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May 7, 2013

***Via E-Mail***

Honorable Los Angeles City Council
c/o City Clerk
200 N. Spring Street
Los Angeles, CA 90012

Re: Additional Comments of City of Long Beach, SCIG Project & EIR
*Appeal No. 13-0295 & Agenda Item 13-0398*

Dear Honorable Los Angeles City Council:

Appellant City of Long Beach has retained this firm to represent it in its appeal of the L.A. Harbor Department's approval of the Southern California International Gateway (SCIG) Project (Project). We submit this letter on Long Beach's behalf, adding these comments to the numerous letters already submitted by Long Beach and other parties demonstrating the fundamental inadequacy of the environmental impact report (EIR) prepared for the Project. In light of all of these flaws, the City Council must overturn the Harbor Department's certification of the EIR and Project approval.

## I. The EIR's Failure to Analyze *All* of the Impacts Associated with the Project, Including Impacts Related to Changes at the Hobart Facility, Violates CEQA.

The overarching mandate of the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., is to require that public agencies consider all of the potentially significant environmental effects that could result from a proposed project before approving it. The purpose of this mandate is to ensure that the public and decisionmakers are aware of the full "environmental price tag" of proposed development. *Natural Resources Defense Council v. City of L.A.* (2002) 103 Cal.App.4th 268, 271. Armed with this information, public agencies can make better decisions about the shape, scale, and pace of development throughout the state. They can also ensure that

a project's adverse impacts are mitigated or avoided whenever feasible. Pub. Res. Code § 21081(a).

This mandate and the court cases interpreting it do not allow agencies to be parsimonious or myopic in their analysis of environmental impacts. The Project Description section of the EIR must include the *whole* of the project, not just some benign first step. *Bozung v. Local Agency Formation Comm.* (1975) 13 Cal.3d.263, 283-84. Likewise, public agencies may not ignore or omit impacts simply because they will occur in some other jurisdiction. In keeping with this broad scope, the definition of "environmental effect" in CEQA's implementing guidelines includes not only direct impacts caused by the proposed project, but "indirect or secondary effects," including "growth-inducing effects and other effects related to induced changes in land use . . . ." CEQA Guidelines § 15358.

Given this mandate, when presented with the proposed SCIG Project, the Harbor Department was required to prepare an EIR that looked at *all* of the Project's impacts, both direct and indirect. As numerous commenters have pointed out, the SCIG Project will modify and add capacity to an existing intermodal cargo transportation system. As a result, the EIR is required to analyze the potentially significant impacts of the Project throughout that system, including the Project's impact on activities at the Hobart facility, and the environmental effects (including growth-inducing effects) of increasing capacity to handle cargo at the ports.

Unfortunately, the EIR approved by the Harbor Department steadfastly refused to analyze these impacts, and thus the document patently violates this core mandate of CEQA. The City Council must therefore overturn the Harbor Department's certification of the EIR and Project approval and require a full analysis of these impacts in a revised and recirculated EIR.

*A. The EIR's Project Description Excludes Foreseeable Changes at the Hobart Facility and Thus Is Incomplete.*

"An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730 (quoting *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193). Courts have consistently held that a "truncated" project description cannot form the basis of an adequate EIR. *San Joaquin Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 730. This is because "[a]n accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." *Id.* (citation omitted). Thus, an inaccurate

or incomplete project description renders the analysis of significant environmental impacts inherently unreliable.

Here, the EIR describes the proposed Project in the narrowest of terms. According to the Project Description section of the document, the SCIG Project is simply one new, near-dock intermodal railyard, located five miles from the Port of L.A. Viewing the facility in isolation, the EIR asserts that the Project actually has several asserted environmental benefits—including a reduction in truck trips on I-710 caused by the Project accepting cargo from the ports that otherwise would have been sent by truck to the Hobart facility 20 miles away.

This isolated view of the Project is incomplete, however. Rather than reducing impacts, as asserted in the EIR, the SCIG Project is, in fact, adding capacity to the larger cargo transportation system that includes the Hobart facility, a facility that is owned and operated by the SCIG Project applicant, BNSF. DEIR at ES-13. The SCIG railyard will also indisputably free up capacity at Hobart, allowing that facility to handle more transloaded and domestic cargo. FEIR at 2-19 (with SCIG, Hobart will have .6 million fewer TEUs). Because the operation of these two facilities, which share the same owner and operator, are directly connected (*see* DEIR at ES-13 [if SCIG is not built, Hobart will continue to take the cargo that would have gone to SCIG]), both the new SCIG facility and the accompanying proposed changes to Hobart must be described as part of the Project in the EIR's Project Description. Guidelines § 15378(a) (lead agency must describe whole of a project); *Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1229 ("when one activity is an integral part of another activity, the combined activities are within the scope of the same CEQA project" and must be analyzed together).

Thus, far from improving air quality, the Project's increase in capacity to the cargo transportation system will exacerbate pollution in the region, adding to the already significant air quality impacts caused by Hobart and other facilities. *See* http://www.arb.ca.gov/railyard/hra/bnsf_hobart_hra.pdf (California Air Resources Board describing a health risk assessment at BNSF's Hobart Railyard). It is particularly troubling that because the additional transload traffic at Hobart will not originate entirely from the Ports, CARB's drayage truck rule may not apply to many of those trips. BNSF's attempt to avoid analyzing and mitigating the impacts from inevitable changes to the Hobart facility violates CEQA.

Nor may the applicant succeed in claiming a net benefit from the closure of the Cal Cartage facility, which will be put out of business as a result of the Project. In fact, this trucking company operates one of the largest liquid natural gas (LNG) fleets in

California. Unlike the one million diesel truck trips that the SCIG Project will add each year, Cal Cartage's LNG trucks emit no diesel particulates. Given that diesel exhaust is a known carcinogen, the proposed Project's impact on public health will be far more severe than that of existing operations at the site.

*B. The EIR's Failure to Analyze the Project's Impacts on Operations at Hobart and Growth-Inducing Impacts Violates CEQA.*

The EIR was also required to analyze the traffic, air quality, and other impacts of Hobart's changing operations resulting from the proposed new SCIG railyard. CEQA requires an EIR to analyze all direct and indirect impacts of a Project. *See* CEQA Guidelines § 15358(a)(2) (defining "effect" or "impact" to include "[i]ndirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced change[s] in the pattern of land use . . . ."). Thus, regardless of whether Hobart is considered part of the Project (though it should have been for the reasons stated above), the changing conditions at Hobart resulting from the new SCIG facility must be analyzed.

For example, according to the EIR, the SCIG Project will eliminate 95% of direct international intermodal cargo truck trips from the Port to Hobart. FEIR at 2-20. Forty-six percent (46%) of Hobart's current "throughput" is made up of this international intermodal cargo from the Port. *See* FEIR at 2-19. Assuming these figures are accurate (and numerous commenters have noted that the EIR lacks any data to support the trip reduction figure), the SCIG Project will eliminate nearly 43% of the throughput at Hobart.[1]

These figures demonstrate that further investigation and analysis must be done for two reasons. *First,* it defies credulity that BNSF would spend $500 million dollars to open a facility whose sole purpose is to take away a substantial portion of business from another BNSF facility. As a for-profit corporation, BNSF undoubtedly has plans to attract more cargo to Hobart if SCIG is built. Indeed, as far back as 2006, BNSF itself has made it clear that it has plans for Hobart even if SCIG is built; as a BNSF

[1] It is unclear how the FEIR reached the conclusion that Hobart would still handle 86% of the volume it handled in 2010 even with the SCIG Project, given that 95% of its international intermodal cargo from the Port would be eliminated, and this cargo currently makes up 46% of the cargo Hobart handles. *See* FEIR at 2-19.

spokesman stated at a public meeting, "Hobart is the largest inland intermodal facility in the world, and we look forward to being able to continue that as well." http://www.lbreport.com/news/oct12/scighear.htm (citing Town Hall Los Angeles, Keynote Address "Will Southern California Have Adequate Freight Transportation Capacity In the Future?" September 14, 2006). The City must, at the very least, ascertain what those plans are and analyze the traffic, air quality, and other impacts associated with the changing operations at Hobart.

*Second*, because the SCIG Project is adding significant capacity for handling cargo at the Port, it is reasonably foreseeable that the Project will lead to an increase of business at the Port. Hobart will not be closed and other facilities may also be needed to address the increase in business. This "growth-inducing" impact of the Project must be analyzed in the EIR. *See* Pub. Res. Code § 21100(b)(5) (EIR must include a "detailed statement" setting forth the growth-inducing impacts of a proposed project); CEQA Guidelines § 15126.2(d) (statement must "[d]iscuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" and "may encourage and facilitate *other activities* that could significantly affect the environment, either individually or cumulatively" (emphasis added)); *see also City of Antioch v. City Council of Pittsburg* (1986) 187 Cal.App.3d 1325, 1337.

Remarkably, the EIR's analysis of SCIG's growth-inducing impacts is just three pages long. *See* DEIR at 8-1 to 8-4. In essence, it asserts that the Project "would not induce more cargo through the San Pedro Bay ports" because existing cargo facilities in the region, including Hobart, could meet the estimated future demand for intermodal cargo transportation. *Id*. at 8-2. This assertion is flatly contradicted by other assertions in the EIR as well as by other Port studies.

For instance, the first two sentences of the Project Objectives section of the EIR state: "The need for additional rail facilities to support current and expected cargo volumes, particularly intermodal container cargo, was identified in several recent studies. . . . As discussed in those studies, even after maximizing the potential on-dock rail yards, the demand for intermodal rail service creates a shortfall in rail yard capacity." RDEIR at 2.10. And, indeed, the 2006 Parsons report cited in the RDEIR suggests that there will *not* be sufficient capacity to meet cargo demand if no action is taken. The EIR for the I-710 widening project also notes these constraints:

> Based on the port cargo demand forecasts and how much of that cargo can be handled through maximum utilization of the railroad system, there is a high demand for movement of cargo containers by truck on the highway

> system, specifically I-710. The existing capacity of the I-710 freeway is not sufficient to meet the projected demand for goods movement within the I-710 Corridor that is driven by both the global and regional economy."

*See* Exhibit 1 (EIR for I-710 project at 1-29).

If there is insufficient capacity to handle the cargo that is expected in the future, then the lack of near-dock facilities, such as the proposed Project, is an obstacle to growth. Removing that obstacle by creating more capacity through the Project must be considered "growth-inducing" under CEQA. *See* CEQA Guidelines § 15126.2(d); *City of Davis v. Coleman* (9th Cir. 1975) 521 F.2d 661, 675 (agency must analyze growth-inducing impacts of constructing new transportation capacity); DEIR at 8-3 (acknowledging that "A project would indirectly induce growth if it would foster economic … activities, which would lead to further development").

Numerous other sources also suggest that "growth inducement" is precisely the point of the SCIG project. In particular, this increased capacity appears to be necessary to compete with the newly widened Panama Canal. Thus, one report concludes that, if U.S. ports do not increase capacity to keep up with increasing cargo volumes, then port "capacity constraints could foment shifts in trade routing," and cargo will bypass the ports and be delivered through new routes. *See* http://transportationfortomorrow.com/final_report/volume_3_html/technical_issues_papers/paper7375.htm?name=4b_01 ("Constrained U.S. port capacity leads to development of alternative ports, both inside and outside the US"). *See also* National Public Radio, *Port Of Baltimore Seeks Boost From Panama Canal Expansion*, May 6, 2013 (with Panama Canal expansion, east coast ports now compete with Port of L.A. and other west coast ports), attached as Exhibit 2; Exhibit 3 (SCAG 2012 RTP Goods Movement Appendix, describing need for Port expansions); DEIR at ES-3 (Project objective to increase Port capacity to handle future cargo needs). The SCIG Project unquestionably increases the Port's overall capacity to handle cargo. By increasing overall Port capacity, and freeing up Hobart to accept new cargo, the Project has effectively caused the Port to be able to accept more cargo than it could have before.

The other element of an adequate analysis of a project's growth-inducing impacts is a discussion of how the project "may encourage and facilitate *other activities* that could significantly affect the environment, either individually or cumulatively." CEQA Guidelines § 15126.2(d) (emphasis added). Here, as discussed above and as numerous other commenters have noted, such "other activities" clearly include new truck trips to Hobart that will be encouraged or facilitated by the growth at the ports and the capacity opened up at Hobart once port cargo starts going to SCIG.

Thus, it is clear that, when considered in light of this evidence, the SCIG Project is, in fact, intended to encourage and "foster economic . . . growth" at the Ports. While there is nothing inherently wrong with this goal, the EIR analyzing the Project must acknowledge it and analyze any environmental impacts associated with it, such as increased truck traffic and air pollution.

The EIR attempts to avoid analyzing these impacts by asserting that demand is independent of capacity, and that there is already existing, unused capacity for cargo in the region, which has not caused demand to increase. FEIR at 2-19 – 2-20. However, it only analyzes data within the past few years when the recession caused cargo to decrease significantly. This is hardly useful data, and certainly is not applicable now that cargo and the economy are on the uptick again. Moreover, comprehensive studies show that expansion is necessary in order to avoid losing business at ports. *See* http://transportationfortomorrow.com/final_report/volume_3_html/technical_issues_papers/paper7375.htm?name=4b_01 ("With the forecast doubling of maritime trade demand, the country's maritime throughput capacity needs expansion or significant disruption to trade and the economy may occur."). If failure to expand capacity will reduce throughput, the opposite is also true: expansion of capacity causes more growth. Indeed, a BNSF spokesperson described the SCIG project as providing capacity for the port to grow. *See* Exhibit 4. The EIR's claim that cargo volume is not correlated with, or caused by, Port capacity is therefore unfounded. FEIR at 2-18 – 2-22. So is the EIR's claim that changing activities at Hobart are unrelated to the SCIG Project's increase in capacity.

The EIR also implies that the growth-inducing impacts and impacts caused by changing operations at Hobart are too speculative to analyze. *See* FEIR at 2-17, 2-19. This claim rings hollow because BNSF owns Hobart and therefore likely has plans for how it will use the new capacity. *See* DEIR at ES-13. As press documents show, BNSF is currently planning to upgrade its Hobart facilities, so it must have plans for using the facility's free capacity once SCIG is constructed. *See* Exhibit 5. At the least, the L.A. Harbor Department has an obligation under CEQA to conduct a thorough investigation and find out and disclose all that it reasonably can regarding BNSF's plans for Hobart, and the extent to which the SCIG Project causes BNSF to bring new cargo to Hobart. *See* CEQA Guidelines § 15144 (an agency must "use its best efforts to find out and disclose all that it reasonably can."); *Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Comrs.* (2001) 91 Cal.App.4th 1344, 1368-70 (rejecting Port of Oakland's refusal to undertake a "reasonably conscientious effort" to investigate impacts).

In a last-ditch attempt to avoid providing the public with a complete analysis of Project impacts, the EIR asserts that changes to vehicular traffic outside the rail routes between the Ports and Hobart need not be analyzed because they are beyond

the geographic scope of the impact analysis. FEIR, Responses to Comments, at 2-18. But an EIR may not refuse to analyze a significant impact merely because the impact lies outside of the artificially constrained area in which the agency has chosen to measure impacts. Rather, agencies are required to analyze *all* significant impacts of a project, even if they are regional in nature. *County Sanitation Dist. No. 2 of Los Angeles County v. County of Kern* (2005) 127 Cal.App.4th 1544, 1582 ("CEQA defines the relevant geographical environment as the area where physical conditions will be affected by the proposed project. . . . Consequently, the project area does not define the relevant environment for purposes of CEQA when a project's environmental effects will be felt outside the project area. Moreover, the 'purpose of CEQA would be undermined if the appropriate governmental agencies went forward without an awareness of the effects a project will have on areas outside of the boundaries of the project area.'"); *Muzzy Ranch* Co. *v. Solano County Airport Land Use Com*. (2007) 41 Cal.4th 372, 387-88 ("no statute (in CEQA or elsewhere) imposes any per se geographical limit on otherwise appropriate CEQA evaluation of a project's environmental impacts").

Finally, BNSF implies that the present EIR need not provide the required analysis of air quality impacts because Hobart's impacts were "recently studied" in other environmental documents. Letter from BNSF, November 28, 2012, p. 4. However, because these past studies were not properly incorporated by referenced into the SCIG EIR, they cannot suffice to satisfy CEQA's informational purposes. *See* CEQA Guidelines § 15150. Neither did the lead agency notify the public that its EIR was "tiering" off such prior environmental documents. For all these reasons, BNSF's citation to other analyses is unavailing.

*C. The EIR Improperly Relies on Two Contradictory Studies Regarding Capacity for Meeting Cargo Demand.*

On the important issue of whether there is currently sufficient capacity at existing cargo transport facilities to meet present and future demand at the Port, the EIR for the SCIG Project relies on two entirely contradictory reports. When it is convenient to assert that there is a need for the Project, the EIR cites a 2006 study concluding that there is insufficient capacity. *See* RDEIR at 2-10. When denying that the Project would have growth-inducing impacts, on the other hand, the EIR cites to a 2012 study concluding that existing facilities can handle all projected demand throughout the life of the proposed Project. *See* FEIR at 2-19. Both conclusions cannot be true, and the EIR's selective reliance on these contradictory conclusions renders the EIR's analysis fundamentally flawed. *See Berkeley Keep Jets Over the Bay Com.,* 91 Cal.App.4th 1344, 1367; *Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal.App.3d 421, 428.

