.0947	0.0000	480.8299	480.8299	0.0683	0.0000	482.5363

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0526	1.7896	0.5486	6.1600e-003	0.1611	2.0500e-003	0.1632	0.0465	1.9600e-003	0.0485	0.0000	599.6890	599.6890	0.0320	0.0000	600.4897
Worker	0.3514	0.2348	2.8476	9.7300e-003	1.1269	8.4400e-003	1.1353	0.2993	7.7700e-003	0.3071	0.0000	880.5133	880.5133	0.0203	0.0000	881.0215
Total	0.4040	2.0244	3.3962	0.0159	1.2880	0.0105	1.2985	0.3458	9.7300e-003	0.3555	0.0000	1,480.2023	1,480.2023	0.0524	0.0000	1,481.5113

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3.7 Tower 2 Construction - 2025**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3149	2.4862	3.2875	5.7400e-003		0.0975	0.0975		0.0947	0.0947	0.0000	480.8294	480.8294	0.0683	0.0000	482.5357
Total	0.3149	2.4862	3.2875	5.7400e-003		0.0975	0.0975		0.0947	0.0947	0.0000	480.8294	480.8294	0.0683	0.0000	482.5357

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0526	1.7896	0.5486	6.1600e-003	0.1611	2.0500e-003	0.1632	0.0465	1.9600e-003	0.0485	0.0000	599.6890	599.6890	0.0320	0.0000	600.4897
Worker	0.3514	0.2348	2.8476	9.7300e-003	1.1269	8.4400e-003	1.1353	0.2993	7.7700e-003	0.3071	0.0000	880.5133	880.5133	0.0203	0.0000	881.0215
Total	0.4040	2.0244	3.3962	0.0159	1.2880	0.0105	1.2985	0.3458	9.7300e-003	0.3555	0.0000	1,480.2023	1,480.2023	0.0524	0.0000	1,481.5113

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3.7 Tower 2 Construction - 2026**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2100e-003	9.5300e-003	0.0126	2.0000e-005		3.7000e-004	3.7000e-004		3.6000e-004	3.6000e-004	0.0000	1.8423	1.8423	2.6000e-004	0.0000	1.8488
Total	1.2100e-003	9.5300e-003	0.0126	2.0000e-005		3.7000e-004	3.7000e-004		3.6000e-004	3.6000e-004	0.0000	1.8423	1.8423	2.6000e-004	0.0000	1.8488

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	6.7900e-003	2.0600e-003	2.0000e-005	6.2000e-004	1.0000e-005	6.3000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.2856	2.2856	1.2000e-004	0.0000	2.2886
Worker	1.2900e-003	8.3000e-004	0.0102	4.0000e-005	4.3200e-003	3.0000e-005	4.3500e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.2564	3.2564	7.0000e-005	0.0000	3.2582
Total	1.4900e-003	7.6200e-003	0.0123	6.0000e-005	4.9400e-003	4.0000e-005	4.9800e-003	1.3300e-003	4.0000e-005	1.3700e-003	0.0000	5.5420	5.5420	1.9000e-004	0.0000	5.5468

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3.7 Tower 2 Construction - 2026**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2100e-003	9.5300e-003	0.0126	2.0000e-005		3.7000e-004	3.7000e-004		3.6000e-004	3.6000e-004	0.0000	1.8423	1.8423	2.6000e-004	0.0000	1.8488
Total	1.2100e-003	9.5300e-003	0.0126	2.0000e-005		3.7000e-004	3.7000e-004		3.6000e-004	3.6000e-004	0.0000	1.8423	1.8423	2.6000e-004	0.0000	1.8488

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	6.7900e-003	2.0600e-003	2.0000e-005	6.2000e-004	1.0000e-005	6.3000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.2856	2.2856	1.2000e-004	0.0000	2.2886
Worker	1.2900e-003	8.3000e-004	0.0102	4.0000e-005	4.3200e-003	3.0000e-005	4.3500e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.2564	3.2564	7.0000e-005	0.0000	3.2582
Total	1.4900e-003	7.6200e-003	0.0123	6.0000e-005	4.9400e-003	4.0000e-005	4.9800e-003	1.3300e-003	4.0000e-005	1.3700e-003	0.0000	5.5420	5.5420	1.9000e-004	0.0000	5.5468

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3.8 Tower 2 Architectural Coating - 2025**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3358					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8305	27.8305	1.5200e-003	0.0000	27.8684
Total	2.3545	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8305	27.8305	1.5200e-003	0.0000	27.8684

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0294	0.0197	0.2385	8.2000e-004	0.0944	7.1000e-004	0.0951	0.0251	6.5000e-004	0.0257	0.0000	73.7315	73.7315	1.7000e-003	0.0000	73.7740
Total	0.0294	0.0197	0.2385	8.2000e-004	0.0944	7.1000e-004	0.0951	0.0251	6.5000e-004	0.0257	0.0000	73.7315	73.7315	1.7000e-003	0.0000	73.7740

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3.8 Tower 2 Architectural Coating - 2025**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3358					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8304	27.8304	1.5200e-003	0.0000	27.8684
Total	2.3545	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8304	27.8304	1.5200e-003	0.0000	27.8684

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0294	0.0197	0.2385	8.2000e-004	0.0944	7.1000e-004	0.0951	0.0251	6.5000e-004	0.0257	0.0000	73.7315	73.7315	1.7000e-003	0.0000	73.7740
Total	0.0294	0.0197	0.2385	8.2000e-004	0.0944	7.1000e-004	0.0951	0.0251	6.5000e-004	0.0257	0.0000	73.7315	73.7315	1.7000e-003	0.0000	73.7740

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3.8 Tower 2 Architectural Coating - 2026**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-004	1.1500e-003	1.8100e-003	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557
Total	0.0216	1.1500e-003	1.8100e-003	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.7000e-004	2.0400e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.6529	0.6529	1.0000e-005	0.0000	0.6533
Total	2.6000e-004	1.7000e-004	2.0400e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.6529	0.6529	1.0000e-005	0.0000	0.6533

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3.8 Tower 2 Architectural Coating - 2026**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-004	1.1500e-003	1.8100e-003	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557
Total	0.0216	1.1500e-003	1.8100e-003	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.2553	0.2553	1.0000e-005	0.0000	0.2557

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.7000e-004	2.0400e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.6529	0.6529	1.0000e-005	0.0000	0.6533
Total	2.6000e-004	1.7000e-004	2.0400e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.6529	0.6529	1.0000e-005	0.0000	0.6533

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7146	3.4842	10.0734	0.0428	3.9838	0.0320	4.0159	1.0676	0.0297	1.0973	0.0000	3,964.4885	3,964.4885	0.1779	0.0000	3,968.9366
Unmitigated	0.7146	3.4842	10.0734	0.0428	3.9838	0.0320	4.0159	1.0676	0.0297	1.0973	0.0000	3,964.4885	3,964.4885	0.1779	0.0000	3,968.9366

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	2,425.60	2,425.60	2425.60	9,330,682	9,330,682
Enclosed Parking with Elevator	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	139.90	139.90	139.90	419,509	419,509
High Turnover (Sit Down Restaurant)	183.86	183.86	183.86	589,750	589,750
Strip Mall	46.26	46.26	46.26	159,563	159,563
Total	2,795.62	2,795.62	2,795.62	10,499,503	10,499,503

4.3 Trip Type Information

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Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	14.70	5.90	8.70	40.00	19.00	41.00	100	0	0
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	100	0	0
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	100	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Enclosed Parking with Elevator	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Fast Food Restaurant w/o Drive Thru	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
High Turnover (Sit Down Restaurant)	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Strip Mall	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,123.3880	4,123.3880	0.0974	0.0202	4,131.8269
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,123.3880	4,123.3880	0.0974	0.0202	4,131.8269
NaturalGas Mitigated	0.0401	0.3469	0.1788	2.1900e-003		0.0277	0.0277		0.0277	0.0277	0.0000	396.5433	396.5433	7.6000e-003	7.2700e-003	398.8997
NaturalGas Unmitigated	0.0401	0.3469	0.1788	2.1900e-003		0.0277	0.0277		0.0277	0.0277	0.0000	396.5433	396.5433	7.6000e-003	7.2700e-003	398.8997

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	5.89884e+006	0.0318	0.2718	0.1157	1.7300e-003		0.0220	0.0220		0.0220	0.0220	0.0000	314.7847	314.7847	6.0300e-003	5.7700e-003	316.6553
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	461520	2.4900e-003	0.0226	0.0190	1.4000e-004		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	24.6285	24.6285	4.7000e-004	4.5000e-004	24.7748
High Turnover (Sit Down Restaurant)	1.0615e+006	5.7200e-003	0.0520	0.0437	3.1000e-004		3.9500e-003	3.9500e-003		3.9500e-003	3.9500e-003	0.0000	56.6455	56.6455	1.0900e-003	1.0400e-003	56.9821
Strip Mall	9082.32	5.0000e-005	4.5000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4847	0.4847	1.0000e-005	1.0000e-005	0.4876
Total		0.0401	0.3469	0.1787	2.1800e-003		0.0277	0.0277		0.0277	0.0277	0.0000	396.5433	396.5433	7.6000e-003	7.2700e-003	398.8997

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	5.89884e+006	0.0318	0.2718	0.1157	1.7300e-003		0.0220	0.0220		0.0220	0.0220	0.0000	314.7847	314.7847	6.0300e-003	5.7700e-003	316.6553
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	461520	2.4900e-003	0.0226	0.0190	1.4000e-004		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	24.6285	24.6285	4.7000e-004	4.5000e-004	24.7748
High Turnover (Sit Down Restaurant)	1.0615e+006	5.7200e-003	0.0520	0.0437	3.1000e-004		3.9500e-003	3.9500e-003		3.9500e-003	3.9500e-003	0.0000	56.6455	56.6455	1.0900e-003	1.0400e-003	56.9821
Strip Mall	9082.32	5.0000e-005	4.5000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4847	0.4847	1.0000e-005	1.0000e-005	0.4876
Total		0.0401	0.3469	0.1787	2.1800e-003		0.0277	0.0277		0.0277	0.0277	0.0000	396.5433	396.5433	7.6000e-003	7.2700e-003	398.8997

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.53445e+006	1,411.5918	0.0333	6.9000e-003	1,414.4808
Enclosed Parking with Elevator	4.50282e+006	2,507.8998	0.0592	0.0123	2,513.0324
Fast Food Restaurant w/o Drive Thru	88280	49.1686	1.1600e-003	2.4000e-004	49.2692
High Turnover (Sit Down Restaurant)	203044	113.0877	2.6700e-003	5.5000e-004	113.3191
Strip Mall	74763	41.6401	9.8000e-004	2.0000e-004	41.7253
Total		4,123.3880	0.0974	0.0201	4,131.8269

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5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.53445e+006	1,411.5918	0.0333	6.9000e-003	1,414.4808
Enclosed Parking with Elevator	4.50282e+006	2,507.8998	0.0592	0.0123	2,513.0324
Fast Food Restaurant w/o Drive Thru	88280	49.1686	1.1600e-003	2.4000e-004	49.2692
High Turnover (Sit Down Restaurant)	203044	113.0877	2.6700e-003	5.5000e-004	113.3191
Strip Mall	74763	41.6401	9.8000e-004	2.0000e-004	41.7253
Total		4,123.3880	0.0974	0.0201	4,131.8269

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.0637	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904
Unmitigated	3.0637	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2357					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2002	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904
Total	3.0637	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2357					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2002	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904
Total	3.0637	0.0762	6.6185	3.5000e-004		0.0367	0.0367		0.0367	0.0367	0.0000	10.8291	10.8291	0.0105	0.0000	11.0904

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	498.9206	1.4489	0.0363	545.9621
Unmitigated	498.9206	1.4489	0.0363	545.9621

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	41.6986 / 26.2882	478.3027	1.3697	0.0344	522.7840
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	0.607067 / 0.038749	4.8349	0.0199	4.9000e-004	5.4782
High Turnover (Sit Down Restaurant)	1.39626 / 0.0891227	11.1204	0.0458	1.1300e-003	12.5998
Strip Mall	0.410362 / 0.251512	4.6625	0.0135	3.4000e-004	5.1002
Total		498.9206	1.4489	0.0363	545.9621

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	41.6986 / 26.2882	478.3027	1.3697	0.0344	522.7840
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	0.607067 / 0.038749	4.8349	0.0199	4.9000e-004	5.4782
High Turnover (Sit Down Restaurant)	1.39626 / 0.0891227	11.1204	0.0458	1.1300e-003	12.5998
Strip Mall	0.410362 / 0.251512	4.6625	0.0135	3.4000e-004	5.1002
Total		498.9206	1.4489	0.0363	545.9621

8.0 Waste Detail**8.1 Mitigation Measures Waste**

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	76.7306	4.5347	0.0000	190.0968
Unmitigated	76.7306	4.5347	0.0000	190.0968

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	294.4	59.7605	3.5318	0.0000	148.0542
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	23.04	4.6769	0.2764	0.0000	11.5869
High Turnover (Sit Down Restaurant)	54.74	11.1117	0.6567	0.0000	27.5288
Strip Mall	5.82	1.1814	0.0698	0.0000	2.9269
Total		76.7306	4.5347	0.0000	190.0968

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8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	294.4	59.7605	3.5318	0.0000	148.0542
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	23.04	4.6769	0.2764	0.0000	11.5869
High Turnover (Sit Down Restaurant)	54.74	11.1117	0.6567	0.0000	27.5288
Strip Mall	5.82	1.1814	0.0698	0.0000	2.9269
Total		76.7306	4.5347	0.0000	190.0968

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3440 Wilshire Boulevard Future

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	1,921.00	Space	1.00	768,400.00	0
Fast Food Restaurant w/o Drive Thru	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	4.60	1000sqft	0.09	4,600.00	0
Apartments High Rise	640.00	Dwelling Unit	1.10	701,315.00	1830
Strip Mall	5.54	1000sqft	0.09	5,538.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	11			Operational Year	2026
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MW hr)	1227.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Consistent with IS/MND's model.

Construction Phase - See SWAPE comment about construction schedule.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Same as Tower 1 Construction.

Off-road Equipment - Same as Tower 1 Construction.

Trips and VMT - See SWAPE comment about hauling, vendor, and worker trips.

Demolition - Consistent with IS/MND's model.

Grading - See SWAPE comment about acres of grading. Material export consistent with IS/MND's model.

Vehicle Trips - See SWAPE comment about trip rates.

Woodstoves - Consistent with IS/MND's model.

Construction Off-road Equipment Mitigation - See SWAPE comment about construction-related mitigation measures.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	220.00	414.00
tblConstructionPhase	NumDays	220.00	414.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	6.00	65.00
tblConstructionPhase	NumDays	3.00	21.00
tblFireplaces	NumberGas	544.00	0.00
tblFireplaces	NumberNoFireplace	64.00	641.00

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tblFireplaces	NumberWood	32.00	0.00
tblGrading	MaterialExported	0.00	137,000.00
tblLandUse	LandUseSquareFeet	640,000.00	701,315.00
tblLandUse	LandUseSquareFeet	5,540.00	5,538.00
tblLandUse	LotAcreage	17.29	1.00
tblLandUse	LotAcreage	0.11	0.09
tblLandUse	LotAcreage	10.32	1.10
tblLandUse	LotAcreage	0.13	0.09
tblOffRoadEquipment	LoadFactor	0.36	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TTP	40.60	41.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TTP	40.20	40.00

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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	51.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	4.98	3.79
tblVehicleTrips	ST_TR	696.00	69.95
tblVehicleTrips	ST_TR	158.37	39.97
tblVehicleTrips	ST_TR	42.04	8.35
tblVehicleTrips	SU_TR	3.65	3.79
tblVehicleTrips	SU_TR	500.00	69.95
tblVehicleTrips	SU_TR	131.84	39.97
tblVehicleTrips	SU_TR	20.43	8.35
tblVehicleTrips	WD_TR	4.20	3.79
tblVehicleTrips	WD_TR	716.00	69.95
tblVehicleTrips	WD_TR	127.15	39.97
tblVehicleTrips	WD_TR	44.32	8.35
tblWoodstoves	NumberCatalytic	32.00	0.00
tblWoodstoves	NumberNoncatalytic	32.00	0.00

2.0 Emissions Summary

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.7628	93.6478	59.7670	0.2550	20.3294	1.4063	21.7356	4.7494	1.3251	6.0609	0.0000	27,041.70 77	27,041.70 77	2.8987	0.0000	27,114.174 4
2023	50.0590	42.4708	65.8272	0.2019	11.8293	1.3251	13.1543	3.1657	1.2786	4.4443	0.0000	20,162.50 64	20,162.50 64	1.3193	0.0000	20,195.48 95
2024	49.6639	40.5437	63.3303	0.1985	11.8538	1.1760	13.0298	3.1717	1.1334	4.3051	0.0000	19,831.30 33	19,831.30 33	1.2835	0.0000	19,863.39 07
2025	49.2129	36.8055	60.8556	0.1912	11.8290	0.9431	12.7721	3.1656	0.9150	4.0806	0.0000	19,074.53 80	19,074.53 80	1.0877	0.0000	19,101.72 96
2026	49.0576	36.5300	58.9559	0.1876	11.8290	0.9402	12.7692	3.1656	0.9123	4.0779	0.0000	18,723.22 50	18,723.22 50	1.0660	0.0000	18,749.87 45
Maximum	50.0590	93.6478	65.8272	0.2550	20.3294	1.4063	21.7356	4.7494	1.3251	6.0609	0.0000	27,041.70 77	27,041.70 77	2.8987	0.0000	27,114.17 44

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.7628	93.6478	59.7670	0.2550	20.3294	1.4063	21.7356	4.7494	1.3251	6.0609	0.0000	27,041.7077	27,041.7077	2.8987	0.0000	27,114.1744
2023	50.0590	42.4708	65.8272	0.2019	11.8293	1.3251	13.1543	3.1657	1.2786	4.4443	0.0000	20,162.5064	20,162.5064	1.3193	0.0000	20,195.4895
2024	49.6639	40.5437	63.3303	0.1985	11.8538	1.1760	13.0298	3.1717	1.1334	4.3051	0.0000	19,831.3033	19,831.3033	1.2835	0.0000	19,863.3907
2025	49.2129	36.8055	60.8556	0.1912	11.8290	0.9431	12.7721	3.1656	0.9150	4.0806	0.0000	19,074.5380	19,074.5380	1.0877	0.0000	19,101.7296
2026	49.0576	36.5300	58.9559	0.1876	11.8290	0.9402	12.7692	3.1656	0.9123	4.0779	0.0000	18,723.2250	18,723.2250	1.0660	0.0000	18,749.8745
Maximum	50.0590	93.6478	65.8272	0.2550	20.3294	1.4063	21.7356	4.7494	1.3251	6.0609	0.0000	27,041.7077	27,041.7077	2.8987	0.0000	27,114.1744

[illegible]