In sum, BNSF and the Harbor Department cannot have it both ways: Either the SCIG Project is intended to induce growth at the Port by creating additional, needed capacity, or the SCIG Project is unnecessary. If the former, the EIR must be revised and recirculated to include an analysis of all the impacts associated with the growth induced by the Project, including additional truck trips to Hobart. If the latter, the City Council must reweigh the Project's asserted benefits against the severe environmental impacts caused to the residents, schoolchildren, and workers of Long Beach. The benefits of an unnecessary project cannot outweigh these impacts, and thus the City cannot make the "override" findings required under CEQA.

## II. The EIR Omits Important Information and Analysis Regarding the Project's Traffic Impacts.

Many of the same analytical flaws that Long Beach and others identified in the EIR's air quality analysis also plague the EIR's traffic analysis. *See, e.g.,* letter from City of Long Beach, January 30, 2012; letter from NRDC et. al., November 12, 2012; letter from SCAQMD, March 6, 2013. For example, much of the traffic analysis is based on the unsubstantiated assumption that constructing SCIG will eliminate 95% of the truck trips from the Port to Hobart. RDEIR at 3.10-26. As noted above, the EIR repeatedly refuses to analyze traffic impacts caused by the changed use of Hobart once SCIG is operational. E.g., FEIR at 2-21 – 2-22. All of these omissions must be corrected in a recirculated EIR.

In addition, the EIR relies on faulty baseline traffic data and omits other important details that make it impossible for the public or decision makers to understand and consider meaningfully the impacts resulting from the project. Analysis of the Project's traffic impacts at local intersections, for example, paints an overly rosy picture of existing conditions. According to the EIR, many of the impacted intersections are operating at Levels of Service (LOS) A or B. RDEIR Table 3.10-24 at 3.10-43. As a result of this asserted baseline condition, the EIR concludes that the Project's impacts to these intersections will be less-than-significant. RDEIR at Table 3.10-25 at 3.10-46; 3.10-47. However, an EIR prepared by the City of Long Beach analyzing these same intersections shows many to be operating at LOS E or F. *See* Exhibit 6 (Gerald Desmond Bridge Replacement REIR/EA). Clearly, any traffic added by the Project, much less the thousands of vehicular trips per day anticipated in the EIR, will create significant traffic impacts at these intersections, which are already operating at deficient levels of service. The EIR must be revised and recirculated to include the proper baseline conditions of these intersections.

Moreover, the size of the EIR's study area is artificially restricted. A study area should not simply be a map showing the location of the project surrounded by the closest intersections. The study area should be determined by evaluating the project location and how it may affect all modes and facilities (including transit, bicycles, pedestrians, rail crossings, etc.) of the connecting transportation system and surrounding land uses. For projects of regional significance, the study area scoping pursuant to CEQA Section 21092.4(b) must include consultation with transportation planning agencies and include major local arterials and public transit within five miles of the project site and freeways, highways, overpasses, on-ramps, off-ramps, and rail transit service within 10-miles of the project site. And as described above, case law holds that an agency may not artificially constrain the area in which it searches for project impacts, but must analyze all significant impacts of a project, even if they are not near the project area. *County Sanitation Dist. No. 2,* 127 Cal.App.4th at 1582; *Muzzy Ranch* Co., 41 Cal.4th at 387-88.

Here the EIR suggests that traffic on local roads and intersections would be expected to increase upon implementation of the Project: "the longer-distance regional freeway system trips from the ports to downtown railyards would be replaced by shorter-distance trips to/from the proposed project along local port-area roadways. RDEIR at 3.10-48. Yet, the public has no assurance that each of the potentially affected intersections is even included in the impact analysis. Indeed the EIR includes only one intersection north of SCIG (# 25 – near Sepulveda Blvd and Alameda Street). *Id*. at Figure 3.10-1 at 3.10-4. As discussed above, since many of the intersections in the Project vicinity already operate at deficient service levels, the EIR should have cast its net sufficiently broad to ensure that all intersections that could potentially be impacted by the Project were included in the impact analysis. *See* Exhibit 7, pp. 6-7 (Riverside County Superior Court rejecting an EIR that artificially constrained its analysis of traffic impacts to area within 5 miles of project).

Furthermore, the EIR fails to include diagrams that show existing and project-related traffic volumes at area intersections. Without such a trip-assignment chart, it is not possible to verify the accuracy of the EIR's trip distribution assumptions or to understand how traffic circulation patterns would change upon implementation of the Project. The proposed Project would generate more than 8,000 daily trips. EIR at 3.10-40. The EIR should have shown how these trips would be distributed throughout the area's intersections and freeways.

Similarly, there is no substantial evidence in the record supporting the EIR's conclusion that the Project's contribution to cumulative traffic impacts would be less-than-significant. The EIR's conclusion that the Project's contribution to cumulative

traffic impacts would be too small to make a difference is based on the assumption that the Project would reduce truck trips to Hobart by 95%. As noted above, this assumption is not supported by evidence in the record. Moreover, it ignores the growth-inducing impacts of the Project. The revised EIR must include an adequate discussion, based on evidence in the record, of these cumulative traffic impacts as well.

## III. The EIR Fails to Adequately Analyze, or Identify Mitigation Measures for, the Project's Greenhouse Gas Emissions.

When it comes to analyzing the Project's climate change impacts, the EIR provides little analysis that could help the public or decisionmakers determine the significance of the Project's greenhouse gas emissions in relation either to state policies for reducing emissions over time or to the efficacy and availability of mitigation measures designed to reduce them. Instead, the EIR simply provides a table of emissions, with no explanation of how they were calculated, and concludes that, because there will be increased GHG emissions during construction and during the life of the Project, the impacts will be significant. The EIR must be revised and recirculated to explain how the emissions in Tables 3.6-2 and 3.6-3 were calculated.

Equally important, the revised EIR must explain how any increases in GHG emissions will affect the state's ability to achieve the goals of AB 32 and Executive Orders (EO) S-3-05 and B-16-2012. California climate policy, as reflected in EO S-3-05, requires reducing emissions 80 percent below 1990 levels by 2050 so as to avoid extreme climate impacts. This Executive Order embodies the reductions that climate scientists have concluded are needed to provide a 50-50 chance of limiting global average temperature rise to 2°C above pre-industrial levels. The AB 32 Scoping Plan incorporates this goal, establishing a "trajectory" for reaching it over time. Climate Change Scoping Plan: A Framework for Change, 2008, p. 15, attached as Exhibit 8; *see also* entire scoping plan at http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf (referencing the 2050 reduction goals throughout the document). Indeed, in an ongoing, 2013 update to the Scoping Plan, the California Air Resources Board explicitly describes how the update will "lay the groundwork to reach post-2020 goals set forth in Executive Orders S-3-05 and B-16-2012 . . . [and] will provide a high level view of a long-term strategy for meeting the 2050 GHG goals." *See* http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Meeting the 2050 trajectory requires continuing and steady annual *reductions* in both total and per capita emissions. Climate Change Scoping Plan, p. ES-1. Because state policy aims to *reduce* GHG emissions over time, simply stating that an *increase* in emissions *over current levels* will be significant fails to reveal to the public and decisionmakers how significant the

Project's impacts will be. *See Santiago Cnty. Water Dist. v. Cnty of Orange* (1981) 118 Cal.App.3d 818, 831.

The EIR fails entirely to discuss the Project's consistency with these official state policies and instead concludes summarily that the proposed Project "would not conflict with State and local plans and policies adopted for the purpose of reducing GHG emissions." RDEIR 3.6-33. Given the mandates of AB, and EO S-3-05 and EO B-16-2012, this conclusion is not supported by substantial evidence. As the San Diego County Superior Court wrote in striking down the EIR for the San Diego Area of Government's regional transportation plan, failure to consider a project's consistency with these state policies is fatal:

> [T]he EIR is impermissibly dismissive of Executive Order S-03-05. . . . [That order] is an official policy of the State of California, established by gubernatorial order in 2005, and not withdrawn or modified by a subsequent (and predecessor) governor. Quite obviously it was designed to address an environmental objective that is highly relevant under CEQA (climate stabilization). . . . [The lead agency] thus cannot simply ignore it."

*See* Exhibit 9. The SCIG EIR must be revised and recirculated to include a greenhouse gas impacts analysis that discusses whether the Project is consistent with these policies, will help advance these policies, or will impede these achievement of these policies. As noted above, because the Project will indisputably increase GHG emission, it cannot be said to advance these policies, which require reductions in GHG emissions. In addition, the revised EIR must use the EO S-3-05 trajectory as a threshold of significance in evaluating the Project's environmental impacts.

Likewise, the EIR's cumulative GHG analysis fails to make any attempt at describing the Project's cumulative contribution to GHG emissions, stating simply that, since the Project's individual impacts will be significant, its cumulative impacts will be as well. The revised and recirculated EIR must, at the very least, describe the Project's contribution to cumulative GHG emissions in the state so that the public and decisionmakers can make an informed decision about the Project's impacts.

Finally, as in the EIR's air quality analysis, the EIR's greenhouse gas analysis fails to consider or analyze the efficacy of zero-emissions drayage and container movement technologies or reduced-emissions locomotive technologies in reducing GHGs (either at the project level or cumulatively). Such technologies would clearly reduce GHG emissions along with other air pollutants. As Long Beach, SCAQMD, NRDC and others noted repeatedly throughout the EIR process, these technologies will be

commercially available during the life of the Project and therefore must be required as mitigation measures now to reduce the admittedly significant air quality and climate change impacts caused by the Project. *See* NRDC et. al comment letter, March 4, 2013. The EIR's failure to require zero emission transportation technology is also contrary to EO B-16-2012, which seeks to significantly increase the use of such technology in order to reduce the state's vehicle-related emissions by 80% below 1990 levels by 2050.

## IV. Conclusion

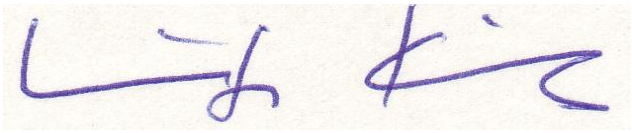
The EIR's failure to fully describe the Project and analyze its impacts means that the EIR fails to serve its purpose as an informational document. These failures also caused the City to underestimate the Project's true impacts, and the City therefore failed to adopt adequate mitigation measures to reduce the Project's significant impacts on nearby residents' health and quality of life. As described in numerous prior comment letters from the City of Long Beach, the Harbor Department should have required the Project to mitigate its significant impacts on Long Beach residents by, at a minimum, creating a robust buffer between the Project and nearby schools, parks and residences, and establishing a community mitigation fund. The City of Los Angeles has required such mitigation for similar projects that impacted City of Los Angeles residents, yet inexplicably refused to do so here in order to protect Long Beach Residents.

The SCIG EIR is fundamentally flawed, violating core requirements of CEQA. The City cannot uphold the Harbor Department's certification of the Project or its approval of the Project without substantial revisions to the document. The public and the City Council are entitled to full and accurate accounting of this large Project's environmental impacts. To date, they have not received one.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Rachel B. Hooper



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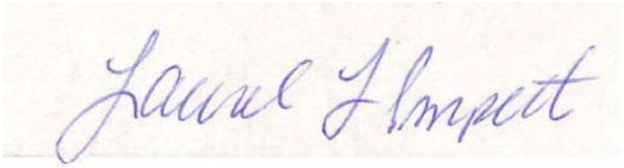

Laurel Impett, AICP, Urban Planner

cc:
Bob Foster, Long Beach Mayor
James Johnson, Long Beach City Council Member

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# EXHIBIT 1

# 1.0 PROPOSED PROJECT

## 1.1 INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), the Gateway Cities Council of Governments (GCCOG), the Southern California Association of Governments (SCAG), the Ports of Los Angeles (POLA) and Long Beach (POLB) (collectively referred to as the Ports), and the Interstate 5 Joint Powers Authority (I-5 JPA) (collectively referred to as the I-710 Funding Partners), proposes to improve Interstate 710 (I-710, also referred to as the Long Beach Freeway) in Los Angeles County between Ocean Blvd. and State Route 60 (SR-60). The proposed project is referred to as the I-710 Corridor Project. I-710 is a major north-south interstate freeway connecting the city of Long Beach to central Los Angeles and beyond. Within the I-710 Corridor Project Study Area (Study Area), I-710 is a significant goods movement artery for the region and serves as the principal transportation connection for goods movement between POLA and POLB, located at the southern terminus of I-710, and the Burlington Northern Santa Fe (BNSF)/Union Pacific (UP) Railroad intermodal rail yards in the cities of Commerce and Vernon, as well as intermodal warehouses along I-710. The I-710 Corridor is part of the Interstate Highway System and is used as a major local and regional truck route. I-710 is listed as a “high priority corridor” on the National Highway System (NHS), serving interregional vehicular traffic in the north-south direction from its terminus in the city of Long Beach to Interstate 10 (I-10). The existing I-710 freeway mainline generally consists of eight general purpose lanes north of Interstate 405 (I-405) and six general purpose lanes south of I-405. South of Pacific Coast Hwy. (State Route 1 [SR-1]), the facility is designated as State Route 710, whereas north of Pacific Coast Hwy., the facility is designated as I-710. Figure 1.1-1 shows the regional location.

The Study Area includes the portion of the I-710 Corridor from Ocean Blvd. in Long Beach to SR-60, a distance of approximately 18 miles and includes all or portions of the Ports, the cities of Bell, Bell Gardens, Carson, Commerce, Compton, Cudahy, Downey, Huntington Park, Lakewood, Long Beach, Lynwood, Maywood, Paramount, Signal Hill, South Gate, and Vernon, as well as unincorporated areas of Los Angeles County, including the communities of East Los Angeles, Boyle Heights, Wilmington, and San Pedro (see Figure 1.1-2). At the freeway-to-freeway interchanges, the Study Area extends one mile east and west of the I-710 mainline for the I-405, State Route 91 (SR-91), Interstate 105 (I-105), and I-5 interchanges. This is the general Study Area for the I-710 Corridor Project. Specific study areas have been established for individual environmental analyses (e.g., health risk assessment zone of influence and community impact assessment focus area).

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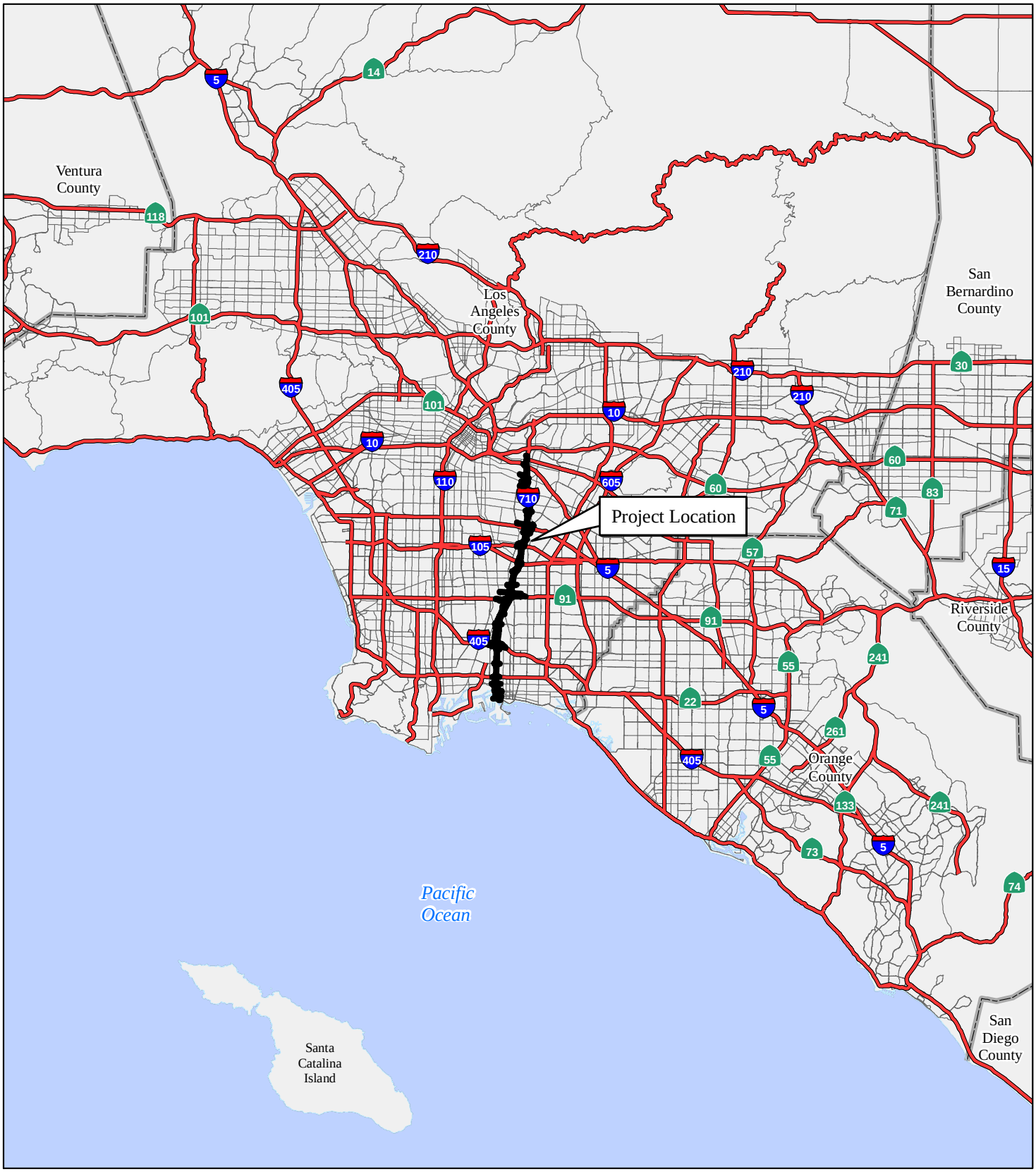


LEGEND

Project Location

FIGURE 1.1-1

N

0 5 10

Miles

*I-710 Corridor Project EIR/EIS*

Regional Location

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SOURCE: TBM (2008)

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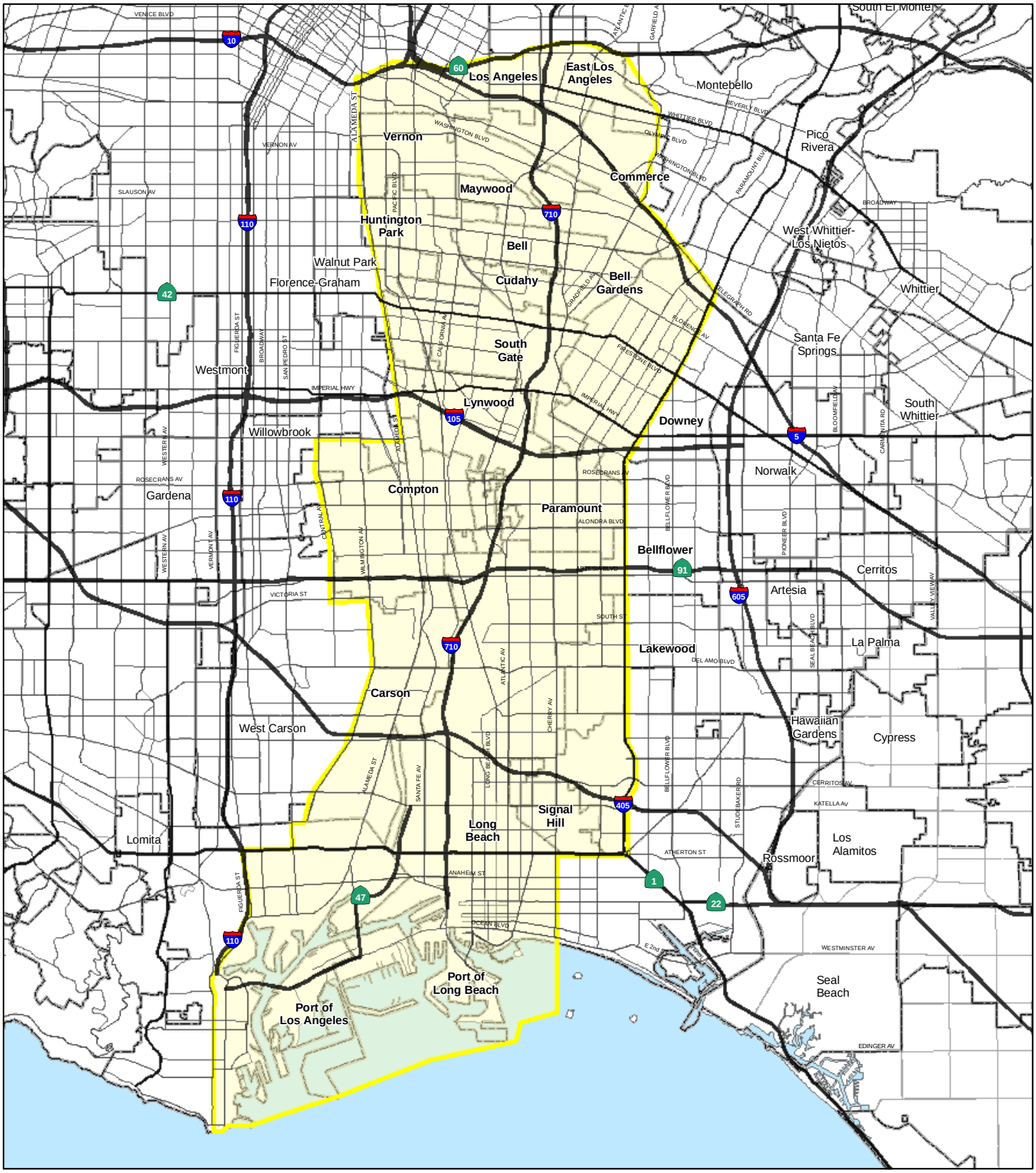


FIGURE 1.1-2

LEGEND

I-710 Study Area

0 1.5 3

Miles

SOURCE: TBM (2007)

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*I-710 Corridor Project EIR/EIS*

I-710 Project Study Area

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The existing I-710 Corridor has elevated levels of traffic congestion, elevated truck volumes, elevated accident rates, and many design features in need of modernization (the original freeway was built in the 1950s and 1960s). Because of this, the *I-710 Major Corridor Study* (MCS; March 2005) was undertaken to address the I-710 Corridor's mobility and safety needs and to explore possible solutions for transportation improvements. This study was completed in March 2005 and identified a community-based Locally Preferred Strategy (LPS) consisting of ten general purpose lanes next to four separated freight movement lanes. In total, three reports have previously been completed on the I-710 Corridor: (1) the *Tier 2 Community Advisory Committee Report* (August 2004); (2) the I-710 MCS (March 2005); and (3) the *I-5/I-710 Interchange Mini-Study* (April 2006). Subsequent to the MCS, the I-710 Funding Partners entered into cooperative agreements with Metro and are now collectively funding the preparation of preliminary engineering and environmental documentation for the I-710 Corridor Project. The project development support, right-of-way, and construction costs for this project are anticipated to be funded through various local, State, and Federal agencies. Current project development activities are jointly funded by the I-710 Funding Partners using a combination of local, State and Federal funds.

A project to reconstruct the I-710 interchanges at I-105, SR-91, I-405, and I-5 as part of the I-710 Corridor Project is included in the SCAG-adopted 2011 Federal Transportation Improvement Program (FTIP) (Project ID No. LA0B952). The project is also included in the list of financially constrained projects in the SCAG 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (Project ID No. LAOB952). The project is also included in the Metro Final 2009 Long-Range Transportation Plan (LRTP) as a Funded Freeway Improvement. The list of financially constrained projects in the 2012 RTP/SCS also includes the full I-710 Corridor Project (Project ID No. ICO401) and is described as follows:

> I-710 Corridor User-Fee Backed Capacity Enhancement – Widen to five mixed flow + two dedicated lanes for clean technology trucks (each direction) and interchange improvements, from Ocean Blvd. in Long Beach to the intermodal railroad yards in Commerce/Vernon.

This description is consistent with the description of Alternatives 6B and 6C provided in Chapter 2 of this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The 2011 FTIP and 2012 RTP/SCS project listings are provided in Appendix I of this Draft EIR/EIS.

Caltrans is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is the lead agency under the California Environmental Quality Act (CEQA).

## 1.2 NEED AND PURPOSE

### 1.2.1 NEED FOR THE I-710 CORRIDOR PROJECT

The I-710 Corridor is a vital transportation artery not only for the communities along the corridor, but also because it links POLA and POLB to southern California and the rest of the nation via connections to other Interstate and State highways. An essential component of the regional, statewide, and national transportation system, it serves both passenger and goods movement vehicles. As a result of population growth, growth in international cargo being shipped through the Ports, increasing traffic volumes, and aging infrastructure, the I-710 Corridor experiences serious congestion and safety issues. Population in the Gateway Cities Subregion is expected to grow from 2,124,000 in 2008 to 2,364,000 in 2035, an increase of approximately 11 percent. Employment in this Subregion is expected to grow from 756,000 in 2008 to 818,000 in 2035, an increase of approximately 8 percent. There are no currently funded transportation improvements that will address the projected future transportation demand within the I-710 Corridor. The I-710 Corridor Project proposes to address the needs described below in Sections 1.2.1.1 through 1.2.1.5.

#### 1.2.1.1 AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has designated the South Coast Air Basin, which includes the Study Area, as an extreme ozone non-attainment area and a non-attainment area for small airborne particulate matter less than 10 and 2.5 microns ($PM_{10}$ and $PM_{2.5}$). Exposure to ozone, $PM_{10}$, and $PM_{2.5}$ levels above the Federal health standards is associated with many adverse health effects—including decreased lung function, aggravated asthma, increased lung and heart diseases symptoms, and chronic bronchitis—that can result in increased morbidity and premature mortality. Studies have shown that elevated levels of nitrogen dioxide ($NO_2$) and ultrafine particulates (UFPs) occur very near roadways; these elevated levels are also associated with adverse health effects. In addition, the South Coast Air Quality Management District (SCAQMD) has conducted Multiple Air Toxic Exposure Studies (MATES), the latest being MATES III from 2004 to 2007. The highest levels of calculated cancer risk (approximately 1,200 to 2,000 in a million) in 2005 (the study analysis year), occur in the Study Area, particularly near the Ports, rail yards, and along the I-710 freeway. These studies show that diesel particulate matter (DPM) is the greatest contributor to air-quality-related cancer risk in the South Coast Air Basin and that approximately half of the DPM is emitted by diesel trucks using the freeway and roadway systems.

#### 1.2.1.2 CAPACITY, TRANSPORTATION DEMAND, AND SAFETY

**FREEWAY CAPACITY.** The need for the I-710 Corridor Project is based on an assessment of the existing and future transportation demand in the Study Area compared to the available capacity. Based on the examination of existing travel conditions and projected future traffic (2035), the

I-710 Corridor currently experiences, and will continue to experience, capacity and operational problems due to a number of interrelated factors. With the exception of the I-710/I-105 interchange, no major design improvements have been undertaken on I-710 since it was built in the 1950s and 1960s. Extensive population growth occurred after 1960 and before containerization of oceangoing freight and the significant growth in international trade. The increase in regional traffic and heavy-duty truck traffic carrying cargo containers to and from the Ports has contributed to traffic volumes that exceed the existing design capacity of the I-710 Corridor, particularly at the interchanges. Table 1.2-1 shows average daily weekday automobile and truck volumes on I-710.

Current and predicted future freeway operating conditions (traffic flow) within the I-710 Corridor is characterized by level of service (LOS). LOS is based on the comparison of traffic volume to the design capacity of the freeway, which is based on several factors including the number and width of travel lanes, steepness of the grades, and average speeds for which the freeway was designed. LOS is expressed as a range from LOS A (free traffic flow with low volumes and high speeds) to LOS F (traffic volumes that exceed capacity and result in forced-flow operations at low speeds). See Figure 1.2-1 for LOS criteria for freeway facilities. Increasing traffic on the I-710 Corridor has seriously degraded the freeway LOS, particularly during commuter peak hours.

Figure 1.2-2 shows the existing LOS for the various segments of the I-710 mainline and ramps. As these figures illustrate, many segments operate at LOS E or F throughout the day, creating traffic congestion chokepoints that cause congestion on adjacent segments of I-710. Please see the Traffic Operations Analysis Report (November 2011) for more detail regarding LOS throughout the Study Area.

A specific factor affecting the traffic operational performance of the I-710 Corridor is the large number of heavy-duty trucks that use the I-710 Corridor to travel between the Ports and the rail freight intermodal yards located near I-5, and to warehousing and cargo distribution points scattered throughout the southern California region. Table 1.2-2 shows the Average Annual Daily Truck Traffic (AADTT) for five segments of I-710.

The amount of congestion and traffic delay currently experienced on the I-710 Corridor is not only disruptive to local residents and commuters, but also to port operations that must accommodate “just-in-time” goods delivery and inventory processes, which affects trucking, manufacturing, and other commercial interests within the SCAG region as shipments are delayed while trucks idle in traffic.

## Table 1.2-1 I-710 Average Daily (2-Way) Traffic Volumes

| Mainline Segment | | YEAR 2008 | | | YEAR 2035 (No Build) | | | % Truck of Total Volume | | 2008–2035 Percent Change in Volume | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Auto | Truck | Total | Auto | Truck | Total | 2008 | 2035 | Auto | Truck | Total |
| SR-60 | I-5 | 168,100 | 17,600 | 185,700 | 189,500 | 23,200 | 212,700 | 9% | 11% | 13% | 32% | 15% |
| I-5 | Washington Blvd. | 195,200 | 20,100 | 215,300 | 208,100 | 25,300 | 233,400 | 9% | 11% | 7% | 26% | 8% |
| Washington Blvd. | Atlantic Blvd. | 187,500 | 19,400 | 206,900 | 208,000 | 27,800 | 235,800 | 9% | 12% | 11% | 43% | 14% |
| Atlantic Blvd. | Florence Ave. | 168,000 | 28,600 | 196,600 | 186,800 | 37,800 | 224,600 | 15% | 17% | 11% | 32% | 14% |
| Florence Ave. | Firestone Blvd. | 168,000 | 28,600 | 196,600 | 186,800 | 37,800 | 224,600 | 15% | 17% | 11% | 32% | 14% |
| Firestone Blvd. | Imperial Hwy. | 175,200 | 30,400 | 205,600 | 192,500 | 39,700 | 232,200 | 15% | 17% | 10% | 31% | 13% |
| Imperial Hwy. | I-105 | 175,100 | 31,500 | 206,600 | 194,400 | 43,200 | 237,600 | 15% | 18% | 11% | 37% | 15% |
| I-105 | Rosecrans Ave. | 181,400 | 31,700 | 213,100 | 198,600 | 43,400 | 242,000 | 15% | 18% | 9% | 37% | 14% |
| Rosecrans Ave. | Alondra Blvd. | 109,200 | 26,300 | 135,500 | 131,900 | 38,500 | 170,400 | 19% | 23% | 21% | 46% | 26% |
| Alondra Blvd. | SR-91 | 177,100 | 36,700 | 213,800 | 207,800 | 59,300 | 267,100 | 17% | 22% | 17% | 62% | 25% |
| SR-91 | Long Beach Blvd. | 177,200 | 37,000 | 214,200 | 204,000 | 60,100 | 264,100 | 17% | 23% | 15% | 62% | 23% |
| Long Beach Blvd. | Del Amo Blvd. | 146,000 | 42,100 | 188,100 | 164,100 | 74,100 | 238,200 | 22% | 31% | 12% | 76% | 27% |
| Del Amo Blvd. | I-405 | 137,800 | 42,000 | 179,800 | 153,300 | 74,300 | 227,600 | 23% | 33% | 11% | 77% | 27% |
| I-405 | Wardlow Rd. | 138,000 | 41,600 | 179,600 | 153,100 | 74,400 | 227,500 | 23% | 33% | 11% | 79% | 27% |
| Wardlow Rd. | Willow St. | 119,500 | 41,200 | 160,700 | 131,100 | 71,600 | 202,700 | 26% | 35% | 10% | 74% | 26% |
| Willow St. | Pacific Coast Hwy. | 108,600 | 41,400 | 150,000 | 114,200 | 71,800 | 186,000 | 28% | 39% | 5% | 73% | 24% |
| Pacific Coast Hwy. | Anaheim St. | 97,900 | 33,900 | 131,800 | 110,000 | 60,100 | 170,100 | 26% | 35% | 12% | 77% | 29% |
| Anaheim St. | 9th St. | 26,000 | 26,000 | 52,000 | 29,500 | 46,600 | 76,100 | 50% | 61% | 13% | 79% | 46% |
| 9th St. | Ocean Blvd. | 11,900 | 10,300 | 22,200 | 12,000 | 20,100 | 32,100 | 46% | 63% | 1% | 95% | 45% |

Source: *I-710 Corridor Project Freeway Traffic Operations Analysis Report*, December 2011.
I-5 = Interstate 5
I-710 = Interstate 710
I-405 = Interstate 405
SR-60 = State Route 60
I-105 = Interstate 105

| Level of Service | Flow Conditions | Operating Speed (mph) | Technical Descriptions |
|---|---|---|---|
| A |  | 70 | Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays** |
| B |  | 70 | Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays** |
| C |  | 67 | Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays** |
| D |  | 62 | Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays** |
| E |  | 53 | Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays** |
| F |  | <53 | Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays** |

FIGURE 1.2-1

*I-710 Corridor Project EIR/EIS*

Level of Service Criteria for Basic Freeway Segments

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EA 249900

SOURCE: California Department of Transportation

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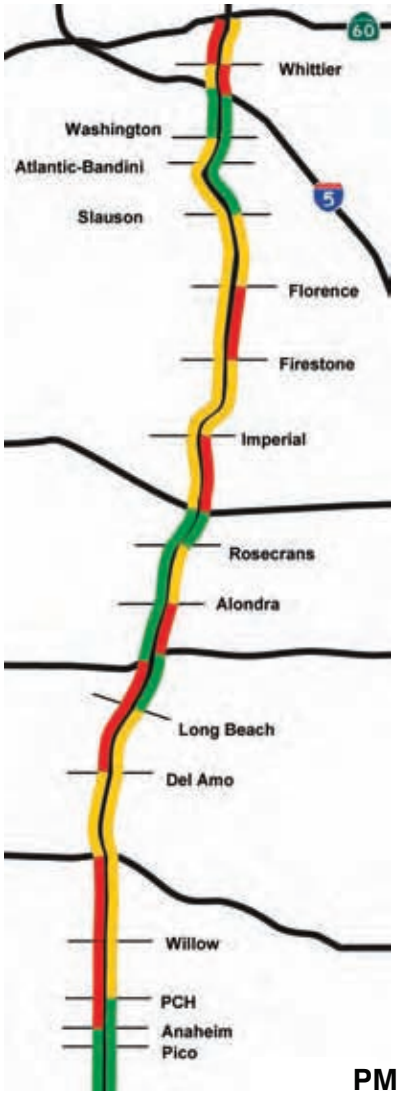
**AM Peak Hour**


**Mid-Day Peak Hour**




**PM Peak Hour**


FIGURE 1.2-2

*I-710 Corridor Project EIR/EIS*

Existing (2008) Level of Service

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**Table 1.2-2 I-710 Average Annual Daily Truck Traffic**

| Location | Lane Dir. | AADTT (one-way)[1] | Truck Classification | | | |
|---|---|---|---|---|---|---|
| | | | 2-Axle | 3-Axle | 4-Axle | 5-Axle |
| North of PCH interchange | 3 | 21,106 | 12.0% | 17.2% | 1.2% | 69.6% |
| North of I-405 interchange | 4 | 14,260 | 17.9% | 13.8% | 1.3% | 67.0% |
| North of SR-91 interchange | 5 | 15,255 | 24.3% | 12.3% | 2.8% | 60.7% |
| North of I-105 interchange | 4 | 13,673 | 25.0% | 16.6% | 2.1% | 56.3% |
| North of I-5 interchange | 4 | 7,334 | 29.7% | 14.4% | 5.4% | 50.5% |

Source: *2007 Annual Average Daily Truck Traffic (AADTT) on the California State Highway System,* Caltrans, September 2008.