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002
Energy	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790
Mobile	4.1399	18.3998	57.7714	0.2434	22.3201	0.1760	22.4961	5.9715	0.1634	6.1349		24,849.0860	24,849.0860	1.0848		24,876.2051
Total	21.6515	20.9101	111.6984	0.2582	22.3201	0.6211	22.9412	5.9715	0.6085	6.5800	0.0000	27,339.7283	27,339.7283	1.2228	0.0439	27,383.3842

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002
Energy	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790
Mobile	4.1399	18.3998	57.7714	0.2434	22.3201	0.1760	22.4961	5.9715	0.1634	6.1349		24,849.0860	24,849.0860	1.0848		24,876.2051
Total	21.6515	20.9101	111.6984	0.2582	22.3201	0.6211	22.9412	5.9715	0.6085	6.5800	0.0000	27,339.7283	27,339.7283	1.2228	0.0439	27,383.3842

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	2/3/2022	5	24	
2	Site Preparation	Site Preparation	2/4/2022	3/4/2022	5	21	
3	Grading	Grading	3/5/2022	6/3/2022	5	65	
4	Tower 1 Construction	Building Construction	6/4/2022	1/4/2024	5	414	
5	Tower 1 Architectural Coating	Architectural Coating	8/1/2023	1/1/2024	5	110	
6	Tower 2 Construction	Building Construction	6/1/2024	1/1/2026	5	414	
7	Tower 2 Architectural Coating	Architectural Coating	8/1/2025	1/1/2026	5	110	

Acres of Grading (Site Preparation Phase): 31.5

Acres of Grading (Grading Phase): 32.5

Acres of Paving: 1

Residential Indoor: 1,420,163; Residential Outdoor: 473,388; Non-Residential Indoor: 18,207; Non-Residential Outdoor: 6,069; Striped Parking Area: 46,104 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Dumpers/Tenders	3	8.00	16	0.38
Demolition	Dumpers/Tenders	0		16	0.38

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Demolition	Excavators	2	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Rubber Tired Loaders	1	8.00	203	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	6.00	221	0.50
Site Preparation	Bore/Drill Rigs	0		221	0.50
Site Preparation	Cement and Mortar Mixers	1	6.00	9	0.56
Site Preparation	Cement and Mortar Mixers	0		9	0.56
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Bore/Drill Rigs	1	6.00	221	0.50
Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Grading	Concrete/Industrial Saws	1	4.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Sweepers/Scrubbers	1	6.00	64	0.46
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Welders	1	6.00	46	0.45
Tower 1 Construction	Aerial Lifts	2	6.00	63	0.31
Tower 1 Construction	Aerial Lifts	0		63	0.31
Tower 1 Construction	Air Compressors	2	6.00	78	0.48
Tower 1 Construction	Air Compressors	0		78	0.48
Tower 1 Construction	Cement and Mortar Mixers	2	6.00	9	0.56

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Tower 1 Construction	Concrete/Industrial Saws	2	6.00	81	0.73
Tower 1 Construction	Cranes	2	8.00	231	0.29
Tower 1 Construction	Forklifts	2	7.00	89	0.20
Tower 1 Construction	Generator Sets	1	8.00	84	0.74
Tower 1 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tower 1 Construction	Welders	2	8.00	46	0.45
Tower 1 Architectural Coating	Air Compressors	2	6.00	78	0.48
Tower 2 Construction	Aerial Lifts	2	6.00	63	0.31
Tower 2 Construction	Aerial Lifts	0		63	0.31
Tower 2 Construction	Air Compressors	2	6.00	78	0.48
Tower 2 Construction	Air Compressors	0		78	0.48
Tower 2 Construction	Cement and Mortar Mixers	2	6.00	9	0.56
Tower 2 Construction	Concrete/Industrial Saws	2	6.00	81	0.73
Tower 2 Construction	Cranes	1	8.00	231	0.29
Tower 2 Construction	Forklifts	2	7.00	89	0.20
Tower 2 Construction	Generator Sets	1	8.00	84	0.74
Tower 2 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tower 2 Construction	Welders	3	8.00	46	0.45
Tower 2 Architectural Coating	Air Compressors	2	6.00	78	0.48

Trips and VMT

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	12	30.00	0.00	1,978.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	0.00	17,125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tower 1 Construction	16	788.00	196.00	1.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Tower 1 Architectural Coating	2	158.00	0.00	1.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Tower 2 Construction	16	788.00	196.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tower 2 Architectural Coating	2	158.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.8332	0.0000	17.8332	2.7001	0.0000	2.7001			0.0000			0.0000
Off-Road	2.9713	27.4795	26.4616	0.0494		1.3163	1.3163		1.2392	1.2392		4,721.421 3	4,721.421 3	1.1688		4,750.641 2
Total	2.9713	27.4795	26.4616	0.0494	17.8332	1.3163	19.1495	2.7001	1.2392	3.9393		4,721.421 3	4,721.421 3	1.1688		4,750.641 2

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3.2 Demolition - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9195	27.0866	7.2382	0.0909	2.1609	0.0872	2.2481	0.5923	0.0835	0.6757		9,873.1495	9,873.1495	0.6390		9,889.1234
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1205	0.0798	1.1148	3.3100e-003	0.3353	2.6200e-003	0.3380	0.0889	2.4200e-003	0.0914		329.6137	329.6137	9.1000e-003		329.8411
Total	1.0400	27.1665	8.3530	0.0942	2.4962	0.0899	2.5860	0.6812	0.0859	0.7671		10,202.7632	10,202.7632	0.6481		10,218.9645

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.8332	0.0000	17.8332	2.7001	0.0000	2.7001			0.0000			0.0000
Off-Road	2.9713	27.4795	26.4616	0.0494		1.3163	1.3163		1.2392	1.2392	0.0000	4,721.4213	4,721.4213	1.1688		4,750.6412
Total	2.9713	27.4795	26.4616	0.0494	17.8332	1.3163	19.1495	2.7001	1.2392	3.9393	0.0000	4,721.4213	4,721.4213	1.1688		4,750.6412

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3.2 Demolition - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9195	27.0866	7.2382	0.0909	2.1609	0.0872	2.2481	0.5923	0.0835	0.6757		9,873.1495	9,873.1495	0.6390		9,889.1234
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1205	0.0798	1.1148	3.3100e-003	0.3353	2.6200e-003	0.3380	0.0889	2.4200e-003	0.0914		329.6137	329.6137	9.1000e-003		329.8411
Total	1.0400	27.1665	8.3530	0.0942	2.4962	0.0899	2.5860	0.6812	0.0859	0.7671		10,202.7632	10,202.7632	0.6481		10,218.9645

3.3 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.7929	19.4202	15.0731	0.0373		0.7464	0.7464		0.6875	0.6875		3,598.2301	3,598.2301	1.1554		3,627.1156
Total	1.7929	19.4202	15.0731	0.0373	1.5908	0.7464	2.3372	0.1718	0.6875	0.8593		3,598.2301	3,598.2301	1.1554		3,627.1156

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3.3 Site Preparation - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0602	0.0399	0.5574	1.6500e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		164.8069	164.8069	4.5500e-003		164.9206
Total	0.0602	0.0399	0.5574	1.6500e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		164.8069	164.8069	4.5500e-003		164.9206

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.7929	19.4202	15.0731	0.0373		0.7464	0.7464		0.6875	0.6875	0.0000	3,598.2301	3,598.2301	1.1554		3,627.1156
Total	1.7929	19.4202	15.0731	0.0373	1.5908	0.7464	2.3372	0.1718	0.6875	0.8593	0.0000	3,598.2301	3,598.2301	1.1554		3,627.1156

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.3 Site Preparation - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0602	0.0399	0.5574	1.6500e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		164.8069	164.8069	4.5500e-003		164.9206
Total	0.0602	0.0399	0.5574	1.6500e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		164.8069	164.8069	4.5500e-003		164.9206

3.4 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7907	0.0000	6.7907	3.4036	0.0000	3.4036			0.0000			0.0000
Off-Road	2.8360	27.9222	21.6076	0.0490		1.2154	1.2154		1.1289	1.1289		4,697.2240	4,697.2240	1.3995		4,732.2109
Total	2.8360	27.9222	21.6076	0.0490	6.7907	1.2154	8.0061	3.4036	1.1289	4.5324		4,697.2240	4,697.2240	1.3995		4,732.2109

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3.4 Grading - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0905	65.6511	16.4021	0.2029	4.6069	0.1885	4.7954	1.2629	0.1803	1.4432		22,036.8442	22,036.8442	1.4907		22,074.1118
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1124	0.0745	1.0405	3.0900e-003	0.3130	2.4500e-003	0.3154	0.0830	2.2600e-003	0.0853		307.6395	307.6395	8.4900e-003		307.8517
Total	2.2030	65.7256	17.4426	0.2060	4.9199	0.1909	5.1108	1.3459	0.1826	1.5284		22,344.4837	22,344.4837	1.4992		22,381.9635

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7907	0.0000	6.7907	3.4036	0.0000	3.4036			0.0000			0.0000
Off-Road	2.8360	27.9222	21.6076	0.0490		1.2154	1.2154		1.1289	1.1289	0.0000	4,697.2240	4,697.2240	1.3995		4,732.2109
Total	2.8360	27.9222	21.6076	0.0490	6.7907	1.2154	8.0061	3.4036	1.1289	4.5324	0.0000	4,697.2240	4,697.2240	1.3995		4,732.2109

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3.4 Grading - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0905	65.6511	16.4021	0.2029	4.6069	0.1885	4.7954	1.2629	0.1803	1.4432		22,036.8442	22,036.8442	1.4907		22,074.1118
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1124	0.0745	1.0405	3.0900e-003	0.3130	2.4500e-003	0.3154	0.0830	2.2600e-003	0.0853		307.6395	307.6395	8.4900e-003		307.8517
Total	2.2030	65.7256	17.4426	0.2060	4.9199	0.1909	5.1108	1.3459	0.1826	1.5284		22,344.4837	22,344.4837	1.4992		22,381.9635

3.5 Tower 1 Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936		4,412.2312	4,412.2312	0.7695		4,431.4682
Total	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936		4,412.2312	4,412.2312	0.7695		4,431.4682

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3.5 Tower 1 Construction - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	7.9000e-004	2.1000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005		0.2894	0.2894	2.0000e-005		0.2898
Vendor	0.5591	18.0967	4.7069	0.0499	1.2549	0.0340	1.2889	0.3613	0.0325	0.3938		5,340.7234	5,340.7234	0.3065		5,348.3855
Worker	3.1640	2.0972	29.2823	0.0869	8.8080	0.0690	8.8769	2.3359	0.0635	2.3994		8,657.8531	8,657.8531	0.2390		8,663.8271
Total	3.7232	20.1947	33.9894	0.1368	10.0630	0.1030	10.1660	2.6973	0.0960	2.7933		13,998.8658	13,998.8658	0.5455		14,012.5024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936	0.0000	4,412.2312	4,412.2312	0.7695		4,431.4682
Total	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936	0.0000	4,412.2312	4,412.2312	0.7695		4,431.4682

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3.5 Tower 1 Construction - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	7.9000e-004	2.1000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005		0.2894	0.2894	2.0000e-005		0.2898
Vendor	0.5591	18.0967	4.7069	0.0499	1.2549	0.0340	1.2889	0.3613	0.0325	0.3938		5,340.7234	5,340.7234	0.3065		5,348.3855
Worker	3.1640	2.0972	29.2823	0.0869	8.8080	0.0690	8.8769	2.3359	0.0635	2.3994		8,657.8531	8,657.8531	0.2390		8,663.8271
Total	3.7232	20.1947	33.9894	0.1368	10.0630	0.1030	10.1660	2.6973	0.0960	2.7933		13,998.8658	13,998.8658	0.5455		14,012.5024

3.5 Tower 1 Construction - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477		4,412.4637	4,412.4637	0.7553		4,431.3466
Total	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477		4,412.4637	4,412.4637	0.7553		4,431.3466

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3.5 Tower 1 Construction - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.0000e-004	1.9000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005		0.2774	0.2774	2.0000e-005		0.2778
Vendor	0.4148	13.7311	4.2509	0.0483	1.2549	0.0159	1.2707	0.3613	0.0152	0.3765		5,172.5856	5,172.5856	0.2716		5,179.3754
Worker	2.9712	1.8974	26.9664	0.0837	8.8080	0.0670	8.8750	2.3359	0.0617	2.3976		8,340.8381	8,340.8381	0.2155		8,346.2244
Total	3.3861	15.6291	31.2175	0.1320	10.0630	0.0828	10.1458	2.6973	0.0768	2.7741		13,513.7011	13,513.7011	0.4871		13,525.8777

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477	0.0000	4,412.4637	4,412.4637	0.7553		4,431.3466
Total	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477	0.0000	4,412.4637	4,412.4637	0.7553		4,431.3466

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3.5 Tower 1 Construction - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.0000e-004	1.9000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005		0.2774	0.2774	2.0000e-005		0.2778
Vendor	0.4148	13.7311	4.2509	0.0483	1.2549	0.0159	1.2707	0.3613	0.0152	0.3765		5,172.5856	5,172.5856	0.2716		5,179.3754
Worker	2.9712	1.8974	26.9664	0.0837	8.8080	0.0670	8.8750	2.3359	0.0617	2.3976		8,340.8381	8,340.8381	0.2155		8,346.2244
Total	3.3861	15.6291	31.2175	0.1320	10.0630	0.0828	10.1458	2.6973	0.0768	2.7741		13,513.7011	13,513.7011	0.4871		13,525.8777

3.5 Tower 1 Construction - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237		4,412.5810	4,412.5810	0.7467		4,431.2484
Total	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237		4,412.5810	4,412.5810	0.7467		4,431.2484

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3.5 Tower 1 Construction - 2024**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.0000e-004	2.0000e-004	0.0000	4.9700e-003	0.0000	4.9700e-003	1.2200e-003	0.0000	1.2200e-003		0.2762	0.2762	2.0000e-005		0.2766
Vendor	0.4049	13.6787	4.1214	0.0481	1.2549	0.0157	1.2706	0.3613	0.0150	0.3763		5,151.5940	5,151.5940	0.2677		5,158.2872
Worker	2.8107	1.7304	25.1389	0.0811	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		8,082.3447	8,082.3447	0.1977		8,087.2863
Total	3.2156	15.4096	29.2605	0.1291	10.0679	0.0817	10.1495	2.6985	0.0758	2.7742		13,234.2150	13,234.2150	0.4654		13,245.8501

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237	0.0000	4,412.5810	4,412.5810	0.7467		4,431.2484
Total	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237	0.0000	4,412.5810	4,412.5810	0.7467		4,431.2484

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3.5 Tower 1 Construction - 2024**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.0000e-004	2.0000e-004	0.0000	4.9700e-003	0.0000	4.9700e-003	1.2200e-003	0.0000	1.2200e-003		0.2762	0.2762	2.0000e-005		0.2766
Vendor	0.4049	13.6787	4.1214	0.0481	1.2549	0.0157	1.2706	0.3613	0.0150	0.3763		5,151.5940	5,151.5940	0.2677		5,158.2872
Worker	2.8107	1.7304	25.1389	0.0811	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		8,082.3447	8,082.3447	0.1977		8,087.2863
Total	3.2156	15.4096	29.2605	0.1291	10.0679	0.0817	10.1495	2.6985	0.0758	2.7742		13,234.2150	13,234.2150	0.4654		13,245.8501

3.6 Tower 1 Architectural Coating - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416		562.8961	562.8961	0.0337		563.7380
Total	43.2426	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416		562.8961	562.8961	0.0337		563.7380

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3.6 Tower 1 Architectural Coating - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.9000e-003	7.3000e-004	1.0000e-005	2.4000e-004	0.0000	2.4000e-004	7.0000e-005	0.0000	7.0000e-005		1.0440	1.0440	7.0000e-005		1.0456
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5958	0.3805	5.4070	0.0168	1.7661	0.0134	1.7795	0.4684	0.0124	0.4807		1,672.4016	1,672.4016	0.0432		1,673.4816
Total	0.5958	0.3824	5.4077	0.0168	1.7663	0.0134	1.7797	0.4684	0.0124	0.4808		1,673.4455	1,673.4455	0.0433		1,674.5272

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416	0.0000	562.8961	562.8961	0.0337		563.7380
Total	43.2426	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416	0.0000	562.8961	562.8961	0.0337		563.7380

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3.6 Tower 1 Architectural Coating - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.9000e-003	7.3000e-004	1.0000e-005	2.4000e-004	0.0000	2.4000e-004	7.0000e-005	0.0000	7.0000e-005		1.0440	1.0440	7.0000e-005		1.0456
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5958	0.3805	5.4070	0.0168	1.7661	0.0134	1.7795	0.4684	0.0124	0.4807		1,672.4016	1,672.4016	0.0432		1,673.4816
Total	0.5958	0.3824	5.4077	0.0168	1.7663	0.0134	1.7797	0.4684	0.0124	0.4808		1,673.4455	1,673.4455	0.0433		1,674.5272

3.6 Tower 1 Architectural Coating - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3615	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218		562.8961	562.8961	0.0317		563.6885
Total	43.2208	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218		562.8961	562.8961	0.0317		563.6885

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3.6 Tower 1 Architectural Coating - 2024**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.8800e-003	7.4000e-004	1.0000e-005	0.0199	0.0000	0.0199	4.8900e-003	0.0000	4.8900e-003		1.0395	1.0395	7.0000e-005		1.0412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5636	0.3470	5.0405	0.0163	1.7661	0.0132	1.7793	0.4684	0.0122	0.4806		1,620.5717	1,620.5717	0.0396		1,621.5625
Total	0.5636	0.3488	5.0413	0.0163	1.7860	0.0132	1.7992	0.4733	0.0122	0.4855		1,621.6112	1,621.6112	0.0397		1,622.6037

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3615	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218	0.0000	562.8961	562.8961	0.0317		563.6885
Total	43.2208	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218	0.0000	562.8961	562.8961	0.0317		563.6885

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.6 Tower 1 Architectural Coating - 2024**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.8800e-003	7.4000e-004	1.0000e-005	0.0199	0.0000	0.0199	4.8900e-003	0.0000	4.8900e-003		1.0395	1.0395	7.0000e-005		1.0412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5636	0.3470	5.0405	0.0163	1.7661	0.0132	1.7793	0.4684	0.0122	0.4806		1,620.5717	1,620.5717	0.0396		1,621.5625
Total	0.5636	0.3488	5.0413	0.0163	1.7860	0.0132	1.7992	0.4733	0.0122	0.4855		1,621.6112	1,621.6112	0.0397		1,622.6037

3.7 Tower 2 Construction - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370		4,061.2514	4,061.2514	0.5871		4,075.9300
Total	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370		4,061.2514	4,061.2514	0.5871		4,075.9300