[1] Caltrans-published AADTT values are for two-way traffic. For the purposes of this calculation, AADTT values from this report are halved to represent one-way traffic at the given location.

Caltrans = California Department of Transportation
I-5 = Interstate 5
I-105 = Interstate 105
I-405 = Interstate 405
I-710 = Interstate 710
Lane Dir. = number of through traffic lanes on I-710 in each direction
PCH = Pacific Coast Hwy.
SR-91 = State Route 91

**ARTERIAL HIGHWAY CAPACITY.** In the I-710 Corridor, congestion at local arterial intersections is also a concern. The existing intersection LOS analysis is shown in Table 1.2-2. Intersections currently operating at LOS E or F are located on Firestone Blvd., Imperial Hwy., Willow St., Atlantic Blvd., Del Amo Blvd., and 223rd St.

**TRANSPORTATION DEMAND.** Regional population is forecast to grow by 27 percent and Study Area population is forecast to grow by 11 percent from 2008 to 2035. Employment will follow a similar pattern, with regional growth of 27 percent and Study Area employment growth of 7 percent. Growth will be lower in the Study Area than in the SCAG region because the Study Area is almost completely developed. New growth will be limited to smaller, infill-type developments. Table 1.2-3 summarizes forecasted population and employment growth from the 2008 RTP for the entire SCAG region and for the Study Area. The 2008 RTP growth forecast was the basis for the regional traffic modeling that was performed for the I-710 Corridor Project. Compared to the 2008 RTP growth forecast, the 2012 RTP growth forecast for population and employment by 2035 is about 9 percent lower (i.e., the 2012 RTP projects a population of 22.1 million people and 9.4 million jobs in the SCAG region by 2035).

**Table 1.2-3 Forecast Growth in Population and Employment**

| | | 2008 | 2035 | Percent Change |
|---|---|---|---|---|
| Population | Regional | 18,904,711 | 24,049,676 | 27% |
| | I-710 Corridor Project Study Area | 1,487,180 | 1,653,167 | 11% |
| Employment | Regional | 8,115,208 | 10,283,947 | 27% |
| | I-710 Corridor Project Study Area | 593,995 | 636,734 | 7% |

Source: 2008 Regional Transportation Plan, Southern California Association of Governments.
I-710 = Interstate 710

The Study Area contains several land uses and activity areas related to goods movement and the transport of cargo. The POLA/POLB port complex is one of the largest container ports in the world and is located at the southern terminus of the I-710 mainline. Even though there has been a slowdown in imports and exports due to the current economic slowdown, which began in 2008, recent world trade forecasts based on assumptions of slower worldwide economic growth and diversion of cargo to other North American ports still anticipate growth in demand at the Ports that will increase from the handling of 13 million annual TEUs in 2008 reaching 42.7 million twenty-foot equivalent units (TEUs) by 2035 which will exceed planned capacity.[1] The I-710 Corridor is, and is expected to remain, a primary route for trucks carrying containers to and from the Ports. Figure 1.2-3 shows the freeway LOS forecast for 2035 based on this future traffic demand without the I-710 Corridor Project.

With regard to future demand for cargo containers to be transported to and from the Ports by rail instead of truck, the *I-710 Railroad Goods Movement Study* (February 2009) found that while railroads have employed a variety of operational strategies to meet container demand from the Ports, including longer trains with higher utilization rates, the railroad system will not be able to handle the demand even with the rail system operating at maximum capacity. Therefore, any additional containers would be transported via truck, which increases travel demand by truck on I-710.

**TRAFFIC SAFETY.** As discussed below, I-710 experiences high accident rates (particularly truck-related accidents), exceeding the State average for similar highway facilities in many locations along I-710.

1 *I-710 Railroad Goods Movement Study,* 2009.


**AM Peak Hour**


**Mid-Day Peak Hour**


**PM Peak Hour**


FIGURE 1.2-3

*I-710 Corridor Project EIR/EIS*

2035 No Build Level of Service

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By State law, heavy-duty trucks are relegated to the two right lanes of freeways. Most of the automobile/truck interaction occurs as automobiles maneuver to get on and off the I-710 mainline at the interchanges, therefore, crossing and traveling in these right two lanes. Additionally, trucks are slower to accelerate and slower to stop, which uses up more freeway capacity and also causes merging conflicts among these different vehicle types as automobile drivers weave in and out of traffic to avoid the slower-moving heavy-duty trucks. The difference in mass (weight) between a car and a heavy-duty truck makes an incident between these two vehicle types more consequential for the automobile.

According to the Caltrans Traffic Accident Surveillance and Analysis System (TASAS, October 2004 through November 2007; data is included in Section 4.4 of the Traffic Operations Analysis Report), truck-related accidents range from 29 to 36 percent of the total number of accidents along the I-710 mainline study segments. According to data collected and reported by Caltrans over a three- year period (October 1, 2004, to September 30, 2007), the I-710 mainline experiences an accident rate that is well above the statewide average for freeways of this type. A specific location that is especially problematic, as it causes increased truck/automobile conflicts, is the northbound segment of the I-710 mainline approaching the I-5 interchange.

The connector ramps from northbound I-710 to northbound I-5 are located on the left-hand side of the I-710 mainline. At this location, heavy-duty trucks are allowed to use the left lanes of I-710 to access the I-5 northbound ramps.

**NORTHBOUND I-710.** Of the four northbound I-710 mainline study segments, two segments have higher accident rates than the State average (between an average of 1.01 and 1.12 accidents per million vehicle miles traveled during this period) and two have higher fatal accident rates than the State average (167 and 67 percent higher). The high truck volumes may account for the severity of accidents occurring along the I-710 Corridor. The TASAS ramp accident data also shows that of the 59 Study Area ramp locations, 31 have higher accident rates compared to the State average. Rear-end collisions and sideswipes make up approximately 60 to 70 percent of all collisions that occur on the northbound I-710 mainline and ramps.

An analysis of truck accident data in the northbound direction is summarized in Table 1.2-4 and shows that for northbound I-710, truck-related accidents account for 31 percent of the TASAS-reported mainline accidents.

**Table 1.2-4 I-710 Northbound Mainline Truck Accident Rates (October 1, 2004, to September 30, 2007)**

| Location (Post Mile) | Description | Total Truck Accidents | Total Accidents | Percent of Total Accidents that Include a Truck |
|---|---|---|---|---|
| 4.96–9.411 | Southern terminus to I-405 | 101 | 353 | 29% |
| 9.411–12.970 | I-405 to SR-91 | 97 | 321 | 30% |
| 12.970–15.672 | SR-91 to I-105 | 81 | 253 | 32% |
| 15.692–22.607 | I-105 to Leonis St. | 314 | 993 | 32% |
| **Entire Northbound Length (post mile 4.96–22.607)** | | **593** | **1,920** | **31%** |

Source: *I-710 Corridor Project Final Traffic Operations Analysis Report,* December 2011.
I-105 = Interstate 105 I-710 = Interstate 710
I-405 = Interstate 405 SR-91 = State Route 91

**SOUTHBOUND I-710.** Of the four I-710 southbound freeway mainline study segments, one segment has a higher accident rate than the statewide average (60 percent higher). The TASAS ramp accident data also shows that two of the 54 I-710 southbound ramp locations within the project Study Area have higher accident rates when compared to the State average. Rear-end collisions and sideswipes make up approximately 70 percent of all collisions that occur on the southbound I-710 mainline and ramps.

An analysis of the truck accident data summarized in Table 1.2-5 reveals that for southbound I-710, truck-related accidents account for 31 percent of the TASAS-reported southbound ramp accidents within the Study Area.

**Table 1.2-5 I-710 Southbound Mainline Truck Accident Rates (October 1, 2004, to September 30, 2007)**

| Location (Post Mile) | Description | Total Truck Accidents | Total Accidents | Percent of Total Accidents that Include a Truck |
|---|---|---|---|---|
| 4.96–9.411 | Southern terminus to I-405 | 78 | 262 | 30% |
| 9.411–12.970 | I-405 to SR-91 | 156 | 430 | 36% |
| 12.970–15.672 | SR-91 to I-105 | 114 | 336 | 34% |
| 15.692–22.607 | I-105 to Leonis St. | 251 | 879 | 29% |
| **Entire Northbound Length (post mile 4.96–22.607)** | | **599** | **1907** | **31%** |

Source: *I-710 Corridor Project Final Traffic Operations Analysis Report,* December 2011.
I-105 = Interstate 105 I-710 = Interstate 710
I-405 = Interstate 405 SR-91 = State Route 91

Accidents, particularly truck-related accidents, form bottlenecks as emergency personnel temporarily close travel lanes to respond to the accident. As a result, these incidents lead to additional congestion, delay, and occasionally secondary accidents on the I-710 mainline and ramps as approaching vehicles unexpectedly run into the backs of other vehicles.

The relatively high incidence of accidents on the I-710 mainline and ramps appears to be the result of three main factors: (1) nonstandard geometrics and design features; (2) high traffic volumes; and (3) the mix of automobiles and heavy-duty trucks.

Nonstandard geometrics and design features exist at many of the I-710 mainline interchanges. In many cases, the curves are too tight on the ramps and the weave distances[1] between on- and off-ramps are too short.

The second contributing factor to the safety problem on the I-710 mainline is high traffic volumes. The occurrence of accidents is highest during the peak traffic periods. As traffic volumes increase, so does the propensity for accidents.

The third major factor related to safety concerns is the mix of vehicles using the I-710 mainline and ramps. In 2005, approximately 12 percent of the traffic on the I-710 mainline and ramps was heavy-duty trucks.[2] As discussed previously, the truck percentage is expected to increase to 30 to 40 percent of general traffic, depending on the segment of the I-710 mainline.

#### 1.2.1.3 NEED FOR UPDATED ROADWAY DESIGN

The I-710 mainline was designed in the 1950s and 1960s, before the dramatic increase in U.S. imports from Asia and the containerization of oceangoing freight, which have resulted in increased cargo traffic at POLA and POLB. In general, the I-710 mainline has remained relatively unchanged from when it was originally constructed. Due to growth in overall traffic volumes and the high level of truck traffic that has occurred in recent years, the I-710 mainline does not have the capacity to accommodate current or future demand. In addition, many aspects of the freeway design do not operate efficiently due to the heavy truck traffic and the length and relative lack of maneuverability of those trucks.

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1 A "weaving" section is where vehicles are entering the freeway in an area where other vehicles are attempting to exit the freeway at the next off-ramp, requiring vehicles to "weave" across each other's paths.

2 Technical Memorandum – Traffic Data and Forecasting Analysis, March 4, 2009.

The design features that are most directly associated with the current operational problems on the I-710 mainline are discussed below.

**I-710 FREEWAY MAINLINE.** The speed, capacity, and safety of the I-710 mainline are negatively impacted by several existing design features that are discussed below.

**NONSTANDARD WEAVING DISTANCES.** Weaving distances on the I-710 mainline are substantially constrained by both the spacing of the interchanges and the ramp configurations. This negatively impacts the I-710 mainline's capacity and safety by introducing a substantial number of conflicts in the outer lanes between ramp merge and diverge points.

There is heavy truck traffic in the outer two lanes of the I-710 mainline during the peak traffic periods, as well as throughout the remainder of the day. This intensifies the conflicts in the weaving sections due to the size of the trucks and density of the truck traffic.

**NARROW OR NONEXISTENT SHOULDERS.** Along much of the existing I-710 mainline, the shoulders provided are narrow (nonstandard) in width, and in some segments, no shoulders are provided at all. As described in the MCS, because of the lack of shoulders, the current I-710 mainline does not provide sufficient enforcement areas for the California Highway Patrol (CHP), nor does it provide adequate areas for motorists with vehicle breakdowns or minor accidents to safely stop out of the flow of traffic.

**NARROW LANE WIDTHS.** Several locations along the I-710 northbound contain nonstandard-width lanes (approximately 10.8 feet instead of 11.8 feet). An example of this is the I-710 bridges over the railroad yards south of I-5. These narrow lanes tend to reduce the motorist's comfort level and speed, thus reducing overall capacity, especially when heavy-duty trucks are present.

**THROUGH LANES.** The number of through lanes on the I-710 mainline varies throughout the full length of the I-710 mainline. The I-710 mainline is four lanes in each direction between I-405 and SR-60, except for the section between Atlantic Blvd./Bandini Blvd. and I-5, which is five lanes in each direction. South of I-405, the number of through lanes is reduced to three lanes in each direction. This condition leads to bottlenecks on the I-710 mainline, as high volumes of traffic are compressed into fewer lanes. This is particularly evident on the I-710 mainline south of I-405, where long queues of trucks and cars frequently form during the peak traffic periods.

**NON-UNIFORM RAMP METERING.** Ramp metering is the use of a traffic signal(s) located on an on-ramp to control the rate at which vehicles enter a freeway facility. By controlling the rate

at which vehicles are allowed to enter a freeway, the flow of traffic onto the freeway facility becomes more consistent, smoothing the flow of traffic on the mainline and allowing more efficient use of existing freeway capacity. Approximately half of the existing interchanges along the I-710 mainline have ramp meters at the on-ramps. The benefit of these ramp meters is limited by the fact that they are only in place at some locations; therefore, there is not a coordinated ramp metering plan along the full length of the I-710 mainline. Some of the ramps have limited storage lengths, and if additional ramp meters are installed, the ramps would need to be widened to provide adequate storage capacity.

**PAVEMENT.** Since 2008, Caltrans has rehabilitated, as part of the Long Beach Freeway (I-710) Long Life Pavement Rehabilitation Project, the pavement on I-710 from just north of Pacific Coast Hwy. to Firestone Blvd. By summer 2012, the section from Firestone Blvd. to just south of Atlantic Blvd. will be complete.

**MEDIAN BARRIERS.** Since 2008, Caltrans has, as part of the Long Beach Freeway (I-710) Long Life Pavement Rehabilitation Project, replaced the double metal beam barrier with a heightened concrete median barrier (K rail) from just north of Pacific Coast Hwy. to Firestone Blvd. By summer 2012, the section from Firestone Blvd. to just south of Atlantic Blvd. will be complete.

**INTERCHANGES WITH OTHER FREEWAYS.** Within the Study Area, four of the five freeway-to-freeway interchanges have nonstandard geometric features. The major elements needing updated design are shown in Figure 1.2-4 and noted in Table 1.2-6. The one exception is the I-710/I-105 interchange, which was opened to traffic in the 1990s. This interchange meets current geometric standards and has no apparent elements associated with an outdated design.

Some of the freeway-to-freeway interchanges provide only low-capacity ramp connections for certain movements. These connector ramps are in a loop configuration, which limits the operating speeds and capacity versus higher-speed “flyover” ramps. For example, three of the connections at the I-710/I-405 interchange are cloverleaf-style loop ramps.

**INTERCHANGES WITH LOCAL STREETS.** The spacing between many of the I-710 mainline interchanges with local streets is less than current highway design standards, which typically require a minimum of one mile between interchanges. For example, Pico Ave., Anaheim St., and Pacific Coast Hwy. are very closely spaced, with less than 0.5 mile of separation between each interchange. Close spacing of interchanges limits the weaving distance between interchanges. Many of these existing interchanges are cloverleaf configurations (e.g., Anaheim St., Willow St., and Florence Ave.) requiring weaving of traffic over a short distance to accommodate the on- and off-ramp movements. Close spacing of interchanges and cloverleaf

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FIGURE 1.2-4

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Feet

SOURCE: Bing (2009)

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*I-710 Corridor Project EIR/EIS*

Freeway to Freeway Interchange:
Key Design Concerns

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EA 249900

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**Table 1.2-6 Freeway-to-Freeway Interchanges: Key Design Concerns**

| Cross Freeway | Existing Areas Needing Updated Design |
|---|---|
| I-405 | On-/off-ramps for Wardlow Rd. are in close proximity to the interchange. Low speed/capacity connections (loop ramps) for the SB to EB, EB to SB, and NB to WB movements. |
| SR-91 | On-/off-ramps for Atlantic Blvd., Alondra Blvd., and Long Beach Blvd. are located in close proximity to the interchange. Low speed/capacity connections (loop ramp) for the NB to WB movement. |
| I-105 | No elements of outdated design identified. |
| I-5 | Left side exit from NB I-710 to NB I-5. On-/off-ramps to Washington Blvd. are located in close proximity to I-5/I-710 interchange. |
| SR-60 | Local interchange "hook" ramps to 3rd St. within interchange. May not be a substantial issue provided that volumes remain low. SR-60 ramps merge with I-710 south of SR-60 and are in close proximity to I-5/I-710 interchange |

Source: *I-710 Major Corridor Study,* March 2005.

EB = eastbound
I-5 = Interstate 5
I-105 = Interstate 105
I-405 = Interstate 405
I-710 = Interstate 710
NB = northbound
SB = southbound
SR-60 = State Route 60
SR-91 = State Route 91
WB = westbound

ramps both result in nonstandard weaving distances. The necessary weaving distance is based on the total number and type of vehicles weaving; heavy-duty trucks require substantially more weaving distance than automobiles due to their slower acceleration/deceleration rates and length compared to automobiles.

Many of the local street interchange ramps have designs that require modernization based on current Caltrans design standards. These older designs greatly limit the operational efficiency of the ramps and interchanges as a whole. In some cases, narrow lane widths on the ramps and nonstandard turning radii for trucks at ramp entrances further diminish the operational effectiveness of the ramps. In many cases, the existing ramps have nonstandard acceleration distances and steep climbing grades (e.g., Washington Blvd.), which lead to a degradation of capacity on the ramps entering and exiting the freeway, particularly with truck traffic. These nonstandard geometric features typically result in automobiles and trucks proceeding through the intersections and ramps at low speeds and trucks taking up more than one lane, which greatly limits the capacity of the interchange as a whole.

There is also a substantial lack of storage on many of the off-ramps throughout the Study Area (e.g., the interchange at Florence Ave.). Ramp storage refers to the amount of cars that can be queued on an on- or off-ramp waiting to enter or exit the freeway. The number of lanes and length of storage areas provided are not adequate in many cases to store the vehicles queuing at the ramp intersection. This often results in traffic on the I-710 off-ramps backing up into the

I-710 mainline, which can cause traffic congestion and increase the potential for rear-end collisions.

#### 1.2.1.4 SOCIAL DEMANDS AND ECONOMIC DEVELOPMENT

A review of the growth projections adopted by SCAG (SCAG 2012 RTP/SCS Growth Forecast, April 2012) indicates continuing growth in the Study Area. The population in Los Angeles County, as a whole, is expected to increase from 9.8 million in 2008 to 11.4 million in 2035, an increase of 18 percent. This regional growth will continue to increase travel demand on the I-710 Corridor.

The Study Area is located within the Gateway Cities Subregion of Los Angeles County. The Gateway Cities Subregion as a whole has experienced population, housing, and employment growth since the early 1900s and is anticipated to continue growth at a slower pace through 2035 (see Table 3.2-1 in Section 3.2). In the 20th century, the regional economy transitioned from an agricultural base to a manufacturing/industrial base, with a heavy emphasis on the aerospace and defense industries in the 1950s through the 1970s. As these industries declined in the 1980s, an expansion in global trade resulted in goods movement becoming an important element of the region's economy. The goods movement industry is a major source of employment in the Gateway Cities Subregion, providing thousands of direct and indirect jobs. By 2030, the goods movement industry is projected to generate 1.6 million jobs in the SCAG region (source: *Multi-County Goods Movement Action Plan,* SCAG 2008). As discussed in more detail in Section 3.3, the Gateway Cities Subregion experiences higher levels of unemployment and poverty than the SCAG region as a whole. As of October 2011, available data shows there are 4.3 million persons employed in the civilian labor force in the County of Los Angeles and 582,900 persons (11.9 percent) are unemployed. The County has a slightly higher unemployment rate than the State (11.7 percent). In the Gateway Cities Subregion, there are 765,400 persons employed in the civilian labor force, and 115,500 persons (approximately 15 percent) are unemployed. The Gateway Cities Subregion has a higher unemployment rate than either the State or the County.[1]

Today, POLB and POLA, the railroads, and the trucking industry provide goods movement not just within the Study Area, but also for the SCAG region and the nation as a whole. Growth at the Ports to accommodate increased cargo demand is constrained primarily by the physical capacity of the port facilities, as well as the efficiency with which containers can be unloaded from ships and reloaded onto trucks and/or the railroads in a timely manner for distribution.

[1] Employment Development Department, Labor Market Information Division, Monthly Labor Force Data for Cities and Census-Designated Places (CDPs), October 2011 – Preliminary.

POLB and POLA together handled 13 million TEUs in 2008 and are projected to grow to handle approximately 43 million TEUs by 2035 as described in the 2012 RTP/SCS Goods Movement Appendix (April 2012). The I-710 Corridor Project *Initial Feasibility Analysis* (IFA – December 2008) was prepared to review factors and indicators forecast as a base assumption in the traffic modeling for the I-710 Corridor Project. The purpose of the IFA was to select a cargo forecast that could be accommodated within the alternatives under study while still meeting the project's mobility, safety, congestion relief, and other goals. The IFA Study concluded that Scenario 1 (high growth without near-dock expansion) represents the most prudent long-term planning approach, providing a conservative basis to assess impacts and appropriate levels of impact mitigation for the I-710 Corridor Project. This conclusion is based on indications that there will be sufficient global trade demand to achieve the high-growth scenario, and that there is uncertainty regarding future proposed near-dock rail expansion projects such as the SCIG and the Intermodal Container Transfer Facility (ICTF) and was to present a worst-case assessment for traffic impacts resulting from port cargo demand. The results of the IFA and supporting studies, including the port cargo growth scenarios, were presented to the I-710 Corridor Project Technical Advisory Committee, the Corridor Advisory Committee, and the Project Committee. Both committees concurred with the findings of the IFA and recommended the high-growth scenario without near-dock rail expansion be used for all future analysis of project alternatives.

Based on the port cargo demand forecasts and how much of that cargo can be handled through maximum utilization of the railroad system, there is a high demand for movement of cargo containers by truck on the highway system, specifically I-710. The existing capacity of the I-710 freeway is not sufficient to meet the projected demand for goods movement within the I-710 Corridor that is driven by both the global and regional economy.

#### 1.2.1.5 MODAL INTERRELATIONSHIPS AND SYSTEM LINKAGES

Figure 1.2-5 shows how goods are moved within the region. The I-710 Corridor serves regional, statewide, and national needs for both the general traveling public and the goods movement industry. The I-710 Corridor is the principal transportation connection between POLB/POLA and the BNSF/UP Railroad intermodal rail yards located in the cities of Vernon and Commerce and to other warehouse/distribution centers throughout Southern California. BNSF and UP Railroads provide freight movement to destinations throughout the United States. Together, POLB/POLA is one of the largest container ports in the world, and port activity is projected to triple in volume by 2035. Figure 1.2-6 shows the modal interrelationships and system linkages to the I-710 corridor.

**HIGHWAYS.** The I-710 Corridor also provides key interstate commerce connections to east-west freeways (I-405, SR-91, I-105, SR-60, and I-10) and I-5. From a system linkage standpoint, no

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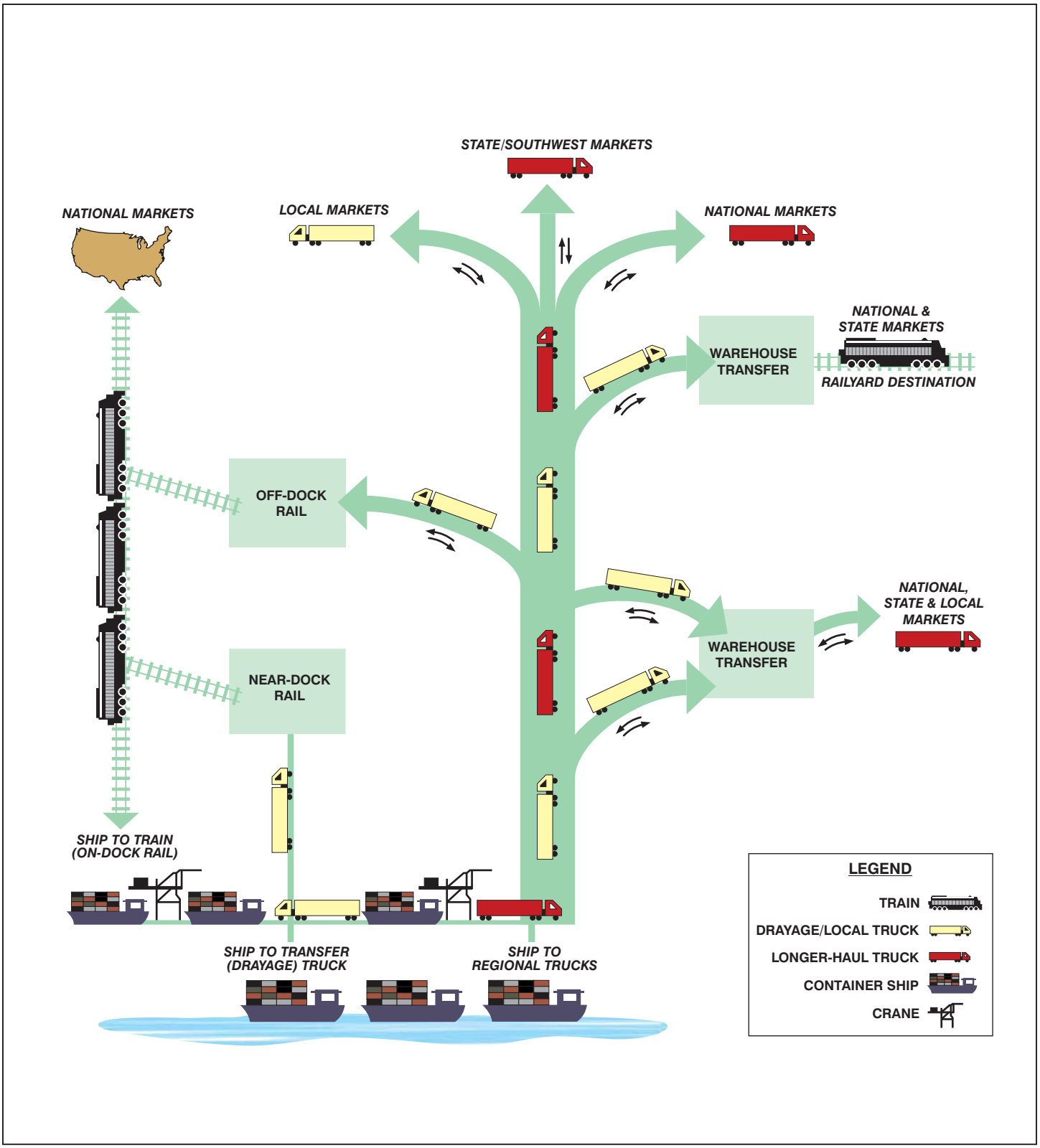


FIGURE 1.2-5

*I-710 Corridor Project EIR/EIS*

How Goods are Moved Regionally

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EA 249900

SOURCE: Metro

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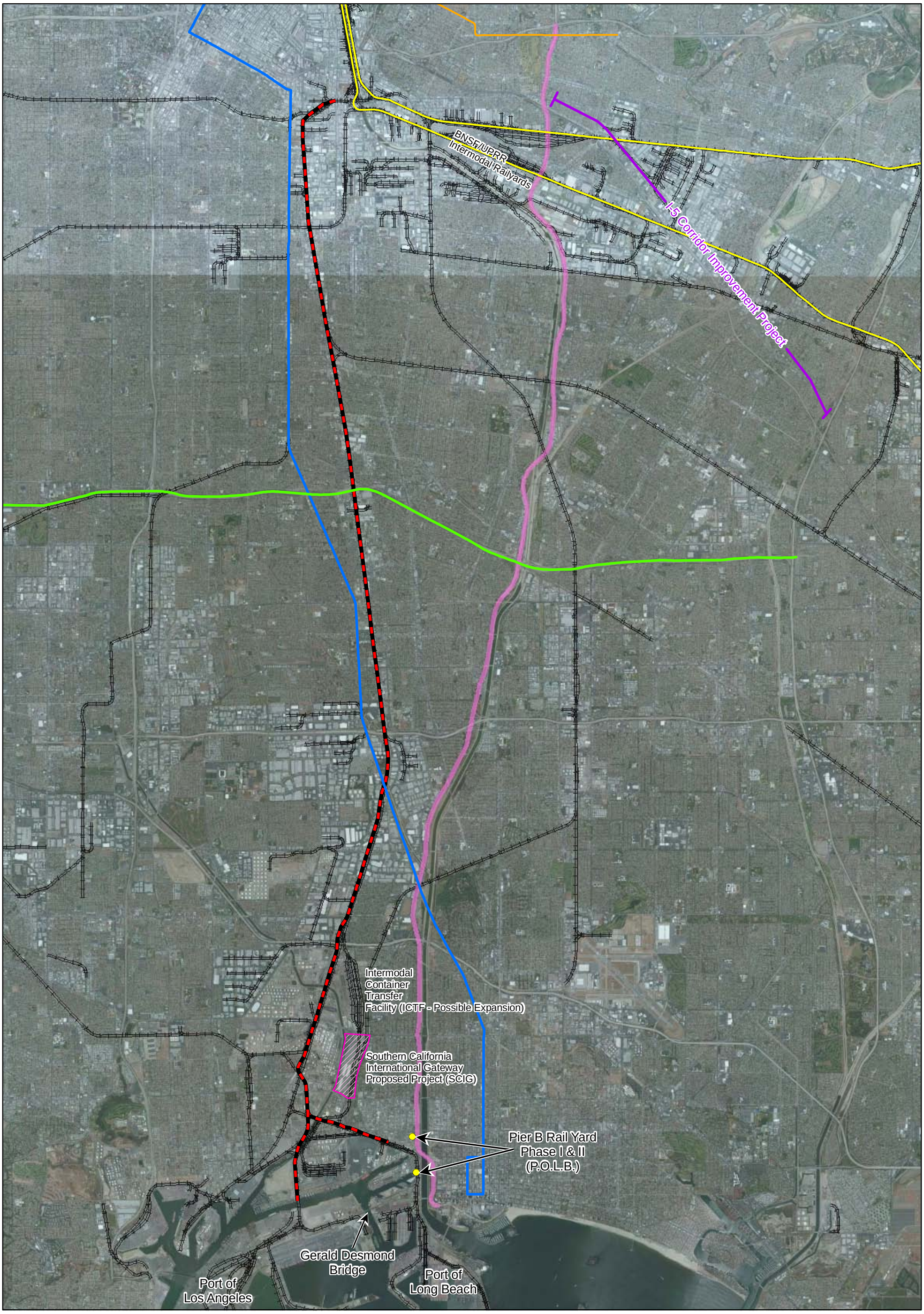


LEGEND

- I-710
- Alameda Corridor
- Metrolink Rail
- MTA Green Line
- MTA Blue Line
- Metro Gold Line
- Railroad

N

0 3750 7500
Feet

SOURCE: Bing (2009); Metro (2006)

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FIGURE 1.2-6

*I-710 Corridor Project EIR/EIS*

Model Interrelationships and System Linkages

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EA 249900

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improvements are planned to these facilities except for possible improvements to I-5 (from Interstate 605 [I-605] through the I-710 interchange). Additionally, the Gerald Desmond Bridge Project is directly connected to the I-710 freeway and planned for replacement.

The I-5 Corridor Improvement Project consists of widening I-5 to accommodate high-occupancy vehicle (HOV) lanes and/or general purpose lanes from the I-605 through the I-710/I-5 interchange. Depending on the alternative selected, the project may also include reconstruction of the I-605 and I-710 interchanges. The study is in progress by Caltrans, and construction of the initial phases is tentatively scheduled to begin by 2019.

The Gerald Desmond Bridge Project will replace the existing five-lane Gerald Desmond Bridge, which connects Terminal Island (Port of Long Beach) to SR-710 with a new six-lane bridge (three lanes in each direction). This project will also include construction of the Terminal Island East interchange and replacement of the I-710 southbound off-ramp and northbound on-ramp. A Final EIR/Environmental Assessment (EA) was approved in July 2010, and project construction is expected to be complete by September 2015.[1]

The I-710 Corridor Project will be implemented in a manner that is consistent with the programmed and planned improvements described above.

**PORTS.** As described in the 2012 RTP/SCS Goods Movement Appendix (April 2012), POLB and POLA handle approximately 31 percent of the nation's imported goods. Approximately 23 percent of the imported goods are for local southern California and southwestern U.S. markets, while 77 percent are for national distribution to other parts of the U.S.

As illustrated in Figure 1.2-5, cargo containers at the Ports are transported from ships in one of three ways: to the terminals as property, to on-dock rail facilities, or to trucks that are used either for direct distribution to local and regional warehouses or for movement to near-dock and off-dock rail yards. As of 2008, the Ports processed approximately 13 million TEUs annually, and the 2009 Forecast[2] conducted by the Ports to forecast future growth found that, even with the recent recession, cargo container shipping demand at the Ports is projected to grow to almost 35 million TEUs by 2030. If these growth trends are extrapolated to 2035, cargo container shipping demand would exceed the capacity of the Ports with planned improvements (43 million TEUs). The 2009 Forecast also found that while the recent recession resulted in a decline in the volume of the containers processed compared to the peak volume of 15.8 million

[1] http://www.polb.com/environment/docs.asp.

[2] San Pedro Bay Ports Cargo Forecast, Port of Los Angeles, 2009.

TEUs in 2006, a positive cargo growth trend is again occurring, with a projected annual growth rate averaging approximately 5 percent per year in cargo container demand at the Ports between 2010 and 2035.