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.7 Tower 2 Construction - 2024**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4049	13.6787	4.1214	0.0481	1.2549	0.0157	1.2706	0.3613	0.0150	0.3763		5,151.5940	5,151.5940	0.2677		5,158.2872
Worker	2.8107	1.7304	25.1389	0.0811	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		8,082.3447	8,082.3447	0.1977		8,087.2863
Total	3.2156	15.4091	29.2603	0.1291	10.0629	0.0817	10.1446	2.6972	0.0758	2.7730		13,233.9388	13,233.9388	0.4654		13,245.5734

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370	0.0000	4,061.2514	4,061.2514	0.5871		4,075.9300
Total	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370	0.0000	4,061.2514	4,061.2514	0.5871		4,075.9300

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.7 Tower 2 Construction - 2024**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4049	13.6787	4.1214	0.0481	1.2549	0.0157	1.2706	0.3613	0.0150	0.3763		5,151.5940	5,151.5940	0.2677		5,158.2872
Worker	2.8107	1.7304	25.1389	0.0811	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		8,082.3447	8,082.3447	0.1977		8,087.2863
Total	3.2156	15.4091	29.2603	0.1291	10.0629	0.0817	10.1446	2.6972	0.0758	2.7730		13,233.9388	13,233.9388	0.4654		13,245.5734

3.7 Tower 2 Construction - 2025**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.4887	4,061.4887	0.5765		4,075.9018
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.4887	4,061.4887	0.5765		4,075.9018

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.7 Tower 2 Construction - 2025**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3946	13.5626	4.0156	0.0478	1.2549	0.0154	1.2704	0.3613	0.0147	0.3761		5,123.208 4	5,123.208 4	0.2640		5,129.807 6
Worker	2.6689	1.5832	23.3484	0.0779	8.8080	0.0647	8.8726	2.3359	0.0595	2.3954		7,769.167 6	7,769.167 6	0.1803		7,773.675 3
Total	3.0635	15.1459	27.3639	0.1257	10.0629	0.0801	10.1430	2.6973	0.0743	2.7715		12,892.37 60	12,892.37 60	0.4443		12,903.48 29

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.488 7	4,061.488 7	0.5765		4,075.901 8
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.488 7	4,061.488 7	0.5765		4,075.901 8

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.7 Tower 2 Construction - 2025**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3946	13.5626	4.0156	0.0478	1.2549	0.0154	1.2704	0.3613	0.0147	0.3761		5,123.208 4	5,123.208 4	0.2640		5,129.807 6
Worker	2.6689	1.5832	23.3484	0.0779	8.8080	0.0647	8.8726	2.3359	0.0595	2.3954		7,769.167 6	7,769.167 6	0.1803		7,773.675 3
Total	3.0635	15.1459	27.3639	0.1257	10.0629	0.0801	10.1430	2.6973	0.0743	2.7715		12,892.37 60	12,892.37 60	0.4443		12,903.48 29

3.7 Tower 2 Construction - 2026**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.488 7	4,061.488 7	0.5765		4,075.901 8
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.488 7	4,061.488 7	0.5765		4,075.901 8

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.7 Tower 2 Construction - 2026**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3857	13.4367	3.9346	0.0475	1.2550	0.0151	1.2701	0.3613	0.0145	0.3758		5,095.9508	5,095.9508	0.2602		5,102.4565
Worker	2.5470	1.4586	21.8334	0.0752	8.8080	0.0625	8.8705	2.3359	0.0575	2.3934		7,499.2355	7,499.2355	0.1654		7,503.3697
Total	2.9327	14.8954	25.7680	0.1227	10.0630	0.0776	10.1405	2.6973	0.0720	2.7692		12,595.1863	12,595.1863	0.4256		12,605.8262

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.4887	4,061.4887	0.5765		4,075.9018
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.4887	4,061.4887	0.5765		4,075.9018

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.7 Tower 2 Construction - 2026**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3857	13.4367	3.9346	0.0475	1.2550	0.0151	1.2701	0.3613	0.0145	0.3758		5,095.9508	5,095.9508	0.2602		5,102.4565
Worker	2.5470	1.4586	21.8334	0.0752	8.8080	0.0625	8.8705	2.3359	0.0575	2.3934		7,499.2355	7,499.2355	0.1654		7,503.3697
Total	2.9327	14.8954	25.7680	0.1227	10.0630	0.0776	10.1405	2.6973	0.0720	2.7692		12,595.1863	12,595.1863	0.4256		12,605.8262

3.8 Tower 2 Architectural Coating - 2025**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.8 Tower 2 Architectural Coating - 2025**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5351	0.3175	4.6815	0.0156	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,557.777 3	1,557.777 3	0.0362		1,558.681 1
Total	0.5351	0.3175	4.6815	0.0156	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,557.777 3	1,557.777 3	0.0362		1,558.681 1

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.8 Tower 2 Architectural Coating - 2025**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5351	0.3175	4.6815	0.0156	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,557.777 3	1,557.777 3	0.0362		1,558.681 1
Total	0.5351	0.3175	4.6815	0.0156	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,557.777 3	1,557.777 3	0.0362		1,558.681 1

3.8 Tower 2 Architectural Coating - 2026**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.8 Tower 2 Architectural Coating - 2026**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5107	0.2925	4.3778	0.0151	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,503.6538	1,503.6538	0.0332		1,504.4828
Total	0.5107	0.2925	4.3778	0.0151	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,503.6538	1,503.6538	0.0332		1,504.4828

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

3.8 Tower 2 Architectural Coating - 2026**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5107	0.2925	4.3778	0.0151	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,503.6538	1,503.6538	0.0332		1,504.4828
Total	0.5107	0.2925	4.3778	0.0151	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,503.6538	1,503.6538	0.0332		1,504.4828

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.1399	18.3998	57.7714	0.2434	22.3201	0.1760	22.4961	5.9715	0.1634	6.1349		24,849.08 60	24,849.08 60	1.0848		24,876.20 51
Unmitigated	4.1399	18.3998	57.7714	0.2434	22.3201	0.1760	22.4961	5.9715	0.1634	6.1349		24,849.08 60	24,849.08 60	1.0848		24,876.20 51

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	183.86	183.86	183.86	589,750	589,750
Strip Mall	46.26	46.26	46.26	159,563	159,563
Apartments High Rise	2,425.60	2,425.60	2,425.60	9,330,682	9,330,682
Enclosed Parking with Elevator	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	139.90	139.90	139.90	419,509	419,509
Total	2,795.62	2,795.62	2,795.62	10,499,503	10,499,503

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	14.70	5.90	8.70	40.00	19.00	41.00	100	0	0
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	100	0	0
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	100	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	100	0	0

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Enclosed Parking with Elevator	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Fast Food Restaurant w/o Drive Thru	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
High Turnover (Sit Down Restaurant)	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Strip Mall	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790
NaturalGas Unmitigated	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	16161.2	0.1743	1.4894	0.6338	9.5100e-003		0.1204	0.1204		0.1204	0.1204		1,901.3188	1,901.3188	0.0364	0.0349	1,912.6174
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	1264.44	0.0136	0.1240	0.1041	7.4000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003		148.7575	148.7575	2.8500e-003	2.7300e-003	149.6414
High Turnover (Sit Down Restaurant)	2908.21	0.0314	0.2851	0.2395	1.7100e-003		0.0217	0.0217		0.0217	0.0217		342.1421	342.1421	6.5600e-003	6.2700e-003	344.1753
Strip Mall	24.8831	2.7000e-004	2.4400e-003	2.0500e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9274	2.9274	6.0000e-005	5.0000e-005	2.9448
Total		0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	16.1612	0.1743	1.4894	0.6338	9.5100e-003		0.1204	0.1204		0.1204	0.1204		1,901.3188	1,901.3188	0.0364	0.0349	1,912.6174
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	1.26444	0.0136	0.1240	0.1041	7.4000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003		148.7575	148.7575	2.8500e-003	2.7300e-003	149.6414
High Turnover (Sit Down Restaurant)	2.90821	0.0314	0.2851	0.2395	1.7100e-003		0.0217	0.0217		0.0217	0.0217		342.1421	342.1421	6.5600e-003	6.2700e-003	344.1753
Strip Mall	0.0248831	2.7000e-004	2.4400e-003	2.0500e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9274	2.9274	6.0000e-005	5.0000e-005	2.9448
Total		0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790

6.0 Area Detail

6.1 Mitigation Measures Area

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002
Unmitigated	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.3985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6020	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934		95.4965	95.4965	0.0921		97.8002
Total	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.3985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6020	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934		95.4965	95.4965	0.0921		97.8002
Total	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

3440 Wilshire Boulevard Future

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	1,921.00	Space	1.00	768,400.00	0
Fast Food Restaurant w/o Drive Thru	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	4.60	1000sqft	0.09	4,600.00	0
Apartments High Rise	640.00	Dwelling Unit	1.10	701,315.00	1830
Strip Mall	5.54	1000sqft	0.09	5,538.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	11			Operational Year	2026
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MW hr)	1227.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - Consistent with IS/MND's model.

Construction Phase - See SWAPE comment about construction schedule.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Consistent with IS/MND's model.

Off-road Equipment - Same as Tower 1 Construction.

Off-road Equipment - Same as Tower 1 Construction.

Trips and VMT - See SWAPE comment about hauling, vendor, and worker trips.

Demolition - Consistent with IS/MND's model.

Grading - See SWAPE comment about acres of grading. Material export consistent with IS/MND's model.

Vehicle Trips - See SWAPE comment about trip rates.

Woodstoves - Consistent with IS/MND's model.

Construction Off-road Equipment Mitigation - See SWAPE comment about construction-related mitigation measures.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	10.00	110.00
tblConstructionPhase	NumDays	220.00	414.00
tblConstructionPhase	NumDays	220.00	414.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	6.00	65.00
tblConstructionPhase	NumDays	3.00	21.00
tblFireplaces	NumberGas	544.00	0.00
tblFireplaces	NumberNoFireplace	64.00	641.00

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tblFireplaces	NumberWood	32.00	0.00
tblGrading	MaterialExported	0.00	137,000.00
tblLandUse	LandUseSquareFeet	640,000.00	701,315.00
tblLandUse	LandUseSquareFeet	5,540.00	5,538.00
tblLandUse	LotAcreage	17.29	1.00
tblLandUse	LotAcreage	0.11	0.09
tblLandUse	LotAcreage	10.32	1.10
tblLandUse	LotAcreage	0.13	0.09
tblOffRoadEquipment	LoadFactor	0.36	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TTP	40.60	41.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TTP	40.20	40.00

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	51.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblVehicleTrips	ST_TR	4.98	3.79
tblVehicleTrips	ST_TR	696.00	69.95
tblVehicleTrips	ST_TR	158.37	39.97
tblVehicleTrips	ST_TR	42.04	8.35
tblVehicleTrips	SU_TR	3.65	3.79
tblVehicleTrips	SU_TR	500.00	69.95
tblVehicleTrips	SU_TR	131.84	39.97
tblVehicleTrips	SU_TR	20.43	8.35
tblVehicleTrips	WD_TR	4.20	3.79
tblVehicleTrips	WD_TR	716.00	69.95
tblVehicleTrips	WD_TR	127.15	39.97
tblVehicleTrips	WD_TR	44.32	8.35
tblWoodstoves	NumberCatalytic	32.00	0.00
tblWoodstoves	NumberNoncatalytic	32.00	0.00

2.0 Emissions Summary

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	7.1558	94.4056	57.7140	0.2512	20.3294	1.4093	21.7365	4.7494	1.3260	6.0637	0.0000	26,638.61 36	26,638.61 36	2.9490	0.0000	26,712.33 87
2023	50.5047	42.6507	63.3249	0.1947	11.8293	1.3259	13.1552	3.1657	1.2794	4.4451	0.0000	19,437.77 14	19,437.77 14	1.3191	0.0000	19,470.74 81
2024	50.0977	40.7050	60.9748	0.1915	11.8538	1.1767	13.0305	3.1717	1.1341	4.3058	0.0000	19,125.89 39	19,125.89 39	1.2838	0.0000	19,157.98 88
2025	49.6366	36.9483	58.6605	0.1845	11.8290	0.9437	12.7727	3.1656	0.9156	4.0812	0.0000	18,392.94 34	18,392.94 34	1.0886	0.0000	18,420.15 86
2026	49.4736	36.6571	56.8963	0.1811	11.8290	0.9407	12.7698	3.1656	0.9128	4.0785	0.0000	18,062.13 09	18,062.13 09	1.0675	0.0000	18,088.81 75
Maximum	50.5047	94.4056	63.3249	0.2512	20.3294	1.4093	21.7365	4.7494	1.3260	6.0637	0.0000	26,638.61 36	26,638.61 36	2.9490	0.0000	26,712.33 87

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	7.1558	94.4056	57.7140	0.2512	20.3294	1.4093	21.7365	4.7494	1.3260	6.0637	0.0000	26,638.6136	26,638.6136	2.9490	0.0000	26,712.3387
2023	50.5047	42.6507	63.3249	0.1947	11.8293	1.3259	13.1552	3.1657	1.2794	4.4451	0.0000	19,437.7714	19,437.7714	1.3191	0.0000	19,470.7480
2024	50.0977	40.7050	60.9748	0.1915	11.8538	1.1767	13.0305	3.1717	1.1341	4.3058	0.0000	19,125.8939	19,125.8939	1.2838	0.0000	19,157.9888
2025	49.6366	36.9483	58.6605	0.1845	11.8290	0.9437	12.7727	3.1656	0.9156	4.0812	0.0000	18,392.9434	18,392.9434	1.0886	0.0000	18,420.1586
2026	49.4736	36.6571	56.8963	0.1811	11.8290	0.9407	12.7698	3.1656	0.9128	4.0785	0.0000	18,062.1309	18,062.1309	1.0675	0.0000	18,088.8175
Maximum	50.5047	94.4056	63.3249	0.2512	20.3294	1.4093	21.7365	4.7494	1.3260	6.0637	0.0000	26,638.6136	26,638.6136	2.9490	0.0000	26,712.3387

[illegible]

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002
Energy	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790
Mobile	4.0125	18.8225	54.4791	0.2319	22.3201	0.1765	22.4966	5.9715	0.1639	6.1354		23,689.8647	23,689.8647	1.0815		23,716.9025
Total	21.5242	21.3328	108.4062	0.2467	22.3201	0.6216	22.9417	5.9715	0.6090	6.5805	0.0000	26,180.5071	26,180.5071	1.2196	0.0439	26,224.0817

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002
Energy	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790
Mobile	4.0125	18.8225	54.4791	0.2319	22.3201	0.1765	22.4966	5.9715	0.1639	6.1354		23,689.8647	23,689.8647	1.0815		23,716.9025
Total	21.5242	21.3328	108.4062	0.2467	22.3201	0.6216	22.9417	5.9715	0.6090	6.5805	0.0000	26,180.5071	26,180.5071	1.2196	0.0439	26,224.0817

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	2/3/2022	5	24	
2	Site Preparation	Site Preparation	2/4/2022	3/4/2022	5	21	
3	Grading	Grading	3/5/2022	6/3/2022	5	65	
4	Tower 1 Construction	Building Construction	6/4/2022	1/4/2024	5	414	
5	Tower 1 Architectural Coating	Architectural Coating	8/1/2023	1/1/2024	5	110	
6	Tower 2 Construction	Building Construction	6/1/2024	1/1/2026	5	414	
7	Tower 2 Architectural Coating	Architectural Coating	8/1/2025	1/1/2026	5	110	

Acres of Grading (Site Preparation Phase): 31.5**Acres of Grading (Grading Phase): 32.5****Acres of Paving: 1****Residential Indoor: 1,420,163; Residential Outdoor: 473,388; Non-Residential Indoor: 18,207; Non-Residential Outdoor: 6,069; Striped Parking Area: 46,104 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Dumpers/Tenders	3	8.00	16	0.38
Demolition	Dumpers/Tenders	0		16	0.38

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Demolition	Excavators	2	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Rubber Tired Loaders	1	8.00	203	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	6.00	221	0.50
Site Preparation	Bore/Drill Rigs	0		221	0.50
Site Preparation	Cement and Mortar Mixers	1	6.00	9	0.56
Site Preparation	Cement and Mortar Mixers	0		9	0.56
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Bore/Drill Rigs	1	6.00	221	0.50
Grading	Cement and Mortar Mixers	1	6.00	9	0.56
Grading	Concrete/Industrial Saws	1	4.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Sweepers/Scrubbers	1	6.00	64	0.46
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Welders	1	6.00	46	0.45
Tower 1 Construction	Aerial Lifts	2	6.00	63	0.31
Tower 1 Construction	Aerial Lifts	0		63	0.31
Tower 1 Construction	Air Compressors	2	6.00	78	0.48
Tower 1 Construction	Air Compressors	0		78	0.48
Tower 1 Construction	Cement and Mortar Mixers	2	6.00	9	0.56

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Tower 1 Construction	Concrete/Industrial Saws	2	6.00	81	0.73
Tower 1 Construction	Cranes	2	8.00	231	0.29
Tower 1 Construction	Forklifts	2	7.00	89	0.20
Tower 1 Construction	Generator Sets	1	8.00	84	0.74
Tower 1 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tower 1 Construction	Welders	2	8.00	46	0.45
Tower 1 Architectural Coating	Air Compressors	2	6.00	78	0.48
Tower 2 Construction	Aerial Lifts	2	6.00	63	0.31
Tower 2 Construction	Aerial Lifts	0		63	0.31
Tower 2 Construction	Air Compressors	2	6.00	78	0.48
Tower 2 Construction	Air Compressors	0		78	0.48
Tower 2 Construction	Cement and Mortar Mixers	2	6.00	9	0.56
Tower 2 Construction	Concrete/Industrial Saws	2	6.00	81	0.73
Tower 2 Construction	Cranes	1	8.00	231	0.29
Tower 2 Construction	Forklifts	2	7.00	89	0.20
Tower 2 Construction	Generator Sets	1	8.00	84	0.74
Tower 2 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tower 2 Construction	Welders	3	8.00	46	0.45
Tower 2 Architectural Coating	Air Compressors	2	6.00	78	0.48

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	12	30.00	0.00	1,978.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	28.00	0.00	17,125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tower 1 Construction	16	788.00	196.00	1.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Tower 1 Architectural Coating	2	158.00	0.00	1.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Tower 2 Construction	16	788.00	196.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tower 2 Architectural Coating	2	158.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.8332	0.0000	17.8332	2.7001	0.0000	2.7001			0.0000			0.0000
Off-Road	2.9713	27.4795	26.4616	0.0494		1.3163	1.3163		1.2392	1.2392		4,721.421 3	4,721.421 3	1.1688		4,750.641 2
Total	2.9713	27.4795	26.4616	0.0494	17.8332	1.3163	19.1495	2.7001	1.2392	3.9393		4,721.421 3	4,721.421 3	1.1688		4,750.641 2

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3.2 Demolition - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9352	27.5777	7.5219	0.0898	2.1609	0.0882	2.2490	0.5923	0.0843	0.6766		9,752.6709	9,752.6709	0.6548		9,769.0405
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1344	0.0884	1.0175	3.1100e-003	0.3353	2.6200e-003	0.3380	0.0889	2.4200e-003	0.0914		310.3708	310.3708	8.5500e-003		310.5845
Total	1.0696	27.6660	8.5394	0.0929	2.4962	0.0908	2.5870	0.6812	0.0868	0.7680		10,063.0417	10,063.0417	0.6633		10,079.6250

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.8332	0.0000	17.8332	2.7001	0.0000	2.7001			0.0000			0.0000
Off-Road	2.9713	27.4795	26.4616	0.0494		1.3163	1.3163		1.2392	1.2392	0.0000	4,721.4213	4,721.4213	1.1688		4,750.6412
Total	2.9713	27.4795	26.4616	0.0494	17.8332	1.3163	19.1495	2.7001	1.2392	3.9393	0.0000	4,721.4213	4,721.4213	1.1688		4,750.6412

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3.2 Demolition - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9352	27.5777	7.5219	0.0898	2.1609	0.0882	2.2490	0.5923	0.0843	0.6766		9,752.6709	9,752.6709	0.6548		9,769.0405
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1344	0.0884	1.0175	3.1100e-003	0.3353	2.6200e-003	0.3380	0.0889	2.4200e-003	0.0914		310.3708	310.3708	8.5500e-003		310.5845
Total	1.0696	27.6660	8.5394	0.0929	2.4962	0.0908	2.5870	0.6812	0.0868	0.7680		10,063.0417	10,063.0417	0.6633		10,079.6250

3.3 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.7929	19.4202	15.0731	0.0373		0.7464	0.7464		0.6875	0.6875		3,598.2301	3,598.2301	1.1554		3,627.1156
Total	1.7929	19.4202	15.0731	0.0373	1.5908	0.7464	2.3372	0.1718	0.6875	0.8593		3,598.2301	3,598.2301	1.1554		3,627.1156

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3.3 Site Preparation - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0672	0.0442	0.5088	1.5600e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		155.1854	155.1854	4.2700e-003		155.2922
Total	0.0672	0.0442	0.5088	1.5600e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		155.1854	155.1854	4.2700e-003		155.2922

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.7929	19.4202	15.0731	0.0373		0.7464	0.7464		0.6875	0.6875	0.0000	3,598.2301	3,598.2301	1.1554		3,627.1156
Total	1.7929	19.4202	15.0731	0.0373	1.5908	0.7464	2.3372	0.1718	0.6875	0.8593	0.0000	3,598.2301	3,598.2301	1.1554		3,627.1156

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3.3 Site Preparation - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0672	0.0442	0.5088	1.5600e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		155.1854	155.1854	4.2700e-003		155.2922
Total	0.0672	0.0442	0.5088	1.5600e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		155.1854	155.1854	4.2700e-003		155.2922

3.4 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7907	0.0000	6.7907	3.4036	0.0000	3.4036			0.0000			0.0000
Off-Road	2.8360	27.9222	21.6076	0.0490		1.2154	1.2154		1.1289	1.1289		4,697.2240	4,697.2240	1.3995		4,732.2109
Total	2.8360	27.9222	21.6076	0.0490	6.7907	1.2154	8.0061	3.4036	1.1289	4.5324		4,697.2240	4,697.2240	1.3995		4,732.2109

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3.4 Grading - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.1410	66.4009	17.3562	0.1993	4.6069	0.1914	4.7984	1.2629	0.1831	1.4460		21,651.7102	21,651.7102	1.5416		21,690.2490
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1254	0.0825	0.9497	2.9100e-003	0.3130	2.4500e-003	0.3154	0.0830	2.2600e-003	0.0853		289.6795	289.6795	7.9800e-003		289.8789
Total	2.2664	66.4833	18.3059	0.2022	4.9199	0.1939	5.1138	1.3459	0.1854	1.5313		21,941.3896	21,941.3896	1.5495		21,980.1278

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7907	0.0000	6.7907	3.4036	0.0000	3.4036			0.0000			0.0000
Off-Road	2.8360	27.9222	21.6076	0.0490		1.2154	1.2154		1.1289	1.1289	0.0000	4,697.2240	4,697.2240	1.3995		4,732.2109
Total	2.8360	27.9222	21.6076	0.0490	6.7907	1.2154	8.0061	3.4036	1.1289	4.5324	0.0000	4,697.2240	4,697.2240	1.3995		4,732.2109

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3.4 Grading - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.1410	66.4009	17.3562	0.1993	4.6069	0.1914	4.7984	1.2629	0.1831	1.4460		21,651.7102	21,651.7102	1.5416		21,690.2490
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1254	0.0825	0.9497	2.9100e-003	0.3130	2.4500e-003	0.3154	0.0830	2.2600e-003	0.0853		289.6795	289.6795	7.9800e-003		289.8789
Total	2.2664	66.4833	18.3059	0.0222	4.9199	0.1939	5.1138	1.3459	0.1854	1.5313		21,941.3896	21,941.3896	1.5495		21,980.1278

3.5 Tower 1 Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936		4,412.2312	4,412.2312	0.7695		4,431.4682
Total	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936		4,412.2312	4,412.2312	0.7695		4,431.4682

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3.5 Tower 1 Construction - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	8.1000e-004	2.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005		0.2858	0.2858	2.0000e-005		0.2863
Vendor	0.5871	18.0475	5.2091	0.0486	1.2549	0.0351	1.2900	0.3613	0.0336	0.3949		5,193.4175	5,193.4175	0.3264		5,201.5773
Worker	3.5290	2.3210	26.7271	0.0818	8.8080	0.0690	8.8769	2.3359	0.0635	2.3994		8,152.4073	8,152.4073	0.2245		8,158.0192
Total	4.1162	20.3693	31.9364	0.1304	10.0630	0.1041	10.1671	2.6973	0.0971	2.7944		13,346.1106	13,346.1106	0.5509		13,359.8828

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936	0.0000	4,412.2312	4,412.2312	0.7695		4,431.4682
Total	3.0396	25.7368	25.7776	0.0472		1.2378	1.2378		1.1936	1.1936	0.0000	4,412.2312	4,412.2312	0.7695		4,431.4682

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3.5 Tower 1 Construction - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	8.1000e-004	2.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005		0.2858	0.2858	2.0000e-005		0.2863
Vendor	0.5871	18.0475	5.2091	0.0486	1.2549	0.0351	1.2900	0.3613	0.0336	0.3949		5,193.4175	5,193.4175	0.3264		5,201.5773
Worker	3.5290	2.3210	26.7271	0.0818	8.8080	0.0690	8.8769	2.3359	0.0635	2.3994		8,152.4073	8,152.4073	0.2245		8,158.0192
Total	4.1162	20.3693	31.9364	0.1304	10.0630	0.1041	10.1671	2.6973	0.0971	2.7944		13,346.1106	13,346.1106	0.5509		13,359.8828

3.5 Tower 1 Construction - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477		4,412.4637	4,412.4637	0.7553		4,431.3466
Total	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477		4,412.4637	4,412.4637	0.7553		4,431.3466

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3.5 Tower 1 Construction - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.1000e-004	2.0000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005		0.2740	0.2740	2.0000e-005		0.2745
Vendor	0.4362	13.6688	4.6288	0.0470	1.2549	0.0167	1.2716	0.3613	0.0159	0.3773		5,032.1297	5,032.1297	0.2873		5,039.3130
Worker	3.3247	2.0992	24.5672	0.0788	8.8080	0.0670	8.8750	2.3359	0.0617	2.3976		7,854.1581	7,854.1581	0.2021		7,859.2112
Total	3.7609	15.7685	29.1962	0.1258	10.0630	0.0837	10.1466	2.6973	0.0776	2.7749		12,886.5618	12,886.5618	0.4895		12,898.7987

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477	0.0000	4,412.4637	4,412.4637	0.7553		4,431.3466
Total	2.8346	23.8534	25.5798	0.0472		1.0872	1.0872		1.0477	1.0477	0.0000	4,412.4637	4,412.4637	0.7553		4,431.3466

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3.5 Tower 1 Construction - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.1000e-004	2.0000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005		0.2740	0.2740	2.0000e-005		0.2745
Vendor	0.4362	13.6688	4.6288	0.0470	1.2549	0.0167	1.2716	0.3613	0.0159	0.3773		5,032.1297	5,032.1297	0.2873		5,039.3130
Worker	3.3247	2.0992	24.5672	0.0788	8.8080	0.0670	8.8750	2.3359	0.0617	2.3976		7,854.1581	7,854.1581	0.2021		7,859.2112
Total	3.7609	15.7685	29.1962	0.1258	10.0630	0.0837	10.1466	2.6973	0.0776	2.7749		12,886.5618	12,886.5618	0.4895		12,898.7987

3.5 Tower 1 Construction - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237		4,412.5810	4,412.5810	0.7467		4,431.2484
Total	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237		4,412.5810	4,412.5810	0.7467		4,431.2484

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3.5 Tower 1 Construction - 2024**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.1000e-004	2.0000e-004	0.0000	4.9700e-003	0.0000	4.9700e-003	1.2200e-003	0.0000	1.2200e-003		0.2729	0.2729	2.0000e-005		0.2733
Vendor	0.4255	13.6197	4.4884	0.0468	1.2549	0.0164	1.2713	0.3613	0.0157	0.3770		5,012.6132	5,012.6132	0.2830		5,019.6877
Worker	3.1549	1.9139	22.8711	0.0763	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		7,610.5338	7,610.5338	0.1852		7,615.1638
Total	3.5804	15.5341	27.3597	0.1231	10.0679	0.0824	10.1503	2.6985	0.0765	2.7749		12,623.4198	12,623.4198	0.4682		12,635.1248

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237	0.0000	4,412.5810	4,412.5810	0.7467		4,431.2484
Total	2.6639	22.3477	25.4083	0.0472		0.9592	0.9592		0.9237	0.9237	0.0000	4,412.5810	4,412.5810	0.7467		4,431.2484

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3.5 Tower 1 Construction - 2024**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	5.1000e-004	2.0000e-004	0.0000	4.9700e-003	0.0000	4.9700e-003	1.2200e-003	0.0000	1.2200e-003		0.2729	0.2729	2.0000e-005		0.2733
Vendor	0.4255	13.6197	4.4884	0.0468	1.2549	0.0164	1.2713	0.3613	0.0157	0.3770		5,012.6132	5,012.6132	0.2830		5,019.6877
Worker	3.1549	1.9139	22.8711	0.0763	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		7,610.5338	7,610.5338	0.1852		7,615.1638
Total	3.5804	15.5341	27.3597	0.1231	10.0679	0.0824	10.1503	2.6985	0.0765	2.7749		12,623.4198	12,623.4198	0.4682		12,635.1248

3.6 Tower 1 Architectural Coating - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416		562.8961	562.8961	0.0337		563.7380
Total	43.2426	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416		562.8961	562.8961	0.0337		563.7380

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3.6 Tower 1 Architectural Coating - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.9200e-003	7.5000e-004	1.0000e-005	2.4000e-004	0.0000	2.4000e-004	7.0000e-005	0.0000	7.0000e-005		1.0313	1.0313	7.0000e-005		1.0330
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6666	0.4209	4.9259	0.0158	1.7661	0.0134	1.7795	0.4684	0.0124	0.4807		1,574.8185	1,574.8185	0.0405		1,575.8317
Total	0.6667	0.4228	4.9267	0.0158	1.7663	0.0134	1.7797	0.4684	0.0124	0.4808		1,575.8498	1,575.8498	0.0406		1,576.8647

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3833	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416	0.0000	562.8961	562.8961	0.0337		563.7380
Total	43.2426	2.6060	3.6222	5.9400e-003		0.1416	0.1416		0.1416	0.1416	0.0000	562.8961	562.8961	0.0337		563.7380

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3.6 Tower 1 Architectural Coating - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.9200e-003	7.5000e-004	1.0000e-005	2.4000e-004	0.0000	2.4000e-004	7.0000e-005	0.0000	7.0000e-005		1.0313	1.0313	7.0000e-005		1.0330
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6666	0.4209	4.9259	0.0158	1.7661	0.0134	1.7795	0.4684	0.0124	0.4807		1,574.8185	1,574.8185	0.0405		1,575.8317
Total	0.6667	0.4228	4.9267	0.0158	1.7663	0.0134	1.7797	0.4684	0.0124	0.4808		1,575.8498	1,575.8498	0.0406		1,576.8647

3.6 Tower 1 Architectural Coating - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3615	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218		562.8961	562.8961	0.0317		563.6885
Total	43.2208	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218		562.8961	562.8961	0.0317		563.6885

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3.6 Tower 1 Architectural Coating - 2024**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.9100e-003	7.6000e-004	1.0000e-005	0.0199	0.0000	0.0199	4.8900e-003	0.0000	4.8900e-003		1.0270	1.0270	7.0000e-005		1.0287
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6326	0.3838	4.5858	0.0153	1.7661	0.0132	1.7793	0.4684	0.0122	0.4806		1,525.9700	1,525.9700	0.0371		1,526.8983
Total	0.6327	0.3857	4.5866	0.0153	1.7860	0.0132	1.7992	0.4733	0.0122	0.4855		1,526.9970	1,526.9970	0.0372		1,527.9270

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3615	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218	0.0000	562.8961	562.8961	0.0317		563.6885
Total	43.2208	2.4376	3.6203	5.9400e-003		0.1218	0.1218		0.1218	0.1218	0.0000	562.8961	562.8961	0.0317		563.6885

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3.6 Tower 1 Architectural Coating - 2024**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.0000e-005	1.9100e-003	7.6000e-004	1.0000e-005	0.0199	0.0000	0.0199	4.8900e-003	0.0000	4.8900e-003		1.0270	1.0270	7.0000e-005		1.0287
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6326	0.3838	4.5858	0.0153	1.7661	0.0132	1.7793	0.4684	0.0122	0.4806		1,525.9700	1,525.9700	0.0371		1,526.8983
Total	0.6327	0.3857	4.5866	0.0153	1.7860	0.0132	1.7992	0.4733	0.0122	0.4855		1,526.9970	1,526.9970	0.0372		1,527.9270

3.7 Tower 2 Construction - 2024**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370		4,061.2514	4,061.2514	0.5871		4,075.9300
Total	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370		4,061.2514	4,061.2514	0.5871		4,075.9300

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3.7 Tower 2 Construction - 2024**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4255	13.6197	4.4884	0.0468	1.2549	0.0164	1.2713	0.3613	0.0157	0.3770		5,012.613 2	5,012.613 2	0.2830		5,019.687 7
Worker	3.1549	1.9139	22.8711	0.0763	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		7,610.533 8	7,610.533 8	0.1852		7,615.163 8
Total	3.5803	15.5336	27.3595	0.1231	10.0629	0.0824	10.1453	2.6972	0.0765	2.7737		12,623.14 70	12,623.14 70	0.4682		12,634.85 15

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370	0.0000	4,061.251 4	4,061.251 4	0.5871		4,075.930 0
Total	2.5680	20.2241	25.2972	0.0440		0.8609	0.8609		0.8370	0.8370	0.0000	4,061.251 4	4,061.251 4	0.5871		4,075.930 0

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3.7 Tower 2 Construction - 2024**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4255	13.6197	4.4884	0.0468	1.2549	0.0164	1.2713	0.3613	0.0157	0.3770		5,012.613 2	5,012.613 2	0.2830		5,019.687 7
Worker	3.1549	1.9139	22.8711	0.0763	8.8080	0.0660	8.8740	2.3359	0.0608	2.3967		7,610.533 8	7,610.533 8	0.1852		7,615.163 8
Total	3.5803	15.5336	27.3595	0.1231	10.0629	0.0824	10.1453	2.6972	0.0765	2.7737		12,623.14 70	12,623.14 70	0.4682		12,634.85 15

3.7 Tower 2 Construction - 2025**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.488 7	4,061.488 7	0.5765		4,075.901 8
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.488 7	4,061.488 7	0.5765		4,075.901 8

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3.7 Tower 2 Construction - 2025**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4146	13.5044	4.3738	0.0465	1.2549	0.0161	1.2710	0.3613	0.0154	0.3767		4,985.735 3	4,985.735 3	0.2787		4,992.703 4
Worker	3.0052	1.7507	21.2215	0.0734	8.8080	0.0647	8.8726	2.3359	0.0595	2.3954		7,315.924 7	7,315.924 7	0.1688		7,320.144 8
Total	3.4198	15.2552	25.5953	0.1199	10.0629	0.0807	10.1437	2.6973	0.0749	2.7721		12,301.66 00	12,301.66 00	0.4475		12,312.84 82

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.488 7	4,061.488 7	0.5765		4,075.901 8
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.488 7	4,061.488 7	0.5765		4,075.901 8

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3.7 Tower 2 Construction - 2025**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4146	13.5044	4.3738	0.0465	1.2549	0.0161	1.2710	0.3613	0.0154	0.3767		4,985.7353	4,985.7353	0.2787		4,992.7034
Worker	3.0052	1.7507	21.2215	0.0734	8.8080	0.0647	8.8726	2.3359	0.0595	2.3954		7,315.9247	7,315.9247	0.1688		7,320.1448
Total	3.4198	15.2552	25.5953	0.1199	10.0629	0.0807	10.1437	2.6973	0.0749	2.7721		12,301.6600	12,301.6600	0.4475		12,312.8482

3.7 Tower 2 Construction - 2026**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.4887	4,061.4887	0.5765		4,075.9018
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258		4,061.4887	4,061.4887	0.5765		4,075.9018

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

3.7 Tower 2 Construction - 2026**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4051	13.3789	4.2854	0.0462	1.2550	0.0157	1.2707	0.3613	0.0150	0.3764		4,959.949 3	4,959.949 3	0.2745		4,966.812 1
Worker	2.8773	1.6127	19.8256	0.0708	8.8080	0.0625	8.8705	2.3359	0.0575	2.3934		7,061.843 4	7,061.843 4	0.1547		7,065.7110
Total	3.2824	14.9916	24.1110	0.1170	10.0630	0.0782	10.1411	2.6973	0.0725	2.7698		12,021.79 27	12,021.79 27	0.4292		12,032.52 31

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.488 7	4,061.488 7	0.5765		4,075.901 8
Total	2.4133	19.0511	25.1918	0.0440		0.7470	0.7470		0.7258	0.7258	0.0000	4,061.488 7	4,061.488 7	0.5765		4,075.901 8

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

3.7 Tower 2 Construction - 2026**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4051	13.3789	4.2854	0.0462	1.2550	0.0157	1.2707	0.3613	0.0150	0.3764		4,959.949 3	4,959.949 3	0.2745		4,966.812 1
Worker	2.8773	1.6127	19.8256	0.0708	8.8080	0.0625	8.8705	2.3359	0.0575	2.3934		7,061.843 4	7,061.843 4	0.1547		7,065.7110
Total	3.2824	14.9916	24.1110	0.1170	10.0630	0.0782	10.1411	2.6973	0.0725	2.7698		12,021.79 27	12,021.79 27	0.4292		12,032.52 31