The POLB is proposing to expand the existing Pier B Rail Yard located in the North and Northeast Harbor Planning Districts. The On-Dock Rail Support Facility Project (Project) would enhance rail operations and the capacity and efficiency of rail facilities at the existing Pier B Rail Yard. The Project would realign Pier B St., provide an increase in inbound and outbound freight handling capacity, provide up to 10,000 foot-long staging tracks, accommodate 8,000-foot to 10,000-foot long container trains, provide storage tracks for empty rail cars, and remove the 9th St. grade crossing or realign 9th St. An EIR is currently being prepared for this project.[1]

**RAILROADS.** The present rail network in the SCAG region, including the Study Area, is composed of BNSF and UP Railroad rail lines, terminals/yards, and on-dock rail terminals at the Ports. Rail routes include the Alameda Corridor, BNSF Railroad's San Bernardino Subdivision, and UP Railroad's Los Angeles and Alhambra Subdivisions. The *I-710 Railroad Goods Movement Study* (Metro, 2009) was prepared to assess the available capacity of the Southern California rail network to handle the projected demand in the movement of containerized freight to and from the Ports. One of the fundamental assumptions in developing the 2035 travel demand forecasts for the I-710 Corridor Project is that the calculated maximum utilization of the amount of containers moved by rail would be consistent with the rail network (*I-710 Railroad Goods Movement Study)*. Taking into consideration the inland origins and destinations of the port cargo and operational characteristics of the railroads, it was assumed that approximately 40 percent of the cargo growth (approximately 17.1 million TEUs) in 2035 could be moved directly by rail from either on-dock or off-dock intermodal terminals.[2] Key information from the *I-710 Railroad Goods Movement Study* related to existing and future capacity of the rail system is summarized below[3]:

- As of 2007, the Alameda Corridor was operating 49 trains per day, a slight decrease from previous years, due primarily to longer trains. By 2035, the Alameda Corridor is

[1] Source: http://www.polb.com/about/projects.asp, accessed on June 5, 2012.

[2] Some port cargo is "transloaded", i.e., transferred from marine containers to larger domestic containers, and then moved by rail in these large containers. The transloaded cargo moved by rail is above and beyond the 40 percent that is moved directly by rail.

[3] All train projections reported assume no additional near-dock terminal capacity. This is reported as Scenario 1 in the *I-710 Railroad Goods Movement Study* (Metro, 2009).

projected to be operating 108 trains daily. The Alameda Corridor has three tracks and sufficient capacity to handle the projected traffic.

- As of 2008, BNSF Railroad's San Bernardino Subdivision operated up to 90 trains per day (38 freight trains, 22 Amtrak Pacific Surfliners, 28 Metrolink commuter rail trains, and two Amtrak long-distance trains) in its most heavily trafficked segments. By 2035, BNSF's San Bernardino Subdivision is projected to be operating up to 132 trains daily in its most heavily trafficked segments. The increase would be primarily from additional freight trains. This assumes no increase in Metrolink commuter rail trains. This is consistent with current operating agreements, although there is a desire in the region to increase Metrolink service if increased capacity can be made available. In most sections, the BNSF Railroad has constructed or has plans to construct three tracks on the San Bernardino Subdivision, sufficient capacity to handle the projected train volumes (assuming no growth in Metrolink service).

- The UP Railroad operates the Los Angeles and Alhambra Subdivisions as essentially parallel facilities that provide them with routing flexibility. As of 2008, UP's Los Angeles Subdivision operated between 37 and 40 trains per day. By 2035, UP's Los Angeles Subdivision is projected to be operating 50 to 90 trains daily (traffic varies by segment). Through most of its length, the Los Angeles Subdivision will have two tracks but sections that will have only one track are not likely to carry more than 50 trains daily. Thus, this subdivision should have sufficient capacity to carry the projected traffic.

- As of 2008, UP Railroad's Alhambra Subdivision was operating between 22 and 34 trains per day (traffic varies by segment). UP's Alhambra Subdivision does not operate any commuter trains. By 2035, UP's Alhambra Subdivision is projected to be operating 22 to 91 trains daily, depending on the segment. East of Pomona (the more heavily trafficked segment), the Alhambra Subdivision is or will be two tracks. Thus, the Alhambra Subdivision, especially given the operating flexibility provided by the Los Angeles Subdivision, will have sufficient capacity to carry the projected traffic.

In addition to the capacity of the rail facilities themselves, there are three types of intermodal facilities that may impact growth for the railroads: on-dock, near-dock, and off-dock. On-dock refers to an intermodal facility that is situated at a port marine terminal. As of 2007, the on-dock rail volume per year was at 23.5 percent of its capacity; however, by 2035 these facilities are projected to reach capacity.

Near-dock refers to an intermodal facility situated within five miles of POLA and POLB. The container volume handled at the ICTF as of 2007 was 710,460 containers, and the capacity is projected to be 760,000 containers by 2035. Plans to expand the ICTF and also build a new

facility (Southern California International Gateway [SCIG]) are in progress (a Draft EIR for the SCIG project was circulated for public review in late 2011); however, neither of these facilities was assumed to be operational in the travel demand forecasting conducted for the I-710 Corridor Project.

Off-dock refers to an intermodal facility located more than five miles from POLA and POLB. There are two off-dock facilities in the Study Area: BNSF Railroad Hobart and UP Railroad East Los Angeles. As of 2006, these off-dock facilities were operating below capacity, but they are projected to reach capacity by 2035. While the *I-710 Railroad Goods Movement Study* concludes that there would be a shortfall of lift capacity compared to demand by 2035, no specific expansion plans for the BNSF Railroad Hobart and UP Railroad East Los Angeles facilities have been proposed at the time this document was being prepared. There are also additional off-dock rail yards located further to the east (inland) that are also accessed by trucks from the I-710 Corridor.

**TRANSIT.** Local and County public transportation is provided by Metro, the Los Angeles Department of Transportation (LADOT), and various city municipal transit lines (e.g., Long Beach Transit) (see each city discussion in Sections 4.3–4.21 for additional details). Metro provides both local bus service and light rail service (called Metro Rail) in the Study Area. The local bus service operates six routes from southeast Los Angeles County to downtown Los Angeles, and there are a total of 13 routes that provide east-to-west service and 12 routes that provide north-to-south service. Metro Rail services are provided via the Blue Line, the Green Line, and the Gold Line, which run throughout the Study Area (see Figure 1.2-6). The *I-710 Corridor Project Initial Feasibility Analysis* evaluated expansion of transit services as part of the mobility solution within the I-710 Corridor. Chapter 2.0, Project Alternatives, describes transit improvements included in the Build Alternatives.

### 1.2.2 PURPOSE OF THE I-710 CORRIDOR PROJECT

#### 1.2.2.1 PROJECT PURPOSE

The I-710 Corridor Project purposes are specific objectives that Caltrans, Metro, and the I-710 Funding Partners agencies would like to accomplish through implementation of the I-710 Corridor Project. The project purposes are used as the decision factors for comparing alternatives and identifying/selecting the preferred alternative. The purposes defined below are proposed solutions to the needs within the I-710 Corridor identified in the above sections.

- Improve air quality and public health;
- Improve traffic safety;
- Modernize freeway design;

- Accommodate projected traffic volumes; and
- Address increased traffic volumes resulting from projected growth in population, employment, and economic activities related to goods movement.

#### 1.2.2.2 INDEPENDENT UTILITY AND LOGICAL TERMINI

Within the Study Area, I-710 experiences congestion and traffic delays. The I-710 Corridor Project termini are from the southern terminus of the I-710 freeway to its connection to SR-60. Given the needs within the I-710 Corridor, these are logical termini for considering proposed improvements because the southern terminus is an existing terminus already, and SR-60 is one of the major east-west freeways that connect to the I-710. This 18-mile Study Area is of sufficient length to address environmental matters on a broad scope. The I-710 Corridor Project would provide improvements to the current traffic conditions within the I-710 Corridor, even if no additional transportation improvements are made in the area. As such, the I-710 Corridor Project is considered to have independent utility as it does not rely on other projects to address the identified need in the Study Area. Furthermore, the I-710 Corridor Project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements because the project is being developed in coordination with other transportation improvements in the I-710 Corridor.

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# EXHIBIT 2

KQED

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U.S.

# Port Of Baltimore Seeks Boost From Panama Canal Expansion

by Jackie Northam | May 6, 2013 — 12:53 AM

Enlarge

NPR

The Port of Baltimore recently completed a major expansion, which included building a 50-foot berth and dredging the channel. It's in anticipation of increased traffic following the completion of a project to widen the Panama Canal.

There is constant motion around four new supersized, Chinese-made cranes as they unload cargo from a ship at the Port of Baltimore's freshly constructed Seagirt Marine Terminal.

Control cabs whir across the cranes' broad steel beams, and thick cables spin from giant wheels. Containers packed with consumer goods — TVs, clothing and the like — are hoisted from the ship and transferred to a flatbed truck waiting 140 feet below; the truck then peels away and is immediately replaced by another. It's a fluid, seemingly effortless process — surprising considering the size of each crane.

"If you look at one of these cranes, you would be looking at a 40-story building," says Mark Schmidt, the terminal manager. "With the boom up and fully erected, they're about 400 feet tall."

Schmidt is with Ports America, which signed a 50-year lease with the Maryland Port Administration to operate the terminal. Ports America invested roughly $250 million in the project, in expectation of the widening of the Panama Canal.

**'A Significant Change'**

When the project to widen the canal is completed in 2015, longer and wider ships will be able to pass through its locks, giving them access to ports on the Gulf of Mexico and the East Coast. But at the moment, the Port of Baltimore is one of only two on the East Coast (the other is the Port of Virginia in Norfolk) that can handle the large cargo ships, known as post-Panamax ships. It recently completed a major expansion, which included building a 50-foot berth and dredging the channel.

Mark Montgomery, the president of Ports America Chesapeake, says much rides on the canal's expansion.

"It will allow a ship that is three times as big to come through the canal once the widening project is finished," he says. "It's a significant change in maritime economics."

Bigger ships mean more cargo containers, which can translate into an economic windfall for a port, says Adie Tomer, a transportation and infrastructure specialist at the Brookings Institution.

He says since it was announced that the Panama Canal was being widened, there's been an "arms race" between ports across the country.

"What that arms race has kind of been about is based on this assumption that with a snap of the finger, of when the canal widens, all of a sudden, massive new ships carrying extremely large loads of containers will be entering and exiting ports in the states," Tomer says.

**West Coast Ports Affected**

He says Baltimore and Norfolk have a competitive edge as companies begin to choose what ports to use once the canal's expansion is complete. But it's not good news for West Coast ports such as the Port of Los Angeles and Port of Long Beach, where megaships from Asia have docked since the mid-1990s.

Khalid Bachkar, an assistant professor at the California Maritime Academy, says the West Coast ports accounted for about 75 percent of all Asian imports.

"The ship will come to the West Coast, and then [cargo] will be transported via rail to New York," he says. "However, now, with the opening of the Panama Canal, there are many competitors."

Bachkar says within the next decade, many more ports on the East Coast — such as New York — and in the Gulf will build up their infrastructure and dredge their channels in order to accommodate the huge container ships.

Tomer of the Brookings Institution says in the world of international shipping, a multitude of dynamics determine a port's fortunes.

"Even though we might feel like we're in competition with one another, we're also in competition with other ports across the globe," he says, "new ports opening on the Mediterranean side, of course in Southeast Asia are expanding, even beyond the classic Chinese ports."

Tomer says there's no guarantee that trade will always move in the same direction and between the same markets.

James White, executive director of Maryland Port Administration, says he agrees. Already, he says, the manufacturing base is starting to shift from Asia to Southeast Asia — to countries such as Cambodia and Vietnam.

"I think we're probably going to see, within the next five to 10 years, most of the transits, if that continues, to come to the Suez Canal, with the Panama Canal getting maybe some overflow," he says.



Source: NPR
[http://www.npr.org/2013/05/06/180914866/port-of-baltimore-seeks-boost-from-panama-canal-expansion?ft=3&f=1003,1004,1007,1013,1014,1017,1019,1128]

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# EXHIBIT 3

# GOODS MOVEMENT APPENDIX


REGIONAL TRANSPORTATION PLAN
2012–2035
SUSTAINABLE COMMUNITIES STRATEGY
Towards a Sustainable Future
RTP



*Southern California Association of Governments*

ADOPTED APRIL 2012

# GOODS MOVEMENT

## System Vision

Goods movement and freight transportation are essential to support the SCAG regional economy and quality of life. The goods movement system in the SCAG region is a multimodal, coordinated network that includes deep-water marine ports, international border crossings, Class I rail lines, interstate highways, state routes and local roads, air cargo facilities, intermodal facilities, and regional distribution and warehousing clusters. In 2010, over 1.15 billion tons of cargo valued at almost $2 trillion[1] moved across the region's transportation system. Whether carrying imported goods from the San Pedro Bay Ports to regional distribution centers, supplying materials for local manufacturers, or delivering consumer goods to SCAG residents, the movement of freight provides the goods needed to sustain regional industries and consumers on a daily basis.

Working with its public and private partners, SCAG has established a vision for a comprehensive regional goods movement system that is reflected in the 2012–2035 RTP/SCS.

### RTP/SCS Goods Movement Vision Statement

**A world-class, coordinated Southern California goods movement system that accommodates growth in the throughput of freight to the region and nation in ways that support the region's economic vitality, attainment of clean air standards, and the quality of life for our communities**

This vision promotes the improvement of the goods movement system by:

- Maintaining the long-term economic competitiveness of the region
- Promoting local and regional job creation and retention
- Increasing freight and passenger mobility
- Improving the safety of goods movement activities
- Mitigating environmental impacts of goods movement operations

In support of this vision, the 2012–2035 RTP/SCS describes a goods movement system with regional initiatives and projects totaling nearly $50 billion through 2035. Key regional initiatives include a comprehensive system of zero- and/or near-zero-emission freight corridors, alleviation of major bottlenecks, a rail package totaling approximately $12 billion, and an environmental strategy to address emissions through both near term initiatives and a long term action plan for technology advancement. The comprehensive system of zero- and/or near-zero-emission freight corridors includes I-710, which is currently undergoing environmental review, and an east west corridor extending to an initial segment of I-15. The rail package includes main line capacity enhancements, on-dock and near-dock rail facility improvements, and 71 grade separations. In addition, critical projects to facilitate access to the San Pedro Bay Ports (e.g., improvements to the Gerald Desmond Bridge) and the Port of Hueneme, and to alleviate congestion at critical border crossings, are underway.

This plan was developed as part of the SCAG multi-year Comprehensive Regional Goods Movement Plan and Implementation Strategy. Through this effort, SCAG has worked with diverse regional stakeholders to develop a multimodal regional freight plan. A final version of the Comprehensive Regional Goods Movement Plan and Implementation Strategy, documenting the full breadth of study findings, will be released in coordination with adoption of the 2012–2035 RTP/SCS.

This appendix includes an overview of regional goods movement activities and specific initiatives to facilitate a world-class goods movement system. The first section provides an introduction to the regional goods movement system, describing key components and how they work together to support the regional economy. The following section describes critical markets served by the regional goods movement system and how these markets depend on transportation infrastructure. The final section identifies regional strategies and initiatives, including an action plan to support the development and commercialization of technologies necessary for a zero- and near-zero emissions goods movement system.

[1] FHWA Freight Analysis Framework: http://faf.ornl.gov/fafweb/Extraction0.aspx.

## The Regional Goods Movement System

The goods movement system in the SCAG region is a complex series of interconnected infrastructure components designed to serve commercial activities spurred by regional and national demand. This goods movement system provides the backbone for the movement of goods between businesses and consumers. Numerous demand factors (e.g., types of products, destinations, urgency, costs, etc.) create unique markets that must be accommodated by varying types of goods movement activities. Markets in the SCAG region range from those that move goods directly from manufacturing centers to local consumers, to those traveling from the San Pedro Bay Ports, to distant destinations across the U.S. These markets depend heavily upon an extensive regional transportation network that provides the mobility necessary to ensure economic growth. These mobility needs, coupled with the accompanying air quality, environmental, and community challenges posed by regional goods movement activities, serve as the driving force for developing a comprehensive plan to enhance the regional freight system.

### Components of the Regional Goods Movement System

Both international and domestic trade thrive in Southern California in large part due to the extensive existing transportation and goods movement infrastructure in the SCAG region (**EXHIBIT 1**). This system is comprised of the following major elements:

- **Seaports:** The ports in the SCAG region (Los Angeles, Long Beach, and Hueneme) handled just under 120 million metric tons of cargo imports and exports, valued at $336 billion in 2010.[2] The Ports of Los Angeles and Long Beach represent the largest container port complex in the U.S., and the sixth largest in the world. In 2010 the San Pedro Bay Ports handled 14.1 million twenty-foot equivalent units (TEUs) of containerized cargo. The Port of Hueneme, in Ventura County, specializes in the import and export of automobiles, fresh fruit, and produce, and serves as the primary support facility for the offshore oil industry.
- **Land Ports:** The international border crossings in Imperial County (Calexico West-Mexicali I, Calexico East-Mexicali II and Andrade-Los Algodones) are busy commercial land ports responsible for over $10.4 billion in trade in 2010 despite the recent economic downturn.[3] Driven by the maquiladora trade and movement of agricultural products, the volume of goods passing through these international ports of entry is expected to increase over the time horizon of the RTP.
- **Air Cargo Facilities:** The SCAG region is home to numerous air cargo facilities, including Los Angeles International Airport (LAX) and Ontario International Airport (ONT), which combined handled over 96 percent of the region's air cargo in 2010.
- **Interstate, Highways, and Local Roads:** The region has about 53,400 road miles, 1,630 miles of which are interstate and freeway type.[4] Sections of I-710, I-605, SR-60, and SR-91 carry the highest volumes of truck traffic in the region, averaging over 25,000 trucks per day in 2008.[5] Other major components of the regional highway network also serve significant numbers of trucks, including I-5, I-10, I-15, and I-210, with some sections carrying over 20,000 trucks per day.[6] These roads carry a mix of local, domestic trade, and international cargoes. The arterial roadway system also plays a critical role, providing "last mile" connections to the ports, manufacturing facilities, intermodal terminals, warehouses, and distribution centers.
- **Railroads:** Two Class I railroads, the Burlington Northern Santa Fe Railway (BNSF) and Union Pacific (UP), carry international and domestic cargo to and from distant parts of the country. The BNSF operates on the Transcontinental Line (Cajon and San Bernardino Subdivisions) as well as the Orange and Olive Subdivisions. The UP operates on the Coast, Santa Clarita, Alhambra, Los Angeles, Mojave, and Yuma Subdivisions. Both railroads operate on the Alameda Corridor that connects directly to the San Pedro Bay Ports. The railroads are served by six major intermodal terminals in the region as well as multiple on-dock railyards at the Ports of Los Angeles and Long Beach. The SCAG region also has Class III railroads (Pacific Harbor Line, Los Angeles Junction Railway, and the Ventura County Railway).