3.8 Tower 2 Architectural Coating - 2025**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637

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3.8 Tower 2 Architectural Coating - 2025**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6026	0.3510	4.2551	0.0147	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,466.8986	1,466.8986	0.0339		1,467.7448
Total	0.6026	0.3510	4.2551	0.0147	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,466.8986	1,466.8986	0.0339		1,467.7448

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

3.8 Tower 2 Architectural Coating - 2025**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6026	0.3510	4.2551	0.0147	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,466.8986	1,466.8986	0.0339		1,467.7448
Total	0.6026	0.3510	4.2551	0.0147	1.7661	0.0130	1.7790	0.4684	0.0119	0.4803		1,466.8986	1,466.8986	0.0339		1,467.7448

3.8 Tower 2 Architectural Coating - 2026**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030		562.8961	562.8961	0.0307		563.6637

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

3.8 Tower 2 Architectural Coating - 2026**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5769	0.3234	3.9752	0.0142	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,415.953 4	1,415.953 4	0.0310		1,416.728 9
Total	0.5769	0.3234	3.9752	0.0142	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,415.953 4	1,415.953 4	0.0310		1,416.728 9

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	42.8592					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3417	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637
Total	43.2010	2.2910	3.6183	5.9400e-003		0.1030	0.1030		0.1030	0.1030	0.0000	562.8961	562.8961	0.0307		563.6637

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

3.8 Tower 2 Architectural Coating - 2026**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5769	0.3234	3.9752	0.0142	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,415.953 4	1,415.953 4	0.0310		1,416.728 9
Total	0.5769	0.3234	3.9752	0.0142	1.7661	0.0125	1.7786	0.4684	0.0115	0.4799		1,415.953 4	1,415.953 4	0.0310		1,416.728 9

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0125	18.8225	54.4791	0.2319	22.3201	0.1765	22.4966	5.9715	0.1639	6.1354		23,689.86 47	23,689.86 47	1.0815		23,716.90 25
Unmitigated	4.0125	18.8225	54.4791	0.2319	22.3201	0.1765	22.4966	5.9715	0.1639	6.1354		23,689.86 47	23,689.86 47	1.0815		23,716.90 25

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	2,425.60	2,425.60	2,425.60	9,330,682	9,330,682
Enclosed Parking with Elevator	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	139.90	139.90	139.90	419,509	419,509
High Turnover (Sit Down Restaurant)	183.86	183.86	183.86	589,750	589,750
Strip Mall	46.26	46.26	46.26	159,563	159,563
Total	2,795.62	2,795.62	2,795.62	10,499,503	10,499,503

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	14.70	5.90	8.70	40.00	19.00	41.00	100	0	0
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	100	0	0
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	100	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	100	0	0

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Enclosed Parking with Elevator	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Fast Food Restaurant w/o Drive Thru	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
High Turnover (Sit Down Restaurant)	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834
Strip Mall	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790
NaturalGas Unmitigated	0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	16161.2	0.1743	1.4894	0.6338	9.5100e-003		0.1204	0.1204		0.1204	0.1204		1,901.3188	1,901.3188	0.0364	0.0349	1,912.6174
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	1264.44	0.0136	0.1240	0.1041	7.4000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003		148.7575	148.7575	2.8500e-003	2.7300e-003	149.6414
High Turnover (Sit Down Restaurant)	2908.21	0.0314	0.2851	0.2395	1.7100e-003		0.0217	0.0217		0.0217	0.0217		342.1421	342.1421	6.5600e-003	6.2700e-003	344.1753
Strip Mall	24.8831	2.7000e-004	2.4400e-003	2.0500e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9274	2.9274	6.0000e-005	5.0000e-005	2.9448
Total		0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	16.1612	0.1743	1.4894	0.6338	9.5100e-003		0.1204	0.1204		0.1204	0.1204		1,901.3188	1,901.3188	0.0364	0.0349	1,912.6174
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	1.26444	0.0136	0.1240	0.1041	7.4000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003		148.7575	148.7575	2.8500e-003	2.7300e-003	149.6414
High Turnover (Sit Down Restaurant)	2.90821	0.0314	0.2851	0.2395	1.7100e-003		0.0217	0.0217		0.0217	0.0217		342.1421	342.1421	6.5600e-003	6.2700e-003	344.1753
Strip Mall	0.0248831	2.7000e-004	2.4400e-003	2.0500e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9274	2.9274	6.0000e-005	5.0000e-005	2.9448
Total		0.2196	1.9009	0.9795	0.0120		0.1517	0.1517		0.1517	0.1517		2,395.1458	2,395.1458	0.0459	0.0439	2,409.3790

6.0 Area Detail

6.1 Mitigation Measures Area

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002
Unmitigated	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.3985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6020	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934		95.4965	95.4965	0.0921		97.8002
Total	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.3985					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6020	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934		95.4965	95.4965	0.0921		97.8002
Total	17.2921	0.6094	52.9476	2.8000e-003		0.2934	0.2934		0.2934	0.2934	0.0000	95.4965	95.4965	0.0921	0.0000	97.8002

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

3440 Wilshire Boulevard Future - Los Angeles-South Coast County, Winter

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation



Technical Consultation, Data Analysis and
Litigation Support for the Environment

1640 5th St., Suite 204 Santa
Santa Monica, California 90401
Tel: (949) 887-9013
Email: mhagemann@swape.com

Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

**Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review**

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.

B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist

California Certified Hydrogeologist

Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H₂O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt’s responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt’s duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, *Oxygenates in Water: Critical Information and Research Needs*.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Colorado.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal representatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F.** 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.



Paul Rosenfeld, Ph.D.

Principal Environmental Chemist

Chemical Fate and Transport & Air Dispersion Modeling

Risk Assessment & Remediation Specialist

Education:

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on VOC filtration.
M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.
B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience:

Dr. Rosenfeld is the Co-Founder and Principal Environmental Chemist at Soil Water Air Protection Enterprise (SWAPE). His focus is the fate and transport of environmental contaminants, risk assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling, oil spills, boilers, incinerators and other industrial and agricultural sources relating to nuisance and personal injury. His project experience ranges from monitoring and modeling of pollution sources as they relate to human and ecological health. Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing petroleum, chlorinated solvents, pesticides, radioactive waste, PCBs, PAHs, dioxins, furans, volatile organics, semi-volatile organics, perchlorate, heavy metals, asbestos, PFOA, unusual polymers, MtBE, fuel oxygenates and odor. Dr. Rosenfeld has evaluated greenhouse gas emissions using various modeling programs recommended by California Air Quality Management Districts.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H₂O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist
Bureau of Land Management, Kremmling Colorado 1990; Scientist

Publications:

Chen, J. A., Zapata, A R., Sutherland, A. J., Molmen, D. R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.**, Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermოდ and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste*. Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries*. Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P.** (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution*, 123 (17), 319-327.

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 Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

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*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities*. Boston Massachusetts: Elsevier Publishing.

Rosenfeld P.E., and Suffet, I.H. (Mel) (2007). Anatomy of an Odor Wheel. *Water Science and Technology*.

Rosenfeld, P.E., Clark, J.J.J., Hensley A.R., Suffet, I.H. (Mel) (2007). The use of an odor wheel classification for evaluation of human health risk criteria for compost facilities. *Water Science And Technology*.

- Rosenfeld, P.E.,** and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.
- Rosenfeld P. E.,** J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004*. New Orleans, October 2-6, 2004.
- Rosenfeld, P.E.,** and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.
- Rosenfeld, P.E.,** and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.
- Rosenfeld, P. E.,** Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.
- Rosenfeld, P.E.,** Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office, Publications Clearinghouse (MS-6)*, Sacramento, CA Publication #442-02-008.
- Rosenfeld, P.E.,** and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.
- Rosenfeld, P.E.,** and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality*. 29, 1662-1668.
- Rosenfeld, P.E.,** C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.
- Rosenfeld, P.E.,** and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.
- Rosenfeld, P.E.,** and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.
- Chollack, T. and **P. Rosenfeld**. (1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.
- Rosenfeld, P. E.** (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).
- Rosenfeld, P. E.** (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).
- Rosenfeld, P. E.** (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.
- Rosenfeld, P. E.** (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.
- Rosenfeld, P. E.** (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society*. Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States” Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P.** (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. *The 23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting*. Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.**, Clark, J.J.J. (August 21 – 25, 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*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.**, Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition*. Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference*. Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference*. Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference Orlando, FL*.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants..* Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association.* Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association.* Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association.* Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conference.* Lecture conducted from Indianapolis, Maryland.

Rosenfeld, P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld, P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association.* Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings.* Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America.* Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings.* Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America.* Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. \$41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: \$10,000 grant awarded to San Diego State University. Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. \$100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. \$20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: \$10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: \$15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. \$500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993.

Deposition and/or Trial Testimony:

In The Superior Court of the State of California, County of Alameda

Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants

Case No.: RG14711115

Rosenfeld Deposition, September, 2015

In The Iowa District Court In And For Poweshiek County

Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants

Case No.: LALA002187

Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County

Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants

Law No.: LALA105144 - Division A

Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County

Doug Pauls, et al., et al., Plaintiffs vs. Richard Warren, et al., Defendants

Law No.: LALA105144 - Division A

Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia

Robert Andrews, et al. v. Antero, et al.

Civil Action NO. 14-C-30000

Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico

Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants

Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County

Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant

Case No 4980

Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida

Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.

Case Number CACE07030358 (26)

Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma

Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.

Case No. 5:12-cv-01152-C

Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas

Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant*.

Case Number cc-11-01650-E

Rosenfeld Deposition: March and September 2013

Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio

John Michael Abicht, et al., *Plaintiffs*, vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the Court of Common Pleas for the Second Judicial Circuit, State of South Carolina, County of Aiken
David Anderson, et al., *Plaintiffs*, vs. Norfolk Southern Corporation, et al., *Defendants*.
Case Number: 2007-CP-02-1584

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil Action No. CV 2008-2076
Rosenfeld Deposition: September 2010

In the Ninth Judicial District Court, Parish of Rapides, State of Louisiana
Roger Price, et al., *Plaintiffs*, vs. Roy O. Martin, L.P., et al., *Defendants*.
Civil Suit Number 224,041 Division G
Rosenfeld Deposition: September 2008

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 2:07CV1052
Rosenfeld Deposition: July 2009

In the United States District Court for the Southern District of Ohio
Carolyn Baker, et al., *Plaintiffs*, vs. Chevron Oil Company, et al., *Defendants*.
Case Number 1:05 CV 227
Rosenfeld Deposition: July 2008

In the Fourth Judicial District Court, Parish of Calcasieu, State of Louisiana
Craig Steven Arabie, et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 07-2738 G

In the Fourteenth Judicial District Court, Parish of Calcasieu, State of Louisiana
Leon B. Brydels, *Plaintiffs*, vs. Conoco, Inc., et al., *Defendants*.
Case Number 2004-6941 Division A

In the District Court of Tarrant County, Texas, 153rd Judicial District
Linda Faust, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, Witco Chemical Corporation
A/K/A Witco Corporation, Solvents and Chemicals, Inc. and Koppers Industries, Inc., *Defendants*.
Case Number 153-212928-05
Rosenfeld Deposition: December 2006, October 2007
Rosenfeld Trial: January 2008

In the Superior Court of the State of California in and for the County of San Bernardino
Leroy Allen, et al., *Plaintiffs*, vs. Nutro Products, Inc., a California Corporation and DOES 1 to 100,
inclusive, *Defendants*.
John Loney, Plaintiff, vs. James H. Didion, Sr.; Nutro Products, Inc.; DOES 1 through 20, inclusive,
Defendants.
Case Number VCVVS044671
Rosenfeld Deposition: December 2009
Rosenfeld Trial: March 2010

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant*.
Civil Action Number 2:09-cv-232-WHA-TFM
Rosenfeld Deposition: July 2010, June 2011

In the Superior Court of the State of California in and for the County of Los Angeles
Leslie Hensley and Rick Hensley, *Plaintiffs*, vs. Peter T. Hoss, as trustee on behalf of the Cone Fee Trust;
Plains Exploration & Production Company, a Delaware corporation; Rayne Water Conditioning, Inc., a
California Corporation; and DOES 1 through 100, *Defendants*.
Case Number SC094173
Rosenfeld Deposition: September 2008, October 2008

In the Superior Court of the State of California in and for the County of Santa Barbara, Santa Maria Branch
Clifford and Shirley Adelhelm, et al., all individually, *Plaintiffs*, vs. Unocal Corporation, a Delaware
Corporation; Union Oil Company of California, a California corporation; Chevron Corporation, a
California corporation; ConocoPhillips, a Texas corporation; Kerr-McGee Corporation, an Oklahoma
corporation; and DOES 1 through 100, *Defendants*.
Case Number 1229251 (Consolidated with case number 1231299)
Rosenfeld Deposition: January 2008

In the United States District Court for Eastern District of Arkansas, Eastern District of Arkansas
Harry Stephens Farms, Inc. and Harry Stephens, individual and as managing partner of Stephens
Partnership, *Plaintiffs*, vs. Helena Chemical Company, and Exxon Mobil Corp., successor to Mobil
Chemical Co., *Defendants*.
Case Number 2:06-CV-00166 JMM (Consolidated with case number 4:07CV00278 JMM)
Rosenfeld Deposition: July 2010

In the United States District Court for the Western District of Arkansas, Texarkana Division
Rhonda Brasel, et al., *Plaintiffs*, vs. Weyerhaeuser Company and DOES 1 through 100, *Defendants*.
Civil Action Number 07-4037
Rosenfeld Deposition: March 2010
Rosenfeld Trial: October 2010

In the District Court of Texas 21st Judicial District of Burleson County
Dennis Davis, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, *Defendant*.
Case Number 25,151
Rosenfeld Trial: May 2009

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and
on behalf of those similarly situated, *Plaintiffs*, vs. BP Products North America, Inc., *Defendant*.
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013



LOS ANGELES CITY PLANNING COMMISSION

200 North Spring Street, Room 272, Los Angeles, California, 90012-4801, (213) 978-1300
www.planning.lacity.org

LETTER OF DETERMINATION

MAILING DATE: JUN 30 2020

Case No. VTT-74602-1A

CEQA: ENV-2016-3693-MND

Plan Area: Wilshire

Related Case: CPC-2016-3692-VZC-MCUP-SPR

Council District: 10 – Wesson

Project Site: 3432 – 3470 West Wilshire Boulevard; 659 – 699 South Mariposa Avenue;
3265 – 3287 West 7th Street; 666 – 678 South Irolo Street

Applicant: Central Plaza, LLC
Representative: Edgar Khalatian, Mayer Brown LLP

Appellants: Supporter's Alliance for Environmental Responsibility
Representative: Richard Drury, Lozeau Drury, LLP

Katelyn Scanlan, Signees of Change.org
Representative: Jennifer Wong

At its meeting of **May 14, 2020**, the Los Angeles City Planning Commission took the actions below in conjunction with the approval of the following project:

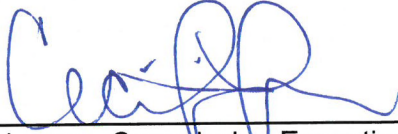
Merger and re-subdivision of six subdivided lots and a non-subdivided remainder, into one ground lot and five airspace lots. Proposed Lot 1 consists of a master ground lot with approximately 316,438 square feet of lot area, proposed Airspace Lot 2 consists of 640 apartment units, proposed Airspace Lot 3 is a commercial lot with an allocation of two commercial condominiums with 2,360 square feet of commercial space, proposed Airspace Lot 4 consists of parking, proposed Airspace Lot 5 consists of an existing five-story parking structure, and proposed Airspace Lot 6 consists of a commercial lot with an allocation of two commercial condominiums with 3,700 square feet of commercial space.

1. **Found**, pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including the Mitigated Negative Declaration, No. ENV-2016-3693-MND as circulated on February 6, 2020, ("Mitigated Negative Declaration"), the Errata to the Mitigated Negative Declaration, dated March 2, 2020 and March 10, 2020, and all comments received, with the imposition of mitigation measures, there is no substantial evidence that the Project will have a significant effect on the environment; **Found**, the Mitigated Negative Declaration reflects the independent judgment and analysis of the City; **Found**, the mitigation measures have been made enforceable conditions on the Project; and **Adopted** the Mitigated Negative Declaration, the Errata to the Mitigated Negative Declaration, dated March 2, 2020 and March 10, 2020, and the Mitigation Monitoring Program prepared for the Mitigated Negative Declaration;
2. **Denied** the appeal and **Sustained** the Advisory Agency's determination dated March 25, 2020 and approved, pursuant to Sections pursuant to Sections 17.03, 17.06, and 17.15 of the Los Angeles Municipal Code, a Vesting Tentative Tract Map No. VTT-74602 composed of six lots, located at 3432-3470 West Wilshire Boulevard, 659-699 South Mariposa Avenue, 3265-3287 West 7th Street, and 666-678 South Irolo Street, for a maximum of one master

ground lot and five airspace lots for a maximum of 640 apartment units and four commercial condominium units, as shown on revised map stamp dated September 11, 2019, in the Wilshire Community Plan;

3. **Adopted** the attached Conditions of Approval:
4. **Adopted** the attached Findings.

The vote proceeded as follows:



Cecilia Lamas, Commission Executive Assistant
Los Angeles City Planning Commission

Fiscal Impact Statement: There is no General Fund impact as administrative costs are recovered through fees.

Effective Date/Appeals: The decision of the Los Angeles City Planning Commission is further appealable to the Los Angeles City Council within 10 days after the mailing date of this determination letter. Any appeal not filed within the 10-day period shall not be considered by the Council and the decision of the City Planning Commission will become final and effective upon the close of the 10-day appeal period. All appeals shall be filed on forms provided at the Planning Department's Development Service Centers located at: 201 North Figueroa Street, Fourth Floor, Los Angeles; 6262 Van Nuys Boulevard, Suite 251, Van Nuys; or 1828 Sawtelle Boulevard, West Los Angeles.

FINAL APPEAL DATE: JUL 10 2020

Notice: An appeal of the CEQA clearance for the Project pursuant to Public Resources Code Section 21151(c) is only available if the Determination of the non-elected decision-making body (e.g., ZA, AA, APC, CPC) **is not further appealable** and the decision is final.

If you seek judicial review of any decision of the City pursuant to California Code of Civil Procedure Section 1094.5, the petition for writ of mandate pursuant to that section must be filed no later than the 90th day following the date on which the City's decision became final pursuant to California Code of Civil Procedure Section 1094.6. There may be other time limits which also affect your ability to seek judicial review.

Attachments: Director's Determination Letter dated March 25, 2020, Interim Appeal Filing Procedures

c: Jane Choi, Principal City Planner
Iris Wan, City Planner

DEPARTMENT OF
CITY PLANNING

COMMISSION OFFICE
(213) 978-1300

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TRICIA KEANE
DEPUTY DIRECTOR

ARTHI L. VARMA, AICP
DEPUTY DIRECTOR

LISA M. WEBBER, AICP
DEPUTY DIRECTOR

Decision Date: March 25, 2020

Appeal End Date: April 6, 2020

Central Plaza, LLC (O)(A)
3470 Wilshire Blvd., Ste. 700
Los Angeles, CA 90010

Edgar Khalatian (R)
Mayer Brown LLP
350 S. Grand Avenue, 25th Floor
Los Angeles, CA 90071

Re: VTT-74602
3432-3470 West Wilshire Boulevard
659-699 South Mariposa Avenue
3265-3287 West 7th Street
666-678 South Irolo Street
Wilshire Community Plan
Zone: P-2, PB-2, C4-2
D.M.: 132B193, 132B197
C.D.: 10 - Wesson
CEQA: ENV-2016-3693-MND
Legal Description: Lots FR 93, 94,
95, 96, 97, 98 of Wilshire Harvard
Heights Tract, Lot PT NE ¼ SEC 25
T1S R14W

VESTING TENTATIVE TRACT MAP REPORT WITH CONDITIONS

In accordance with provisions of Section 17.51 and 17.53 of the Los Angeles Municipal Code (LAMC), the Advisory Agency adopts Mitigated Negative Declaration ENV-2016-3693-MND as the environmental clearance and the Mitigation Monitoring Program, and approves Vesting Tentative Tract Map No. VTT-74602 composed of six (6) lots, located at 3432-3470 West Wilshire Boulevard, 659-699 South Mariposa Avenue, 3265-3287 West 7th Street, and 666-678 South Irolo Street, for a maximum of **one master ground lot and five airspace lots** for a maximum of **640 apartment units and 4 commercial condominium units**, as shown on revised map stamp-dated September 11, 2019, in the Wilshire Community Plan. This unit density is based on the C4-2 Zone. (The subdivider is hereby advised that the LAMC may not permit this maximum approved density. Therefore, verification should be obtained from the Department of Building and Safety which will legally interpret the Zoning Code as it applies to this particular property.) The Advisory Agency's approval is subject to the following conditions:

NOTE on clearing conditions: When two or more **agencies** must clear a condition, subdivider should follow the sequence indicated in the condition. For the benefit of the applicant, subdivider shall maintain record of all conditions cleared, including all material supporting clearances and be prepared to present copies of the clearances to each reviewing agency as may be required by its staff at the time of its review.

BUREAU OF ENGINEERING - SPECIFIC CONDITIONS

Any questions regarding this report should be directed to Mr. Georgic Avanesian of the Land Development Section, located at 201 North Figueroa Street, Suite 290, or by calling (213) 808-8588.

1. That a 13-foot and a 3-foot wide strips of land be dedicated along 7th Street adjoining the tract to complete a 43-foot wide half right-of-way in accordance with **Avenue II** of the **LA Mobility Plan** including a 15-foot by 15-foot minimum property line cut corner at the intersection with Mariposa Avenue.
2. That a 15-foot by 15-foot minimum property line cut corners be dedicated at the Wilshire Boulevard intersections with Mariposa Avenue and Normandie Avenue adjoining the tract.
3. That the subdivider make a request to the Central District Office of the Bureau of Engineering to determine the capacity of existing sewers in this area.
4. That a set of drawings for airspace lots be submitted to the City Engineer showing the followings:
 - a. Plan view at different elevations.
 - b. Isometric views.
 - c. Elevation views.
 - d. Section cuts at all locations where air space lot boundaries change.
5. That the owners of the property record an agreement satisfactory to the City Engineer stating that they will grant the necessary private easements for ingress and egress purposes to serve proposed airspace lots to use upon the sale of the respective lots and they will maintain the private easements free and clear of obstructions and in safe conditions for use at all times.
6. That a Covenant and Agreement be recorded advising all future owners and builders that prior to issuance of a building permit, a Notice of **Acknowledgment of Easement** must be recorded and an application to do work in any drainage and sewer easements and to construct over the existing drainage facilities must be submitted to the City Engineer for approval.
7. That all the proposed tract map boundary lines be properly established in accordance with Section 17.07.D of the Los Angeles Municipal Code prior to the recordation of the final map satisfactory to the City Engineer (survey Division).

DEPARTMENT OF BUILDING AND SAFETY, GRADING DIVISION

Grading Division approvals are conducted at 221 North Figueroa Street, 12th Floor suite 1200. The approval of this Tract Map shall not be construed as having been based upon a geological investigation such as will authorize the issuance of the building permit of the subject property. Such permits will be issued only at such time as the Department of Building and Safety has received such topographic maps and geological reports as it deems necessary to justify the issuance of such building permits.

8. The applicant shall comply with any requirements with the Department of Building and Safety, Grading Division for recordation of the final map and issuance of any permit.

DEPARTMENT OF BUILDING AND SAFETY, ZONING DIVISION

An appointment is required for the issuance of a clearance letter from the Department of Building and Safety. The applicant is asked to contact Eric Wong at (213) 482-6876 to schedule an appointment

9. That prior to recordation of the final map, the Department of Building and Safety, Zoning Division shall certify that no Building or Zoning Code violations exist on the subject site. In addition, the following items shall be satisfied:
- a. Provide copy of building records, plot plan, and certificate of occupancy of all existing structures to remain to verify the last legal use and the number of parking spaces required and provided on each site.
 - b. Obtain permits for the demolition or removal for existing buildings to be demolished or a building permit (alteration) for removal of portion of existing building. Provide copies of the demolition permits and / or building permits and signed inspection cards to show completion of the demolition work.
 - c. The submitted Map dimensions do not agree with ZIMAS. Revise the Map to address the discrepancy or obtain approval from Department of City Planning.
 - d. Provide a copy of affidavit AFF-91-1945807-MB, AFF-5912 and AFF-67530. Show compliance with all the conditions/requirements of the above affidavit(s) as applicable. Termination of above affidavit(s) may be required after the Map has been recorded. Obtain approval from the Department, on the termination form, prior to recording.
 - e. Provide a copy of ZA case ZA-1997-756-RV-PA4. Show compliance with all the conditions/requirements of the ZA case as applicable.
 - f. Provide a copy of DIR case DIR-1997-756-RV-PA3-1A. Show compliance with all the conditions/requirements of the DIR case as applicable.
 - g. Provide a copy of CPC case CPC-2016-3692-VZC-MCUP-SPR. Show compliance with all the conditions/requirements of the CPC case as applicable.
 - h. Zone Change must be recorded prior to obtaining Zoning clearance.
 - i. Obtain Bureau of Engineering approval for the proposed street merger.
 - j. Show all street dedication(s) as required by Bureau of Engineering and provide net lot area after all dedication. "Area" requirements shall be re-checked as per net lot area after street dedication. Front, side and rear yard requirements shall be required to comply with current code as measured from new property lines after dedication(s).
 - k. The submitted plot plan is not complete. Clearly show on the Site Plan, all existing buildings to remain. Provide a plot plan drawn to scale that accurately dimensions all: property lines, street frontages, lot areas, building sizes and required yards on the site. Indicate the number of stories, height, permitted use, all required parking and the type of construction for all buildings on the site.

- l. Required parking spaces are required to remain on the site. Show location of all parking spaces and access driveways. Provide copy of the finalized building permit for the maintenance of parking on site and relocation of driveway.
- m. Provide and record a Covenant and Agreement (affidavit) regarding Maintenance of Building on Air Space Lots. Provide Metes and Bounds to establish and identify the boundaries of the parcel with the correct legal description.

Notes:

There is a 5 ft. Building Line along Wilshire Boulevard on this Subdivision.

This property is located in Transit Priority Area in the City of Los Angeles, ZI-2452.

This property is located in MTA Project, ZI-1117.

This property is located in Wilshire / Koreatown Community Redevelopment Area.

This property is located in a Flood Zone.

This property is located in a Fire District 1 Zone.

This property is located in a Methane Buffer Zone.

The submitted Map may not comply with the number of parking spaces required by Section 12.21 A 4 (a) based on number of habitable rooms in each unit. If there are insufficient numbers of parking spaces, obtain approval from the Department of City Planning.

The submitted Map may not comply with the number of guest parking spaces required by the Advisory Agency.

The existing or proposed building plans have not been checked for and shall comply with Building and Zoning Code requirements. With the exception of revised health or safety standards, the subdivider shall have a vested right to proceed with the proposed development in substantial compliance with the ordinances, policies, and standards in effect at the time the subdivision application was deemed complete. Plan check will be required before any construction, occupancy or change of use.

If the proposed development does not comply with the current Zoning Code, all zoning violations shall be indicated on the Map.

DEPARTMENT OF TRANSPORTATION

- 10. That the project be subject to any recommendations from the Department of Transportation.

FIRE DEPARTMENT

*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.

11. That prior to the recordation of the final map, a suitable arrangement shall be made satisfactory to the Fire Department, binding the subdivider and all successors to the following:
- a. Submittal of plot plans for Fire Department review and approval prior to recordation of Tract Map Action.
 - b. Access for Fire Department apparatus and personnel to and into all structures shall be required.
 - c. 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.
 - d. 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).
 - e. The entrance to a Residential lobby must be within 50 feet of the desired street address curb face.
 - f. The entrance or exit of all ground dwelling units shall not be more than 150 feet from the edge of a roadway of an improved street, access road, or designated fire lane.
 - g. Where above ground floors are used for residential purposes, the access requirement shall be interpreted as being the horizontal travel distance from the street, driveway, alley, or designated fire lane to the main entrance of individual units.
 - h. 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.

2014 CITY OF LOS ANGELES FIRE CODE, SECTION 503.1.4 (EXCEPTION)

- a. When this exception is applied to a fully fire sprinklered residential building equipped with a wet standpipe outlet inside an exit stairway with at least a 2 hour rating the distance from the wet standpipe outlet in the stairway to the entry door of any dwelling unit or guest room shall not exceed 150 feet of horizontal travel AND the distance from the edge of the roadway of an improved street or approved fire lane to the door into the same exit stairway directly from outside the building shall not exceed 150 feet of horizontal travel.
- b. It is the intent of this policy that in no case will the maximum travel distance exceed 150 feet inside the structure and 150 feet outside the structure. The term "horizontal travel" refers to the actual path of travel to be taken by a person responding to an emergency in the building.
- c. This policy does not apply to single-family dwellings or to non-residential buildings

Building designs for multi-storied residential buildings shall incorporate at least one access stairwell off the main lobby of the building; But, in no case greater than 150ft horizontal

travel distance from the edge of the public street, Private Street or Fire Lane. This stairwell shall extend onto the roof.

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.

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 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.

Recently, the Los Angeles Fire Department (LAFD) modified Fire Prevention Bureau (FPB) Requirement 10. Helicopter landing facilities are still required on all High-Rise buildings in the City. However, FPB's Requirement 10 has been revised to provide two new alternatives to a full FAA-approved helicopter landing facilities.

Each standpipe in a new high-rise building shall be provided with two remotely located FDC's for each zone in compliance with NFPA 14-2013, Section 7.12.2.

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.

LOS ANGELES UNIFIED SCHOOL DISTRICT (LAUSD)

12. That prior to the issuance of any demolition or grading permit or any other permit allowing site preparation and/or construction activities on the site, satisfactory arrangements shall be made with the Los Angeles Unified School District, implementing the measures for demolition and construction contained in the LAUSD letter dated March 9, 2020, attached to the Tract file. The project site is located on the pedestrian and bus routes for students attending Robert F. Kennedy Academy Community Schools. Therefore, the applicant shall make timely contact for coordination to safeguard pedestrians/ motorists with the LAUSD Transportation Branch, phone no. 213-580-2950 or (213)580-2900, and the principals or designees of name of schools. (This condition may be cleared by a written communication from the LAUSD Transportation Branch attesting to the required coordination and/or the principals of the above referenced schools and to the satisfaction of the Advisory Agency).

DEPARTMENT OF WATER AND POWER

13. Satisfactory arrangements shall be made with the Los Angeles Department of Water and Power (LADWP) for compliance with LADWP's Water System Rules and requirements. Upon compliance with these conditions and requirements, LADWP's Water Services Organization will forward the necessary clearances to the Bureau of Engineering. (This condition shall be deemed cleared at the time the City Engineer clears Condition No. S-1.(c).)

BUREAU OF STREET LIGHTING – SPECIFIC CONDITIONS

Street Lighting clearance for this Street Light Maintenance Assessment District condition is conducted at 1149 S. Broadway Suite 200. Street Lighting improvement condition clearance will be conducted at the Bureau of Engineering District office, see condition S-3. (c).

14. If new street light(s) are required, then prior to the recordation of the final map or issuance of the Certificate of Occupancy (C of O), street lighting improvement plans shall be submitted for review and the owner shall provide a good faith effort via a ballot process for the formation or annexation of the property within the boundary of the development into a Street Lighting Maintenance Assessment District.

BUREAU OF SANITATION

15. Wastewater Collection Systems Division of the Bureau of Sanitation has inspected the sewer/storm drain lines serving the subject tract and found that there are easements contained within the project site, as stated in the memo dated October 21, 2019. Any proposed development in close proximity to the easements must secure Department of Public Works approval. Upon compliance with its conditions and requirements, the Bureau of Sanitation, Wastewater Collection Systems Division will forward the necessary clearances to the Bureau of Engineering. (This condition shall be deemed cleared at the time the City Engineer clears Condition No. S-1. (d).)

INFORMATION TECHNOLOGY AGENCY

16. To assure that cable television facilities will be installed in the same manner as other required improvements, please email cabletv.ita@lacity.org that provides an automated response with the instructions on how to obtain the Cable TV clearance. The automated response also provides the email address of three people in case the applicant/owner has any additional questions.

DEPARTMENT OF RECREATION AND PARKS

17. That the Quimby Fee be based on the C4 Zone.

URBAN FORESTRY DIVISION AND THE DEPARTMENT OF CITY PLANNING

18. Prior to the issuance of a grading permit, the applicant shall submit a tree report and landscape plan prepared by a Municipal Code-designated tree expert as designated by LAMC Ordinance No. 177,404, for approval by the City Planning Department and the Urban Forestry Division of the Bureau of Street Services.
19. Plant Street trees and remove any existing trees within dedicated streets or proposed dedicated streets are required by the Urban Forestry Division of the Bureau of Street Services.
20. Parkway tree removals shall be planted at a 2:1 ratio. All street tree plantings shall be brought up to current standards. When the City has previously been paid for tree planting, the subdivider or contractor shall notify the Urban Forestry Division at (213) 847-3077 upon completion of construction to expedite tree planting.

Note: Removal or planting of any tree in the public right-of-way requires approval of the Board of Public Works. Contact Urban Forestry Division at: (213) 847-3077 for permit information. CEQA document must address parkway tree removals.

DEPARTMENT OF CITY PLANNING - SITE SPECIFIC CONDITIONS

Clearances may be conducted at the Figueroa, Valley, or West Los Angeles Development Services Centers. To clear conditions, an appointment is required, which can be requested at planning.lacity.org.

21. Prior to the recordation of the final map, the subdivider shall prepare and execute a Covenant and Agreement (Planning Department General Form CP-6770) in a manner satisfactory to the Planning Department, binding the subdivider and all successors to the following:
 - a. Limit the proposed developments to one (1) master ground lot and five (5) airspace lots.
 - b. Limit the proposed development to a maximum of 640 apartment units and 4 commercial condominium units.
 - c. A Certificate of Occupancy (temporary or final) for the building(s) in Vesting Tentative Tract No. 74602 shall not be issued until after the final map has been recorded.
 - d. Off-street parking for residential and commercial uses shall comply with the requirements of Case No. CPC-2016-3692-VZC-MCUP-SPR. In the event that Case No. CPC-2016-3692-VZC-MCUP-SPR is not approved, the Project shall comply with LAMC Section 12.21 A.4.
 - e. Directions to guest parking spaces shall be clearly posted. Tandem parking spaces shall not be used for guest parking.

In addition, prior to issuance of a building permit, a parking plan showing off-street parking spaces, as required by the Advisory Agency, be submitted for review and approval by the Department of City Planning (221 North Figueroa Street, Suite 1350).
 - f. That a solar access report shall be submitted to the satisfaction of the Advisory Agency prior to obtaining a grading permit.
 - g. That the subdivider consider the use of natural gas and/or solar energy and consult with the Department of Water and Power and Southern California Gas Company regarding feasible energy conservation measures.
 - h. Recycling bins shall be provided at appropriate locations to promote recycling of paper, metal, glass, and other recyclable material.
 - i. The Applicant shall install shielded lighting to reduce any potential illumination affecting adjacent properties.
 - j. Prior to the issuance of the building permit or the recordation of the final map, a copy of CPC-2016-3692-VZC-MCUP-SPR shall be submitted to the satisfaction of the Advisory Agency. In the event that CPC-2016-3692-VZC-MCUP-SPR is not approved, the subdivider shall submit a tract map modification.
22. Prior to the recordation of the final map, the owner shall execute a covenant to the satisfaction of the Los Angeles Housing and Community Investment Department

(HCIDLA) to make 32 units of the development available for rental solely to moderate income households, at a rental price determined to be affordable to moderate income households by HCIDLA, for a period of 55 years. Said units shall be comparable in size, number of bedrooms, distribution, and amenities to the non-income-restricted units in the development.

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. Action 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.

DEPARTMENT OF CITY PLANNING-ENVIRONMENTAL MITIGATION MEASURES

24. That prior to recordation of the final map, the subdivider shall prepare and execute a Covenant and Agreement (Planning Department General Form CP-6770 and Exhibit CP-6770. M) in a manner satisfactory to the Planning Department requiring the subdivider to identify (a) mitigation monitor(s) who shall provide periodic status reports on the implementation of mitigation items required by Mitigation **Condition No. 25** of the Tract’s approval satisfactory to the Advisory Agency. The mitigation monitor(s) shall be identified as to their areas of responsibility, and phase of intervention (pre-construction, construction, postconstruction/maintenance) to ensure continued implementation of the above mentioned mitigation items.
25. Prior to the recordation of the final map, the subdivider will prepare and execute a Covenant and Agreement (Planning Department General Form CP-6770) in a manner satisfactory to the Planning Department, binding the subdivider and all successors to the following:

The Mitigation Monitoring Program (“MMP”) has been prepared pursuant to Public Resources Code Section 21081.6, which requires a Lead Agency to adopt a “reporting and monitoring program for changes to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment.” In addition, Section 15097(a) of the State CEQA Guidelines requires that:

In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

The City of Los Angeles is the Lead Agency for the project and therefore is responsible for administering and implementing the MMP. Where appropriate, the project’s Draft and Final EIRs identified mitigation measures and project design features to avoid or to mitigate potential impacts identified to a level where no significant impact on the

environment would occur, or impacts would be reduced to the extent feasible. This MMP is designed to monitor implementation of the project's mitigation measures as well as its project design features.