2 U.S. Census Bureau, Exhibit 1: U.S. Exports – Domestic and Foreign Merchandise by Customs District and Method of Transportation and Exhibit 6a – U.S. General Imports by Customs District and Method of Transportation, Vessel data only, for calendar year 2010.

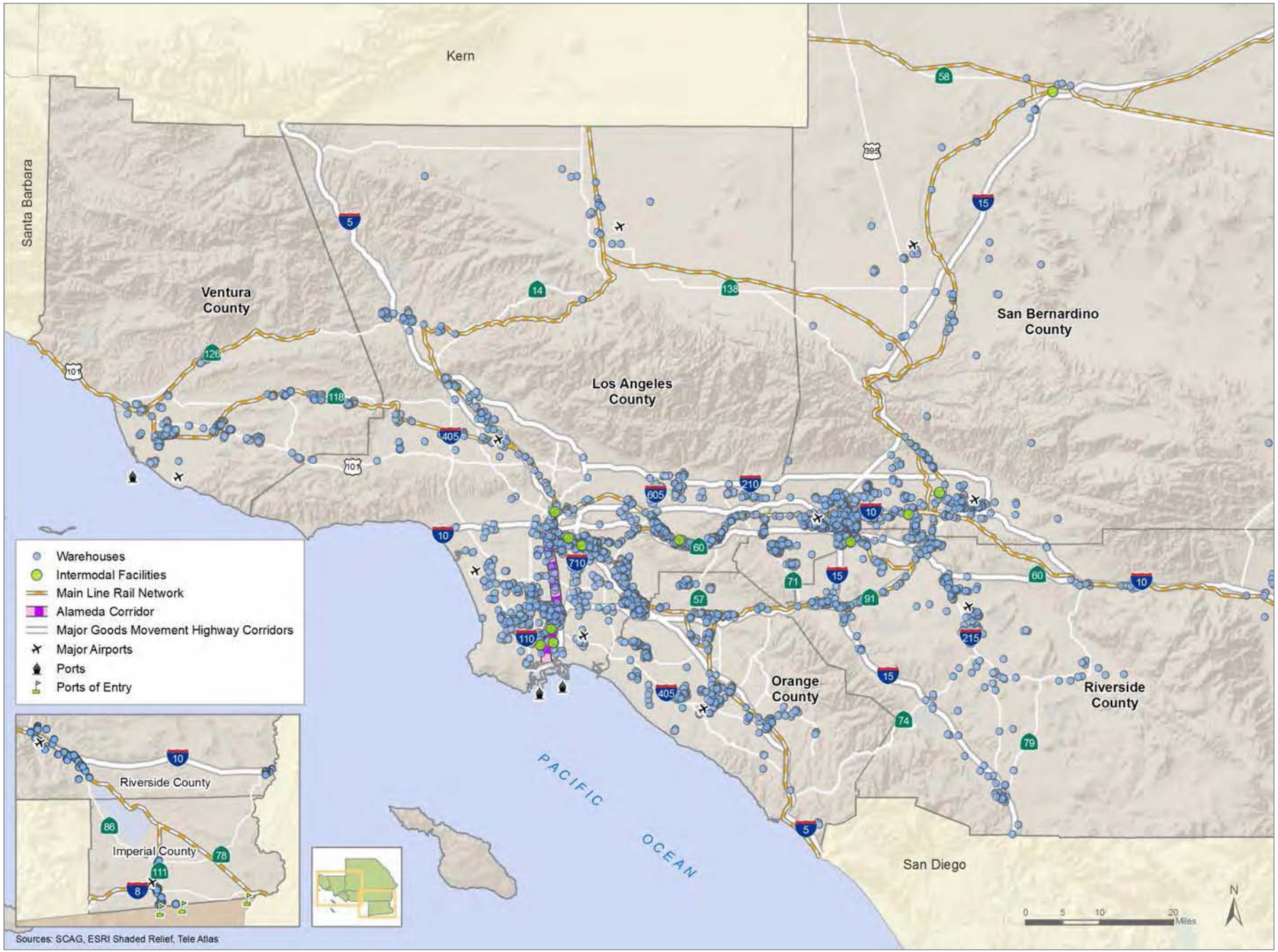
3 Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

4 http://www.dot.ca.gov/hq/tsip/hpms/hpmslibrary/hpmspdf/2009PRD.pdf (last accessed on December 10, 2010).

5 2008 Annual Average Daily Truck Traffic on the California State Highway System, Traffic and Vehicle Data Systems, California Department of Transportation, September 2009.

6 2008 Annual Average Daily Truck Traffic on the California State Highway System, Traffic and Vehicle Data Systems, California Department of Transportation, September 2009.

**EXHIBIT 1** Existing SCAG Regional Goods Movement System



- **Warehousing and Distribution Centers:** As of 2008, the region had about 837 million square feet of warehousing space. Another 185 million square feet[7] could be developed on vacant land that is zoned for warehousing. In 2008, an estimated 15 percent of the occupied warehouse space[8] served port-related uses while the remaining 85 percent supported a mix of domestic and international cargo.[9] Many of these warehouses are clustered along key goods movement corridors. Port-related warehousing tends to be concentrated near the Ports, while distribution facilities for domestic cargo tend to be located in areas farther away from the Ports including the Inland Empire.

## The Supply Chain System and Southern California

As previously mentioned, regional transportation infrastructure supports the movement of goods to discrete markets dependent upon diverse business and consumer needs. The goods movement system in Southern California provides critical network connections between freight origins and destinations. Transportation infrastructure in the SCAG region facilitates multiple types of supply chains (also called logistics or supply networks). These supply chains are coordinated systems of organizations, people, activities, information, and resources involved in moving products from suppliers to customers.

All industries depend on reliable and efficient transportation services to meet their business objectives. Understanding the impacts and linkages between improvements in the transportation system and typical supply chains for key goods movement-dependent businesses in Southern California is critical for making decisions to support the regional economy. Supply chains are dependent on many variables, including the weight, size, and perishability of raw materials or finished product, as well as the availability and cost of different transportation modes. However, it is possible to summarize some general supply chain characteristics for key goods movement industries in the SCAG region:[10]

1. **Extraction Industries:** This sector includes industries that ship forest products, grain, and coal. In general, raw materials and products associated with these industries are heavy and not as time-sensitive as other products. Therefore, they generally prefer supply chains structures with low unit transportation costs and high asset utilization.
2. **Manufacturing Industries:** These industries – and their inputs / outputs – vary widely. In the SCAG region, top manufacturing subsectors include computer and electronic product manufacturing, fabricated metal products, apparel, food, and transportation equipment manufacturing. Each of these industry subsectors has different supply chain needs, depending on the weight, size, and time-sensitive nature of their raw inputs or products. However, in general, manufacturing industries are characterized by companies that run continuous processing facilities. They typically have few sites and highly specialized equipment, such as chemical and plastic companies. These industries generally prefer supply chain structures with low unit transportation costs and a high degree of service reliability.
3. **Make-to-Stock Industries:** These industries typically have multiple sites and a complex set of inbound and outbound product flows, and use roughly equal parts of labor and machinery. Industry examples include lumber and paper shippers, auto assembly plants, and heavy machinery manufacturers. These industries generally prefer supply chain structures with consistent and reliable service.
4. **Make-to-Order Industries:** Supply chains for this technologically advanced industry group are typified by few sites with limited flows of inbound and outbound materials. Examples include airplane manufacturers or the defense industry. These industries generally prefer supply chain structures with reliable service and fast delivery.
5. **Distribution Industries:** Industries in this group have many locations, numerous transactions, and product flows in various quantities. Many shipments are small and rely on the use of a number of vehicles. Examples might include small-package carriers and specialty electronics and aftermarket parts distributors. These industries generally prefer supply chain structures with predictability and reliable service.
6. **Retail Industries:** This includes all retail sales products. These supply chains tend to be the longest and most far reaching, usually requiring transportation flexibility, agility, and the ability to respond to forecast changes quickly. Examples include computer makers, discount retailers, and grocery stores. These industries generally

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7 Potentially developable warehouse space estimates are based upon suitable land that is zoned for warehouse development.

8 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.

9 Some domestic warehouse space may include international goods as well.

10 There are many approaches to categorizing supply chain types. This particular approach is based on an approach developed by Boston Logistics Group, Inc. and is referenced in "Guide to Quantifying the Economic Impacts of Federal Investments in Large-Scale Freight Transportation Projects," prepared by Cambridge Systematics, Economic Development Research Group, and Boston Logistics Group for the Office of the Secretary, U.S. Department of Transportation, August 2006.

prefer supply chain structures with the ability to handle high velocities and provide flexible service.

These goods movement industries contribute substantial public benefits to the region. As shown in **TABLE 1**, manufacturing and retail trade, alone, are responsible for approximately $142 billion in overall regional GDP (over 18 percent) and almost 1.7 million jobs (nearly 20 percent of all regional jobs).[11] In fact, despite the recent economic downturn, SCAG's manufacturing sector remains one of the largest in the nation. In 2009, Los Angeles County was ranked as the top manufacturing center in the country in terms of manufacturing shipment volume, with Orange County and Riverside-San Bernardino also ranked in the top 15 manufacturing centers nationally.[12] Understanding the supply chain characteristics of key industries helps to target transportation system investments into projects that support key job and GDP-producing industries. This is particularly critical as goods movement-dependent industries are projected to grow. Between 2009-2035, manufacturing is projected to grow at 3.4 percent annually, retail trade at 2.9 percent annually, and transportation and warehousing at 2.7 percent. The transportation system demands of these industries will also grow steadily throughout this time period.

**TABLE 1** Regional GDP and Employment Contribution of Key Goods Movement-Dependent Industries (2010)

| Key Industries | Regional Contribution | |
|---|---|---|
| | Jobs (in Thousands) | GDP (Billions) |
| Manufacturing | 744 | $88 |
| Retail Trade | 950 | $54 |
| Wholesale Trade | 429 | $51 |
| Construction | 431 | $21 |
| Transportation and Warehousing | 330 | $20 |
| Other Goods Producing | 70 | $12 |

*Source: SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy*

11 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.

12 Source: Bureau of Labor Statistics, QCEW Data as found in *Manufacturing: Still a Force in Southern California* completed by the Los Angeles County Economic Development Corporation, Kyser Center for Economic Research, 2011.

## MANUFACTURING AND RETAIL TRADE SUPPLY CHAINS

Trade splits for manufacturing output in the SCAG region suggest that the region develops products that are in demand by local, national, and international markets. In 2010, 35 percent of sales from SCAG's manufacturing industries was destined for international markets, compared to 38 percent of sales with other regions in the U.S. and 27 percent of sales within the SCAG region itself.[13] The geographic distribution of sales for manufacturing industries means that they will benefit from investments into the local and regional transportation systems, including their connections to national and international markets.

As a whole, higher-value manufacturing industries (such as computer and electronics manufacturing–the top subsector in the SCAG region) have increasingly adopted "just-in-time" inventory strategies that are focused on delivering goods as needed, with very little inventory requirements. Though this strategy lowers the costs of carrying inventory, it requires a high level of flexibility from suppliers and responsiveness in the supply chain. Goods that are part of "just-in-time" supply chains are extremely time-sensitive, as missing parts may cause disruptions in the manufacturing process. These products are increasingly dependent on an efficient, reliable, and safe freight movement and transportation infrastructure. Expenditures on transportation industries by the manufacturing sector in the SCAG region totaled over $17.5 million in 2010 (**TABLE 2**).

13 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.

**TABLE 2** Expenditures on Transportation by Manufacturing Industries (2010)

| Transportation Mode | Spending on Different Transportation Modes (Insourced and Outsourced) | |
|---|---|---|
| | Millions of Dollars | Percent of Total |
| Truck | $3,711 | 21% |
| Rail | $3,261 | 19% |
| Air | $5,116 | 29% |
| Water | $2,471 | 14% |
| Courier | $2,101 | 12% |
| Warehousing and Storage | $876 | 5% |
| **Total** | **$17,536** | **100%** |

*Source: SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy*

Retail industries also include a wide variety of subsectors (including clothing and household goods). In general, retail industries are heavily dependent on international trade to receive materials and products, usually through containerized cargo imported through the San Pedro Bay Ports. The output sales of retail industries in the SCAG region are dominated by local markets. In 2010, roughly 86 percent of sales was to local markets, compared to 14 percent of sales to other domestic U.S. locations and less than 1 percent to international locations. Retail industries in the SCAG region therefore depend heavily on the region's transportation system to move goods to market, and will benefit from investments into local connector facilities, access roads, and other facilities providing interregional mobility. Expenditures on transportation by the retail sector in the SCAG region totaled nearly $11 billion in 2010 (**TABLE 3**).

**TABLE 3** Expenditures on Transportation by Retail Industries (2010)

| Transportation Mode | Spending on Different Transportation Modes (Insourced and Outsourced) | |
|---|---|---|
| | Millions of Dollars | Percent of Total |
| Truck | $7,136 | 65% |
| Rail | $542 | 5% |
| Air | $1,619 | 15% |
| Water | $709 | 6% |
| Courier | $506 | 5% |
| Warehousing and Storage | $416 | 4% |
| **Total** | **$10,929** | **100%** |

*Source: SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy*

Though individual shippers utilize different types of supply chains, lowering transportation costs and improving reliability across logistics networks are a critical and constant focus. While significant investments in processes, technologies, and assets have made supply chains increasingly productive and cost-efficient, shippers regularly evaluate transportation costs to drive business decisions. Given the impact of transportation infrastructure on efficiencies, and thereby operating costs of supply chains, a world-class goods movement system is crucial to attract and retain businesses in Southern California. Through ongoing dialogue with regional transportation interests, the 2012–2035 RTP/SCS offers a portfolio of initiatives and projects to ensure that the SCAG region continues to benefit from goods movement activities.

## Key Functions and Markets

The goods movement system has developed in the SCAG region to serve a wide range of user markets. Each of these markets has unique performance needs that dictate the components of the system that they will use. A brief summary of international, domestic, and local trade, follows.

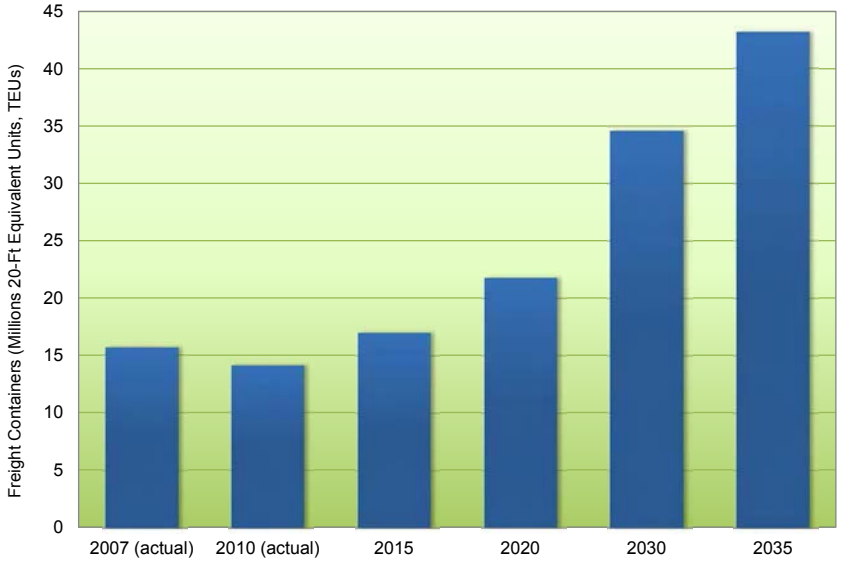
### INTERNATIONAL TRADE

The SCAG region is the largest international trade gateway in the U.S. International trade moving through the San Pedro Bay Ports, international border crossings with Mexico, and regional airports is supported by an extensive transportation system that includes a highly developed network of roadways and railroads, air cargo facilities, intermodal facilities, and an abundance of regional distribution and warehousing clusters. While the SCAG region has made great strides in building infrastructure and planning for the future, significant investment is needed to support the expected growth in the nation's largest and most important integrated freight system.

### San Pedro Bay Ports

Containerized trade between the U.S. and Asia comprises the majority of international cargo entering the SCAG region, with over 31 percent of all containers in the U.S. moving through the San Pedro Bay Ports.[14] While there has been a modest shift recently in container volumes to other U.S., Canadian, and Mexican ports, total container volume for the San Pedro Bay Ports is still expected to grow to 43 million by 2035, more than three times current volumes (**FIGURE 1**). This projected increase in freight moving through the region will place greater strain on an already congested transportation system, directly affecting residents and businesses alike.