As shown on the following pages, each required mitigation measure and proposed project design feature for the project is listed and categorized by impact area, with an accompanying identification of the following:

- **Enforcement Agency:** The agency with the power to enforce the Mitigation Measure/Project Design Feature.
- **Monitoring Agency:** The agency to which reports involving feasibility, compliance, implementation and development are made.
- **Monitoring Phase:** The phase of the project during which the Mitigation Measure/Project Design Feature shall be monitored.
- **Monitoring Frequency:** The frequency at which the Mitigation Measure/Project Design Feature shall be monitored.
- **Action Indicating Compliance:** The action by which the Enforcement or Monitoring Agency indicates that compliance with the required Mitigation Measure/Project Design Feature has been implemented.

The project's MMP will be in place throughout all phases of the project. The project applicant will be responsible for implementing all mitigation measures unless otherwise noted. The applicant shall also be obligated to provide a certification report to the appropriate monitoring agency and the appropriate enforcement agency that compliance with the required mitigation measure or project design feature has been implemented. The City's existing planning, engineering, review, and inspection processes will be used as the basic foundation for the MMP procedures and will also serve to provide the documentation for the reporting program. The certification report shall be submitted to the Major Project's Section at the Los Angeles Department of City Planning. Each report will be submitted to the Major Project's Section annually following completion/implementation of the applicable mitigation measures and project design features and shall include sufficient information and documentation (such as building or demolition permits) to reasonably determine whether the intent of the measure has been satisfied. The City, in conjunction with the applicant, shall assure that project construction and operation occurs in accordance with the MMP

After review and approval of the final MMP by the City, minor changes and modifications to the MMP are permitted, but can only be made by the applicant subject to the approval by the City. The City, in conjunction with any appropriate agencies or departments, will determine the adequacy of any proposed changes or modification. The flexibility is necessary due to the nature of the MMP, the need to protect the environment in the most efficient manner, and the need to reflect changes in regulatory conditions, such as but not limited to changes to building code requirements. No changes will be permitted unless the MMP continues to satisfy the requirements of CEQA, as determined by the City.

MITIGATION MEASURES

TRANSPORTATION

TRAN-MM-1 Construction Activity Near Schools

The developer shall maintain ongoing contact with administrators of RFK Community Schools. The administrators shall be contacted when demolition, grading and construction

activity begin on the project site so that students and their parents will know when such activities are to occur. The developer shall obtain school walk and bus routes to the schools from either the administrators or from LAUSD's Transportation Branch (323) 342-1400 and guarantee that safe and convenient pedestrian and bus routes to the school are maintained.

- **Impact Area:** Transportation
- **Enforcement Agency:** City of Los Angeles Department of Transportation
- **Monitoring Agency:** City of Los Angeles Department of Transportation
- **Monitoring Phase:** Pre-construction; construction
- **Monitoring Frequency:** Once at Project plan check prior to issuance of grading or building permit; once during field inspection
- **Action Indicating Compliance:** Plan approval and issuance of grading permit; field inspection sign-off

TRAN-MM-2 Safety Hazards

- The developer shall install appropriate construction related traffic signs around the project site to ensure pedestrian and vehicle safety.
- The Applicant shall plan construction and construction staging as to maintain pedestrian access on adjacent sidewalks throughout all construction phases. This requires the applicant to maintain adequate and safe pedestrian protection, including physical separation (including utilization of barriers such as K-Rails or scaffolding) from work space and vehicular traffic, and overhead protection, due to sidewalk closure or blockage, at all times.
- Temporary pedestrian facilities shall be adjacent to the project site and provide safe, accessible routes that replicate as nearly as practical the most desirable characteristics of the existing facility.
- Covered walkways shall be provided where pedestrians are exposed to potential injury from falling objects.
- Applicant shall keep sidewalk open during construction until only when it is absolutely required to close or block sidewalk for construction and/or construction staging. Sidewalk shall be reopened as soon as reasonably feasible taking construction and construction staging into account.
- **Impact Area:** Transportation
- **Enforcement Agency:** City of Los Angeles Department of Transportation
- **Monitoring Agency:** City of Los Angeles Department of Transportation
- **Monitoring Phase:** Pre-construction; construction
- **Monitoring Frequency:** Once at Project plan check prior to issuance of grading or building permit; once during field inspection
- **Action Indicating Compliance:** Plan approval and issuance of grading permit; field inspection sign-off

PROJECT DESIGN FEATURES

TRAN-PDF-1 Construction Management Plan

A Construction Traffic Management Plan will be developed by the contractor and approved

by the City of Los Angeles to alleviate construction period impacts, which may include but is not limited to the following measures:

- Provide off-site truck staging in a legal area furnished by the construction truck contractor. Anticipated truck access to the project site will be off Mariposa Avenue and 7th Street.
- Schedule deliveries and pick-ups of construction materials during non-peak travel periods to the extent possible and coordinate to reduce the potential of trucks waiting to load or unload for protracted periods.
- As parking lane and/or sidewalk closures are anticipated along 7th Street, worksite traffic control plan(s), approved by the City of Los Angeles, should be implemented to route vehicular traffic, bicyclists, and pedestrians around any such closures.
- Establish requirements for loading/unloading and storage of materials on the project site, where parking spaces would be encumbered, length of time traffic travel lanes can be encumbered, sidewalk closings or pedestrian diversions to ensure the safety of the pedestrian and access to local businesses and residences.
- Ensure that access will remain unobstructed for land uses in proximity to the project site during project construction.
- Coordinate with the City and emergency service providers to ensure adequate access is maintained to the project site and neighboring businesses and residences.

A Construction Worker Parking Plan will also be developed by the contractor and approved by the City of Los Angeles to ensure that the parking location requirements for construction workers will be strictly enforced. These could include but are not limited to the following measures:

- During construction activities when construction worker parking cannot be accommodated on the project site, the plan shall identify alternate parking location(s) for construction workers and the method of transportation to and from the project site (if beyond walking distance) for approval by the City 30 days prior to commencement of construction.
- Provide all construction contractors with written information on where their workers and their subcontractors are permitted to park, and provide clear consequences to violators for failure to follow these regulations. This information will clearly state that no parking is permitted on residential streets.
- **Impact Area:** Transportation
- **Enforcement Agency:** City of Los Angeles Department of Transportation
- **Monitoring Agency:** City of Los Angeles Department of Transportation
- **Monitoring Phase:** Pre-construction; construction
- **Monitoring Frequency:** Once at Project plan check prior to issuance of grading or building permit; once during field inspection
- **Action Indicating Compliance:** Plan approval and issuance of grading permit; field inspection sign-off

DEPARTMENT OF CITY PLANNING - STANDARD COMMERCIAL CONDOMINIUM CONDITIONS

CC-1. That a landscape plan, prepared by a licensed landscape architect, be submitted to and approved by the Advisory Agency in accordance with CP-6730 prior to obtaining any permit. The landscape plan shall identify tree replacement on a 1:1 basis by a minimum of 24-inch box trees for the unavoidable loss of desirable trees on the site. Failure to comply with this condition as written shall require the filing of a modification to this tract map in order to clear the condition.

In the event the subdivider decides not to request a permit before the recordation of the final map, the following statement shall appear on the plan and be recorded as a covenant and agreement satisfactory to the Advisory Agency guaranteeing that:

- a. The planting and irrigation system shall be completed by the developer/builder prior to the close of escrow of 50 percent of the units of the project or phase.
- b. Sixty days after landscape and irrigation installation, the landscape professional shall submit to the homeowners/property owners association a Certificate of Substantial Completion (Sec. 12.40 G LAMC.)
- c. The developer/builder shall maintain the landscaping and irrigation for 60 days after completion of the landscape and irrigation installation.
- d. The developer/builder shall guarantee all trees and irrigation for a period of six months and all other plants for a period of 60 days after landscape and irrigation installation.

CC-2. In order to expedite the development, the applicant may apply for a building permit for a commercial/industrial building. However, prior to issuance of a building permit for a commercial/industrial building, the registered civil engineer, architect or licensed land surveyor shall certify in a letter to the Advisory Agency that all applicable tract conditions affecting the physical design of the building and/or site, have been included into the building plans. Such letter is sufficient to clear this condition. In addition, all of the applicable tract conditions shall be stated in full on the building plans and a copy of the plans shall be reviewed and approved by the Advisory Agency prior to submittal to the Department of Building and Safety for a building permit.

OR

If a building permit for a commercial/industrial building will not be requested, the project civil engineer, architect or licensed land surveyor must certify in a letter to the Advisory Agency that the applicant will not request a permit for a commercial/industrial building and intends to acquire a building permit for a condominium building(s). Such letter is sufficient to clear this condition.

BUREAU OF ENGINEERING - STANDARD CONDITIONS

- S-1. (a) That the sewerage facilities charge be deposited prior to recordation of the final map over all of the tract in conformance with Section 64.11.2 of the Los Angeles Municipal Code (LAMC).
- (b) That survey boundary monuments be established in the field in a manner satisfactory to the City Engineer and located within the California Coordinate

System prior to recordation of the final map. Any alternative measure approved by the City Engineer would require prior submission of complete field notes in support of the boundary survey.

- (c) That satisfactory arrangements be made with both the Water System and the Power System of the Department of Water and Power with respect to water mains, fire hydrants, service connections and public utility easements.
 - (d) That any necessary sewer, street, drainage and street lighting easements be dedicated. In the event it is necessary to obtain off-site easements by separate instruments, records of the Bureau of Right-of-Way and Land shall verify that such easements have been obtained. The above requirements do not apply to easements of off-site sewers to be provided by the City.
 - (e) That drainage matters be taken care of satisfactory to the City Engineer.
 - (f) That satisfactory street, sewer and drainage plans and profiles as required, together with a lot grading plan of the tract and any necessary topography of adjoining areas be submitted to the City Engineer.
 - (g) That any required slope easements be dedicated by the final map.
 - (h) That each lot in the tract complies with the width and area requirements of the Zoning Ordinance.
 - (i) That 1-foot future streets and/or alleys be shown along the outside of incomplete public dedications and across the termini of all dedications abutting unsubdivided property. The 1-foot dedications on the map shall include a restriction against their use of access purposes until such time as they are accepted for public use.
 - (j) That any 1-foot future street and/or alley adjoining the tract be dedicated for public use by the tract, or that a suitable resolution of acceptance be transmitted to the City Council with the final map.
 - (k) That no public street grade exceeds 15%.
 - (l) That any necessary additional street dedications be provided to comply with the Americans with Disabilities Act (ADA) of 1990.
- S-2. That the following provisions be accomplished in conformity with the improvements constructed herein:
- (a) Survey monuments shall be placed and permanently referenced to the satisfaction of the City Engineer. A set of approved field notes shall be furnished, or such work shall be suitably guaranteed, except where the setting of boundary monuments requires that other procedures be followed.
 - (b) Make satisfactory arrangements with the Department of Traffic with respect to street name, warning, regulatory and guide signs.
 - (c) All grading done on private property outside the tract boundaries in connection with public improvements shall be performed within dedicated slope easements or by grants of satisfactory rights of entry by the affected property owners.

- (d) All improvements within public streets, private streets, alleys and easements shall be constructed under permit in conformity with plans and specifications approved by the Bureau of Engineering.
 - (e) Any required bonded sewer fees shall be paid prior to recordation of the final map.
- S-3. That the following improvements are either constructed prior to recordation of the final map or that the construction is suitably guaranteed:
- (a) Construct on-site sewers to serve the tract as determined by the City Engineer.
 - (b) Construct any necessary drainage facilities.
 - (c) Install street lighting facilities to serve the tract as required by the Bureau of Street Lighting.
 - (1) No street lighting improvements if no street widening per Bureau of Engineering improvement conditions. Otherwise, relocate and upgrade street lights; four (4) on Irolo Street, four (4) on Wilshire Boulevard, four (4) on Mariposa Avenue, and three (3) on 7th Street.

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 condition S-3 (i), 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.

- (d) Plant street trees and remove any existing trees within dedicated streets or proposed dedicated streets as required by the Street Tree Division of the Bureau of Street Maintenance. All street tree plantings shall be brought up to current standards. When the City has previously been paid for tree planting, the subdivider or contractor shall notify the Urban Forestry Division (213) 847-3077) upon completion of construction to expedite tree planting.
- (e) Repair or replace any off-grade or broken curb, gutter and sidewalk satisfactory to the City Engineer.
- (f) Construct access ramps for the handicapped as required by the City Engineer.
- (g) Close any unused driveways satisfactory to the City Engineer.
- (h) Construct any necessary additional street improvements to comply with the 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design.
- (i) That the following improvements are either constructed prior to recordation of the final map or that the construction is suitably guaranteed:

- (1) Improve 7th Street being dedicated and adjoining the subdivision by the construction of additional concrete sidewalks to complete a full-width sidewalk with tree wells including any necessary removal and reconstruction of the existing improvements.
- (2) That structural plans be submitted for review and approval for any new proposed structures above the existing buildings to remain to determine additional surcharge loads over the existing sewer and drainage system satisfactory to the City Engineer.
- (3) That structure plans be submitted for review and approval for any new structures at the vicinity of the existing sewer and drainage easements to determine any surcharge load and necessary distances from easements all satisfactory to the City Engineer.
- (4) Construct additional concrete sidewalks at all newly dedicated cut corner areas.

NOTES:

The Advisory Agency approval is the maximum number of units permitted under the tract map action. However the existing or proposed zoning may not permit this number of units. This Vesting map does not constitute approval of any variations from the Municipal Code, unless approved specifically for this project under separate conditions.

Any removal of the existing street trees shall require Board of Public Works approval.

Satisfactory arrangements shall be made with the Los Angeles Department of Water and Power, Power System, to pay for removal, relocation, replacement or adjustment of power facilities due to this development. The subdivider must make arrangements for the underground installation of all new utility lines in conformance with Section 17.05-N of the Los Angeles Municipal Code (LAMC).

The final map must be recorded within 36 months of this approval, unless a time extension is granted before the end of such period.

The Advisory Agency hereby finds that this tract conforms to the California Water Code, as required by the Subdivision Map Act.

The subdivider should consult the Department of Water and Power to obtain energy saving design features which can be incorporated into the final building plans for the subject development. As part of the Total Energy Management Program of the Department of Water and Power, this no-cost consultation service will be provided to the subdivider upon his request.

FINDINGS OF FACT (CEQA)

The Deputy Advisory Agency found, pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including Mitigated Negative Declaration (MND), Case No. ENV-2016-3693-MND, as circulated on February 6, 2020, the Errata to the Mitigated Negative Declaration, dated March 2, 2020 and March 10, 2020, and all comments received, with the imposition of mitigation measures, there is no substantial evidence that the project will have a significant effect on the environment; found the MND reflects the independent

judgement and analysis of the City; found the mitigation measures have been made enforceable conditions on the project; and adopted the MND and the Mitigation Monitoring Program prepared for the MND.

The proposed project as identified in the project description, may cause potentially significant impacts on the environment without mitigation. The environmental analysis (ENV-2016-3693-MND) concludes that the project would not result in significant impacts and no further environmental analysis is necessary.

The Department of City Planning issued Mitigated Negative Declaration No. ENV-2016-3693-MND on February 6, 2020. The Department found that potential negative impact would occur from the project's implementation due to:

Transportation/Traffic

The Deputy Advisory Agency, adopts Mitigated Negative Declaration No. ENV-2016-3693-MND, reflects the independent judgment of the lead agency and determined that this project would not have a significant effect upon the environment provided the potential impacts identified above are mitigated to a less than significant level through implementation of **Condition Nos. 24 and 25** of the Tract's approval. Other identified potential impacts not mitigated by these conditions are mandatorily subject to existing City ordinances, (Sewer Ordinance, Grading Ordinance, Flood Plain Management Specific Plan, Xeriscape Ordinance, etc.) which are specifically intended to mitigate such potential impacts on all projects.

In accordance with Section 21081.6 of the Public Resources Code (AB3180), the Deputy Advisory Agency has assured that the above identified mitigation measures will be implemented by requiring reporting and monitoring as specified in **Condition No. 25**.

FINDINGS OF FACT (SUBDIVISION MAP ACT)

In connection with the approval of (Vesting) Tentative Tract Map No. VTT-74602 the Advisory Agency of the City of Los Angeles, pursuant to Sections 66473.1, 66474.60, .61 and .63 of the State of California Government Code (the Subdivision Map Act), makes the prescribed findings as follows:

- (a) THE PROPOSED MAP WILL BE/IS CONSISTENT WITH APPLICABLE GENERAL AND SPECIFIC PLANS.

The Land Use Element of the General Plan consists of the 35 Community Plans within the City of Los Angeles. The Community Plans establish goals, objectives, and policies for future developments at a neighborhood level. Additionally, through the Land Use Map, the Community Plan designates parcels with a land use designation and zone. The Land Use Element is further implemented through the Los Angeles Municipal Code (LAMC). The zoning regulations contained within the LAMC regulates, but is not limited to, the maximum permitted density, height, parking, and the subdivision of land.

The subdivision of land is regulated pursuant to Article 7 of the LAMC. Pursuant to LAMC Section 17.05 C., tract maps are to be designed in conformance with the tract map regulations to ensure compliance with the various elements of the General Plan, including the Zoning Code. Additionally, the maps are to be designed in conformance with the Street Standards established pursuant to LAMC Section 17.05 B. The project site is located within the Wilshire Community Plan area, which designates the site with Regional Center Commercial land use designation. The land use designation lists the CR, C1.5, C2, C4, P, PB, RAS3, RAS4, R3, R4, and R5 Zones as the corresponding zones. The project site

is zoned P-2, PB-2 and C4-2, which is consistent with the land use designation. The site also located in the Transit Priority Area (ZI-2452), Los Angeles State Enterprise Zone (ZI-2374), and the Wilshire Center/Koreatown Redevelopment Project Area (ZI-2488).

The project site consists of 6 subdivided lots and a non-subdivided remainder, with approximately 320,534 square feet (7.3 acres) of lot area. The net lot area after dedication is 316,438 square feet or 7.26 acres, which would permit a maximum of 791 dwelling units. As shown on the Vesting Tentative Tract Map stamp-dated September 11, 2019, the project proposes to subdivide the project site into one master ground lot and five airspace lots, for a maximum of 640 apartment units and 4 commercial condominium units. In conjunction with the proposed subdivision, the applicant has requested a Vesting Zone Change from PB-2 and P-2 to C4-2. The tract map is approved contingent upon the approval and adoption of the Vesting Zone Change. In the event that the incidental case is disapproved or modified, the applicant would be required to submit a revised tract map that is consistent with the determination of Case No. CPC-2016-3692-VZC-MCUP-SPR.

Pursuant to LAMC Section 17.06 B. A, a Vesting Tentative Tract Map must be prepared by or under the direction of a licensed land surveyor or registered civil engineer. The Vesting Tentative Tract Map indicates that VTT-74602 was prepared by Andrew Jefferson Willrodt, a registered professional engineer No. C49881, of Fuscoe Engineering, and contains information regarding the boundaries of the project site, as well as the abutting public rights-of-way, hillside contours for hillside properties, location of existing buildings, existing and proposed dedication, and improvements of the tract map. The Vesting Tentative Tract Map indicates the map number, notes, legal description, contact information for the owner, applicant, and engineer, as well as other pertinent information as required by LAMC Section 17.06 B. Therefore, the proposed map demonstrates compliance with LAMC Sections 17.05 C, 17.06 B, and is consistent with the applicable General Plan.

(b) THE DESIGN OR IMPROVEMENT OF THE PROPOSED SUBDIVISION IS CONSISTENT WITH APPLICABLE GENERAL AND SPECIFIC PLANS.

For purposes of a subdivision, design and improvement is defined by Section 66408 and 66409 of the Subdivision Map Act and LAMC Section 17.02. Design refers to the configuration and layout of the proposed lots in addition to the proposed site plan layout. Pursuant to Section 66427(a) of the Subdivision Map Act, the location of the buildings is not considered as part of the approval or disapproval of the map by the Advisory Agency. Easements and/or access and "improvements" refers to the infrastructure facilities serving the subdivision. LAMC Section 17.05 enumerates the design standards for a tract map and requires that each map be designed in conformance with the Street Design Standards and in conformance with the General Plan. As indicated in Finding (a), LAMC Section 17.05 C requires that the tract map be designed in conformance with the zoning regulations of the project site. The site's existing Regional Center Commercial land use designation would permit the construction of the proposed mixed-use development for 640 apartment units, four commercial condominium units, and 10,738 square feet of commercial uses. The applicant has requested a Vesting Zone Change, Case No. CPC-2016-3692-VZC-MCUP-SPR, in conjunction with the requested tract map. The requested Vesting Zone Change would change the existing PB-2 and P-2 zones to C4-2. As discussed in Finding No. (a), the tract map is approved with the condition that the map is in compliance with the approvals of Case No. CPC-2016-3692-VZC-MCUP-SPR. As such, the proposed density and uses would be consistent with the proposed land use designation, zone, and height district.

The tract map was distributed to and reviewed by the various city agencies of the Subdivision Committee that have the authority to make dedication, and/or improvement recommendations. The Bureau of Engineering reviewed the tract map for compliance with the Street Design Standards. The Bureau of Engineering has recommended dedication and/or improvements to the public right-of-way along 7th, Wilshire Boulevard, Mariposa Avenue, and Normandie Avenue, consistent with the standards of the Mobility Element.

In addition, the Bureau of Engineering has recommended the construction of the necessary on-site mainline sewers and all necessary street improvements will be made to comply with the Americans with Disabilities Act (ADA) of 2010. In conjunction with the street improvements, the Bureau of Street Lighting has required for relocation and upgrade of four street lights on Irolo Street, four street lights on Wilshire Boulevard, four street lights on Mariposa Avenue, and three street lights on 7th Street, in the event that street widening are required per Bureau of Engineering improvement conditions. As conditioned, the design and improvements of the proposed subdivision are consistent with the applicable General Plan.

(c) THE SITE IS PHYSICALLY SUITABLE FOR THE TYPE OF DEVELOPMENT.

The subject site is an irregular shaped lot, consisting of 6 subdivided lots and a non-subdivided remainder, with approximately 320,534 square feet (7.3 acres) of lot area. The net lot area after dedication is 316,438 square feet or 7.26 acres. The site is located within the Wilshire Community Plan area, zoned C4-2, PB-2, and P-2, with a land use designation of Regional Center Commercial uses. The site also located in the Transit Priority Area (ZI-2452), Los Angeles State Enterprise Zone (ZI-2374), and the Wilshire Center/Koreatown Redevelopment Project Area (ZI-2488).

The project site is located approximately 0.17 kilometers from the Puente Hills Blind Thrust Fault, but is not located within the Alquist-Priolo Fault Zone. The site is not located within a designated landslide, liquefaction, tsunami, high fire hazard severity zone, hillside area, or BOE Special Grading Area. The site is located within a methane buffer zone and will be required to comply with all applicable regulations as it pertains to development within a methane zone. Prior to the issuance of any permits, the project would be required to be reviewed and approved by the Department of Building and Safety and the Fire Department. The site is not subject to the Specific Plan for the Management of Flood Hazards (floodways, floodplains, mud prone areas, coastal high-hazard and flood-related erosion hazard areas).

The site is bound by Wilshire Boulevard to the north, Mariposa Avenue to the east, Irolo Street to the west, and 7th Street to the south. The site is currently developed with four commercial office buildings with ground floor retail components. The existing office buildings contain approximately 760,456 square feet of commercial floor area. Three of these office buildings front Wilshire Boulevard and one fronts Irolo Street. The site is also maintained by two parking structure: a 5-story parking structure with vehicular access off 7th Street and a 3-story parking structure with vehicular access of Mariposa Avenue. The 5-story parking structure contains 1,191 vehicular parking spaces and the 3-story parking structure contains 707 vehicular parking spaces. The four existing office buildings and 5-story parking structure would remain as part of the project, while the 3-story parking structure is proposed to be demolished. There are no existing residential units on site.

The mixed-use development proposes to construct two commercial kiosks, a 23-story mixed-use building and a 28-story mixed-use building on top of a podium that is four stories above grade and two stories subterranean. The project will provide a total of 1,921

vehicular parking spaces (714 residential and 500 commercial spaces, with 707 existing spaces to remain). The project will also provide 500 residential and 1,340 commercial bicycle parking spaces.

There are 30 existing trees located in the public right-of-way, of which one is a protected species and will not be removed. Of the 29 non-protected street trees, 19 trees are proposed to be removed and replaced. There are 29 trees located on the private portion of the project site, none of which are protected species, and 24 are proposed to be removed. The project will remove approximately 137,000 cubic yards of soil.

The tract map has been approved contingent upon the satisfaction of the Department of Building and Safety, Grading Division prior to the recordation of the map and issuance of any permits. Therefore, the site will be physically suitable for the proposed type of development.

- (d) THE SITE IS PHYSICALLY SUITABLE FOR THE PROPOSED DENSITY OF DEVELOPMENT.

Properties to the north across Wilshire Boulevard are zoned C4-2 and developed with the Wilshire Christian Oasis Church, Consulate General of Indonesia, and a mid-rise office building. Properties to the east across Mariposa Avenue are zoned C4-2, R5-2, and developed with a mid-rise office building, a three-level parking structure, 2-story residential buildings, and the Robert F. Kennedy Community Schools. Properties to the south across 7th Street are zoned R5-2 and developed with multi-family residential buildings. Properties to the west immediately adjacent to the project site are zoned R5-2, (T)(Q)C4-2, and developed with a 2-story commercial center with retail and restaurants, and 7-story multi-family residential building.

The site is currently developed with four commercial office buildings with ground floor retail components. The existing office buildings contain approximately 760,456 square feet of commercial floor area. Three of these office buildings front Wilshire Boulevard and one fronts Irolo Street. The site is also maintained by two parking structure: a 5-story parking structure with vehicular access off 7th Street and a 3-story parking structure with vehicular access of Mariposa Avenue. The 5-story parking structure contains 1,191 vehicular parking spaces and the 3-story parking structure contains 707 vehicular parking spaces. The four existing office buildings and 5-story parking structure would remain as part of the project, while the 3-story parking structure is proposed to be demolished. There are no existing residential units on site.

In conjunction with the requested tract map, the applicant has requested a Vesting Zone Change from PB-2 and P-2 to C4-2, for the construction of 640 residential apartment dwelling units, four commercial condominium units, and 10,738 square feet of commercial floor area. As proposed, the project would have a maximum FAR of 4.65:1, which is within the maximum FAR of 6:1 allowed on site. The project would be comprised of a 23-story mixed-use building and a 28-story mixed-use building on top of a podium that is four stories above grade and two stories subterranean. As Height District No. 2 does not have a maximum height limitation for C Zone, the proposed height would be consistent with the requested zone. The tract has been approved contingent upon the satisfaction of the Department of Building and Safety, Grading Division prior to the recordation of the map and issuance of any permits.

- (e) THE DESIGN OF THE SUBDIVISION OR THE PROPOSED IMPROVEMENTS ARE NOT LIKELY TO CAUSE SUBSTANTIAL ENVIRONMENTAL DAMAGE OR SUBSTANTIALLY AND AVOIDABLY INJURE FISH OR WILDLIFE OR THEIR HABITAT.

The project site is currently developed with four commercial office buildings with ground floor retail components. The existing office buildings contain approximately 760,456 square feet of commercial floor area. Three of these office buildings front Wilshire Boulevard and one fronts Irolo Street. The site is also maintained by two parking structure: a 5-story parking structure with vehicular access off 7th Street and a 3-story parking structure with vehicular access of Mariposa Avenue. There are 30 existing trees located in the public right-of-way, of which one is a protected species and will not be removed. Of the 29 non-protected street trees, 19 trees are proposed to be removed and replaced. There are 29 trees located on the private portion of the project site, none of which are protected species, and 24 are proposed to be removed. The project proposes to remove approximately 137,000 cubic yards of soil.

The surrounding area is presently developed with a mix of commercial and residential uses. Neither the project site nor the surrounding area provides a natural habitat for fish or wildlife. On February 6, 2020, the City Planning Department issued Mitigated Negative Declaration No. ENV-2016-3693-MND, which determined that the project would not result in significant impacts relating to biological resources. As such, the proposed project will not cause substantial environmental damage or injury to wildlife or their habitat.

- (f) THE DESIGN OF THE SUBDIVISION OR TYPE OF IMPROVEMENTS IS NOT LIKELY TO CAUSE SERIOUS PUBLIC HEALTH PROBLEMS.

There appears to be no potential public health problems caused by the design or improvement of the proposed subdivision.

The development is required to be connected to the City's sanitary sewer system, where the sewage will be directed to the LA Hyperion Treatment Plant, which has been upgraded to meet Statewide ocean discharge standards. The Bureau of Engineering has reported that the proposed subdivision does not violate the existing California Water Code because the subdivision will be connected to the public sewer system and will have only a minor incremental impact on the quality of the effluent from the Hyperion Treatment Plant.

- (g) THE DESIGN OF THE SUBDIVISION OR THE TYPE OF IMPROVEMENTS WILL NOT CONFLICT WITH EASEMENTS, ACQUIRED BY THE PUBLIC AT LARGE, FOR ACCESS THROUGH OR USE OF PROPERTY WITHIN THE PROPOSED SUBDIVISION.

As required by LAMC Section 12.03, the project site has a minimum of 20 feet of frontage along Wilshire Boulevard, Mariposa Avenue, and 7th Street. The three existing office buildings would remain to occupy the street frontage along Wilshire Boulevard. Proposed mixed-use buildings above the 4-story podium will maintain approximately 374 feet of frontage along Mariposa Avenue and approximately 235 feet of frontage along 7th Street. The project site consists of 6 subdivided lots and a non-subdivided remainder, as identified as Lot Nos. 93, 94, 95, 96, 97, 98, and NE ¼ Sec 25 T1S R14W, and is identified by the Assessor Parcel No. 5094-002-011, 013, 015, 017, 019, 020. Bureau of Sanitation has inspected the sewer lines serving the subject tract and found easement(s) within the property. As conditioned, the proposed development must secure Department of Public Works approval. Necessary easements for utilities will be acquired by the City prior to the recordation of the proposed tract map.

Therefore, the design of the subdivision and the proposed improvements would not conflict with easements acquired by the public at large for access through or use of the property within the proposed subdivision.

- (h) THE DESIGN OF THE PROPOSED SUBDIVISION SHALL PROVIDE, TO THE EXTENT FEASIBLE, FOR FUTURE PASSIVE OR NATURAL HEATING OR COOLING OPPORTUNITIES IN THE SUBDIVISION. (REF. SECTION 66473.1)

In assessing the feasibility of passive or natural heating or cooling opportunities in the proposed subdivision design, the applicant has prepared and submitted materials which consider the local climate, contours, configuration of the parcel(s) to be subdivided and other design and improvement requirements.

Providing for passive or natural heating or cooling opportunities will not result in reducing allowable densities or the percentage of a lot which may be occupied by a building or structure under applicable planning and zoning in effect at the time the tentative map was filed.

The lot layout of the subdivision has taken into consideration the maximizing of the north/south orientation.

The topography of the site has been considered in the maximization of passive or natural heating and cooling opportunities.

In addition, prior to obtaining a building permit, the subdivider shall consider building construction techniques, such as overhanging eaves, location of windows, insulation, exhaust fans; planting of trees for shade purposes and the height of the buildings on the site in relation to adjacent development.

These findings shall apply to both the tentative and final maps for Vesting Tentative Tract No VTT-74602.

VINCENT P. BERTONI, AICP
Advisory Agency



KEVIN GOLDEN
Deputy Advisory Agency

KG:CTL:IW

Note: If you wish to file an appeal, it must be filed within 10 calendar days from the decision date as noted in this letter. For an appeal to be valid to the City Planning Commission or Area Planning Commission, it must be accepted as complete by the City Planning Department and appeal fees paid, prior to expiration of the above 10-day time limit. Such appeal must be submitted on Master Appeal Form No. CP-7769 at the Department's Public Offices, located at:

Figueroa Plaza
201 North Figueroa Street,
4th Floor
Los Angeles, CA 90012
(213) 482-7077

Marvin Braude San Fernando
Valley Constituent Service
Center
6262 Van Nuys Boulevard,
Room 251
Van Nuys, CA 91401 (818)
374-5050

West Los Angeles
Development Services
Center 1828 Sawtelle
Boulevard,
2nd Floor
Los Angeles, CA
90025 (310) 231-
2912

Forms are also available on-line at <http://cityplanning.lacity.org>

The time in which a party may seek judicial review of this determination is governed by California Code of Civil Procedure Section 1094.6. Under that provision, a petitioner may seek judicial review of any decision of the City pursuant to California Code of Civil Procedure Section 1094.5, only if the petition for writ of mandate pursuant to that section is filed no later than the 90th day following the date on which the City's decision becomes final.

Applicant Copy
Office: Downtown
Application Invoice No: 65825

City of Los Angeles
Department of City Planning



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City Planning Request

NOTICE: The staff of the Planning Department will analyze your request and accord the same full and impartial consideration to your application, regardless of whether or not you obtain the services of anyone to represent you.

This filing fee is required by Chapter 1, Article 9, L.A.M.C.

If you have questions about this invoice, please contact the planner assigned to this case. To identify the assigned planner, please visit <https://planning.lacity.org/pdiscaseinfo/> and enter the Case Number.

Applicant: SUPPORTER'S ALLIANCE FOR ENVIRONMENTAL RESPONSIBIL (510-8364200)
Representative:
Project Address: 3265 W 7TH ST, 90005

NOTES:

VTT-74602-2A			
Item	Fee	%	Charged Fee
Appeal by Aggrieved Parties Other than the Original Applicant *	\$89.00	100%	\$89.00
Case Total			\$89.00

Item	Charged Fee
*Fees Subject to Surcharges	\$89.00
Fees Not Subject to Surcharges	\$0.00
Plan & Land Use Fees Total	\$89.00
Expediting Fee	\$0.00
Development Services Center Surcharge (3%)	\$2.67
City Planning Systems Development Surcharge (6%)	\$5.34
Operating Surcharge (7%)	\$6.23
General Plan Maintenance Surcharge (7%)	\$6.23
Grand Total	\$109.47
Total Invoice	\$109.47
Total Overpayment Amount	\$0.00
Total Paid (this amount must equal the sum of all checks)	\$109.47

Council District: 10
Plan Area: Wilshire
Processed by VIDAL, ANNA on 07/08/2020

Signature: _____



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Bookmark page for future reference.



City Planning Request

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Council District: 10
Plan Area: Wilshire
Processed by VIDAL, ANNA on 07/08/2020

Signature: _____

View History Report

Audit Trail

Show detailed result

Online Submittal **App Submitted** by michael@lozeaudrury.com <michael@lozeaudrury.com>

Date of Submittal	07/07/2020
Appellant Name	Supporters Alliance for Environmental Responsibility
Current Case Number	VTT-74602-1A
Appellant Email Address	michael@lozeaudrury.com
Re-enter Email Address	michael@lozeaudrury.com
Hidden0	correct
File Upload	1_VTT_3440 Wilshire_Appeal Application.pdf 2_VTT-74602-1A Appeal Justification Letter.pdf 3_LOD_VTT-74602 DL.pdf
Appellant Name	Supporters Alliance for Environmental Responsibility
Current Case Number	VTT-74602-1A
Appellant Email Address	michael@lozeaudrury.com

Planner Approval **Accepted** by Anna Vidal

Assigned Planner	Anna Vidal
Email Address	anna.vidal@lacity.org
Decision	Accepted
Application Expiration Date	07/10/2020
Appeal Case Number	VTT-74602-2A
Invoice Number	65825
Invoice Total	\$109.47
Invoice Upload	InvoiceNo-65825-2ndLevelAppeal-VTT-74602-2A.pdf
Assigned Planner	Anna Vidal
Email Address	anna.vidal@lacity.org
Decision	Accepted
Application Expiration Date	07/10/2020 4:31pm
Appeal Case Number	VTT-74602-2A
Invoice Number	65825
Invoice Total	\$109.47
Invoice Amount	\$109.47
Expiration Date	07/10/2020
Change Submit Button Text	

Make a Payment **Payment Processed** by michael@lozeaudrury.com <michael@lozeaudrury.com>

Credit Card Number	42*****6957
CVV	M
Expiration Month	M
Expiration Year	M
First Name	M
Last Name	M
Billing Address Line 1	M
Billing Address Line 2	M
City	M
State	M
Zip/Postal Code	M
Contact Number	M
Extension	M
Approval Code	02967G

Transaction ID	090720EC0-509E3362-0F3B-4581-930D-B9F92E94FF0A
Transaction Time	07/09/2020 02:44:32 PM
Submission Date	07/09/2020
Payment Status	APPROVAL

Completed Stages:

[Online Submittal:](#) ✓ 07/07/2020 04:57:20 PM - michael@lozeaudrury.com <michael@lozeaudrury.com>
[Planner Approval:](#) ✓ 07/08/2020 08:36:11 AM - Anna Vidal
[Make a Payment:](#) ✓ 07/09/2020 02:44:30 PM - michael@lozeaudrury.com <michael@lozeaudrury.com>

Uploaded Files

Name	Uploaded by	Version	Source
1_VTT_3440 Wilshire_Appeal Application.pdf	SYSTEM	1	File Upload
2_VTT-74602-1A Appeal Justification Letter.pdf	SYSTEM	1	File Upload
3_ LOD_VTT-74602 DL.pdf	SYSTEM	1	File Upload
InvoiceNo-65825-2ndLevelAppeal-VTT-74602-2A.pdf	Anna Vidal	1	Invoice Upload

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Comments

Comments(0)

To link emails to this workflow - send or CC them to this workflow using the following workflow specific address: wf-6b2c0ea7a9ed4f00b70980adef68cfd.prod@simpligov.com. All emails sent into the workflow will display in the list below.