**FIGURE 1** San Pedro Bay Ports Containerized Cargo Forecasts




Imports, which constitute most of the containers that move through the San Pedro Bay Ports, may be categorized as local or discretionary. Local containerized traffic is that which is ultimately consumed in a geographical area local to the San Pedro Bay Ports (Southern California, Southern Nevada, Arizona and New Mexico, and southern portions of Utah and Colorado). Discretionary containerized traffic is that which terminates outside this region. Recent analysis indicates that local traffic accounts for approximately 23 percent of San Pedro Bay Ports' total traffic. The other 77 percent is assumed to be discretionary traffic, routed through the San Pedro Bay Ports for economic reasons.[15]

Imports can be further categorized as Local, Direct Shipping or Transloaded. When containers arrive at the San Pedro Bay Ports, the way they move are determined by the economics of inventory and transportation costs (see **TABLE 4**).

[14] Source: American Association of Port Authorities (AAPA), North American Container Traffic (1990-2010), http://aapa.files.cms-plus.com/PDFs/CONTAINER%20TRAFFIC%20NORTH%20AMERICA%201990%20-%202010%20for%20the%20web.pdf.

[15] SCAG Port and Modal Elasticity Study, Phase II.

**TABLE 4** Modal Strategies for Imported Cargo

| Import Cargo Type | Modal Strategy |
|---|---|
| Local: Imports consumed within the greater region (i.e., imports consumed within Southern California, Southern Nevada, Arizona, New Mexico and southern portions of Utah and Colorado) for which San Pedro Bay serves as the closest container port with the lowest land-side transportation costs. | 1. Movement of marine containers to destinations within the greater SCAG region using local trucks. |
| Direct-shipping: Imports moving to destinations outside the SCAG region that simply pass through Southern California while remaining intact in the original marine container.[1] | 1. Direct movement of marine containers to destinations outside the greater SCAG region (e.g., Chicago, Kansas City, etc.) using on-dock rail facilities found at the San Pedro Bay Ports. These containers are then moved to their final destinations by local dray trucks upon arrival via rail.<br>2. Direct movement of marine containers to destinations outside the greater SCAG region using near-dock or off-dock rail facilities at locations in the SCAG region (usually close to the San Pedro Bay Ports). The container requires movement from the port terminal to the origin rail terminal using a local dray truck. These containers are then moved to their final destinations via rail plus a local dray at the destination end. |
| Transloaded:[2] Imports that are unloaded from the original marine container in Southern California and moved to local warehouses where the contents are reloaded into larger domestic containers or trailers for reshipment. A portion of transloaded imports are reloaded immediately using a cross-dock facility, but most are warehoused in Southern California for some time before reshipment. | 1. Movement of marine containers to an import warehouse/transloading facility within the SCAG region using local dray trucks. This is followed by the final movement of the newly transloaded domestic container to destinations both within and outside the greater SCAG region using trucks.<br>2. Movement of marine containers to an import warehouse/transloading facility within the SCAG region using local dray trucks. This is followed by the movement of the newly transloaded domestic container to a local rail terminal using local dray trucks where it is transported using an intermodal train. |

[1] This type of import movement is also known as inland point intermodal (IPI) movement.

[2] In the 2012 RTP, transloading is broadly defined as activities that involve the deconsolidation of the contents of marine containers, which are usually forty-foot equivalent units (FEUs), and reloading of their contents into 53-foot domestic trailers that can be transported by trucks. Transloading allows for the movement of increased amounts of goods while utilizing less equipment, resulting in significant cost savings through economies of scale and other transportation-related savings. Transloading sometimes provides value-added services as well. Existing infrastructure, equipment, and trade flows in the SCAG region provide a substantial competitive advantage and serve as a major economic incentive for importers to move freight requiring transloading through Southern California.

## Drivers of Modal Decisions

The SCAG region consists of broad modal segments. Transportation mode choice is often a complicated process that reflects the type of industry being served.[16] Considerations include:

- **Product Characteristics (including the size, weight, value, and perishability of the commodity):** Commodities that are perishable, high value, or small tend to be carried by air cargo or truck modes, but will likely not make sense as a rail commodity. Similarly, heavy, low-value, or bulky materials will likely be carried by rail or truck, but are highly unlikely to be an air cargo commodity. Construction materials—including sand, gravel, and wood—are generally best moved by trucks because of their flexibility and ability to carry heavy loads. High-tech manufacturing components normally favor truck or air cargo modes to provide safe shipment for high-value, lightweight materials.
- **Trip Characteristics (including the length of the trip being made and product demand):** According to the 2007 Commodity Flow Survey, the average length haul of U.S freight shipments was over 600 miles. However, the average rail shipment was over 850 miles in length, air-truck combination was almost 1,100 miles in length, and truck trips were about 200 miles.

**Supply Chain Characteristics:** Many companies now operate using a "just-in-time" logistics strategy where on-site inventory is limited and a constant supply of goods serves to replenish raw materials. A product that is part of a "just-in-time" supply chain process will select a transportation mode that is fairly fast, such as truck or air. Inventory-rich industries requiring materials that are not as time-sensitive may use a transportation mode such as rail.

[16] Source: The Center for Urban Transportation Research at the University of South Florida, 2002. Analysis of Freight Movement Mode Choice Factors. Florida Department of Transportation.

## International Border Crossings

International border crossings between the U.S. and Mexico are critical components of the freight transportation system in Southern California. Mexico is the third-largest trading partner of the U.S. behind Canada and China, with a $367.5 billion trade volume in 2008, accounting for 11 percent of total U.S. foreign trade. It is also the largest market for exports of goods made in California, accounting for approximately $20.5 billion (14.1 percent) of California's overall goods exports in 2008. Most of the merchandise flows in the California-Baja California region are made by truck, often to support the export-oriented manufacturing and maquiladora industries that lie on the Mexican side of the international border.

Increased trade across the border has been bolstered by the existence of multiple free trade zones (FTZs). As a result of the associated tax savings and lower wages in Mexico, FTZs have been used by U.S. companies to export raw materials into Mexican manufacturing firms (maquiladoras), where goods are processed or assembled, and then exported back in their finished state to the U.S.[17] The ability to transfer goods from one FTZ to another within Mexican territory without losing any of the fiscal incentives (tax savings) is slowly creating a logistic and manufacturing network of FTZs that is expected to boost Mexican foreign trade with the U.S. (Intermodal México, 2010).

The future economic performance of Mexico faces strong competition as low-wage manufacturing jobs from Asia have eroded the maquiladoras' once-traditional competitive advantage. However, studies show that some maquiladoras have evolved from primarily labor-intensive factories to  organizations with greater complexity, technology utilization, and research and skill specialization. As such, the future of the maquiladora industry in the Baja California region is likely to have a positive future.[18]

Accommodating expected growth in cross-border trade will require close coordination and partnership among federal, state, regional, and local agencies on both sides of the

[17] Originally these FTZs were located primarily along the border, but recent changes to the Mexican Customs Law now allow them to operate anywhere in the Mexican territory, and several FTZs have opened in mainland Mexico, creating logistic hubs such as San Luis Potosí and Guanajuato.

[18] Carrillo, Jorge and Arturo Lara (2005). "Mexican Maquiladoras: New Capabilities of Coordination and the Emergence of a New Generation of Companies." *Innovation: Management, Policy & Practice*, vol. 7/2 - April 2005.

border. This coordination must consider investment in transportation infrastructure to maintain the regional economic benefits provided by these international border crossings.

## International Air Cargo

Los Angeles International Airport (LAX) handled over 1.8 million tons of cargo in 2010, making it the fifth-busiest cargo airport in the United States and the 13th busiest in the world.[19] Most often used for time-sensitive and higher-value goods, international air cargo plays a significant role in the regional economy, with $78 billion in trade.[20] Over 82 percent of the international air cargo at LAX is handled by scheduled passenger airlines or their cargo divisions that operate freighter aircraft. According to the recent air cargo forecast completed for SCAG, air cargo activity has been steadily declining over the past decade. However, this decline has been entirely confined to domestic air cargo. International air cargo reached a peak in 2007, declined in 2008 and 2009 with the recession, then recovered in 2010. It seems likely that international air cargo will continue to grow in the future.

## DOMESTIC AND LOCAL GOODS MOVEMENT

While the region is a major gateway for international container movements, local and domestic freight is dominant. An overwhelming majority of goods movement activity in the SCAG region is generated by local businesses moving goods to local customers and serving national domestic trade systems. These local goods movement-dependent industries rely on transportation as a key part of their business model and generally utilize a more geographically dispersed transportation network than the international container market. Over 85 percent of truck trips are associated with intra-regional goods movement. Domestic manufacturers, wholesalers, and retailers also use the rail system and the air cargo system, though to a much more limited extent than international shippers.

The regional transportation system provides the infrastructure to allow these businesses to ship and receive the materials necessary to perform daily operations. Examples include shipments of raw supplies to support manufacturing processes and the delivery of refined or finished products to market. Major goods movement-dependent industries include those related to the manufacturing, wholesale trade, construction, transportation and warehousing, and mining sectors.

In 2010, local goods movement-dependent industries employed over 2.9 million people throughout the region (**FIGURE 2**), and contributed $253 billion to the regional GDP (**FIGURE 3**). These industries are anticipated to grow substantially by 2035 (**FIGURE 4**).

[19] Almost all international air cargo moves through LAX. Ontario International Airport (ONT) handles a very small proportion (about 3 percent in 2010) and the other regional airports handle the remainder.

[20] International Trade Trends and Impacts, The Southern California Region, Los Angeles Economic Development Corporation Kyser Center for Economic Research and World Trade Center Association, Los Angeles, Long Beach.

**FIGURE 2** 2010 Employment Contribution of Goods Movement-Dependent Industries (in Billions)

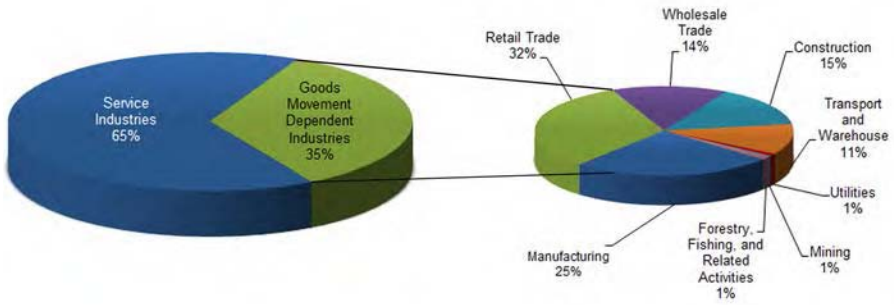
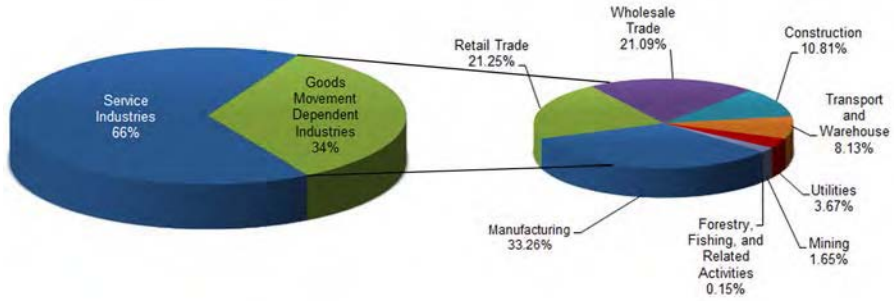


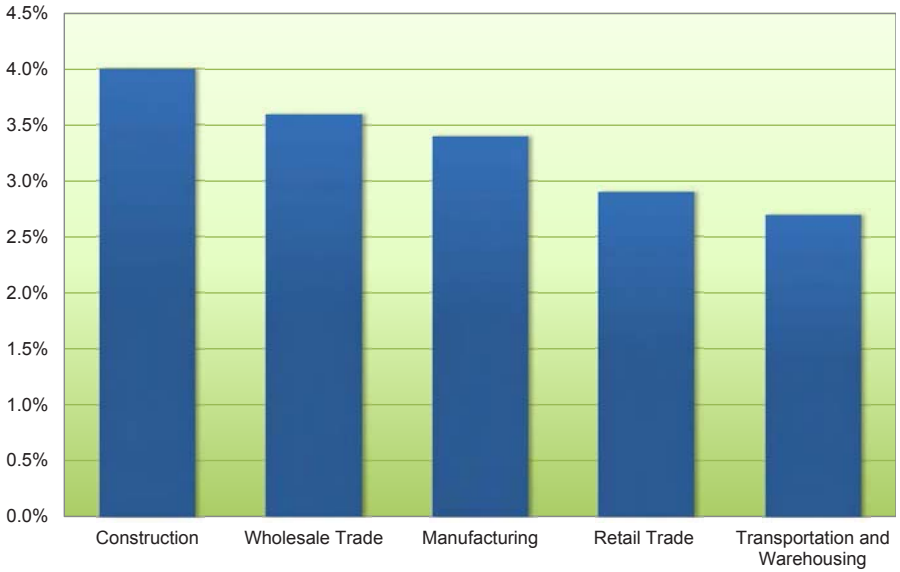

**FIGURE 3** 2010 Economic Contribution of Goods Movement-Dependent Industries (in Billions)




Regional GDP is a broad indicator of the level and strength of economic activity in a region. In the long term, the region's GDP is projected to grow steadily through 2035 at a rate slightly faster than the U.S. economy as a whole. The region's total GDP was $792 billion in 2009 and is projected to top $1.59 trillion by 2035, growing by over 100 percent at an average rate of 3.9 percent between these years. In comparison, the U.S. economy (U.S. GDP) is expected to grow about 99 percent from 2009 to 2035 (about 3.8 percent annually).[21]

Mirroring national trends, this GDP growth is anticipated to be accompanied by an increasing transition toward a higher value-added manufacturing and service economy. The highest-growth industry sectors from 2009 to 2035 include the manufacturing, wholesale trade, and construction sectors, all of which are highly dependent on the regional goods movement system. All three of these sectors will more than double in size in the next two decades and will contribute a combined $380 billion to regional GDP by 2035 (**FIGURE 4**).

**FIGURE 4** 2010–2035 Average Real Annual Growth Rates by Major Goods Movement-Dependent Sectors




[21] Bureau of Economic Analysis (www.bea.gov) for 2009 and 2010 data; REMI PI+v1.2.4 forecasts for future year projections. Growth in U.S. GDP was based on REMI data in percentage terms pivoting base year (2009) and future year (2035).

## Goods Movement Trends and Drivers

There are a number of key trends that are anticipated to have major impacts on the goods movement system over the RTP horizon. These trends include:

- **Population and Economic Growth:** As previously referenced, regional population and employment in the SCAG region, key indicators of economic health, are both projected to grow rapidly in the next two decades. The 2010 Census revealed that the SCAG region is home to just over 18 million people, or about 48 percent of the entire population of the state of California.[22] Despite the current economic downturn brought on by challenging global conditions, population and employment in the SCAG region are expected to grow by 24 percent and 22 percent by 2035, respectively. This growing population will be accompanied, after an initially slow period of growth, by healthy job creation.[23] However, employment in California has suffered recently, declining by 1.3 percent in 2008 and 6 percent in 2009.[24] Though unemployment rates in the state, as a whole, will remain high in the foreseeable future, employment in the SCAG region is projected to climb steadily.[25] This growth will create increased consumer demand for products and the goods movement services that provide them. The increased demand will drive stronger growth in freight traffic on shared highway and rail facilities.
- **Recovery and Expansion of International Trade:** Within the RTP time horizon, international trade is anticipated to recover with renewed demand for both import and export capabilities. Despite competition with other North American ports and the expansion of the Panama Canal, the San Pedro Bay Ports anticipate cargo volumes to grow to 43 million containers annually by 2035 – more than tripling from today's levels. This will create the need to expand marine terminal facilities, improve highway connections (particularly those connecting directly to the San Pedro Bay Ports, like I-710 and SR-47), and address on-dock and off-dock intermodal terminal capacities. If port-related rail traffic and commuter demand are to be satisfied, additional main line capacity improvements will be required. Mitigating the impacts of increased train traffic on communities will continue to be a considerable challenge.
- **Continued Expansion of Warehouse and Logistics Activity:** Southern California is an ideal place for expanded distribution and logistics activity and will continue to be a significant source of well-paying jobs in the region through 2035.[26] Demand for port-related warehouse space is projected to grow at a faster pace than demand for domestic warehousing. As space near the San Pedro Bay Ports reaches capacity, port warehousing will push out to the Inland Empire and other parts of the region. Expansion in national and regional distribution facilities is also likely to occur in the Inland Empire, resulting in substantial congestion problems due to the increased truck volumes on regional highways. By 2035, the region may experience a shortfall of more than 228 million square feet in warehouse space relative to demand.[27]
- **Air Quality Issues:** Much of the SCAG region does not meet federal ozone and fine particulate matter ($PM_{2.5}$) air quality standards. Goods movement is a major source of emissions that contribute to these regional air pollution problems ($NO_X$ and $PM_{2.5}$). While emissions from goods movement are being decreased through efforts such as the San Pedro Bay Ports Clean Air Action Plan, these reductions are unlikely to be sufficient to meet regional air quality goals.

22 http://factfinder2.census.gov (last accessed on July 3, 2011).
23 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.
24 California Regional Progress Report, November 2010. http://www.scag.ca.gov/publications/pdf/2010/CARegionalProgress2010.pdf.
25 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.
26 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.
27 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.

# 2012–2035 RTP/SCS Goods Movement Strategies

Infrastructure in the SCAG region must serve a variety of markets and be able to support diverse supply chains, each having distinct operational needs to continue to ensure continued economic growth. In addition, various policy strategies must be developed to address many of the impacts of regional goods movement including air quality, environmental, and communities concerns. To realize the benefits of efficient and sustainable goods movement, it is critical to identify strategies and projects that address expected growth trends.

## 2012–2035 RTP/SCS Background

In May 2004, SCAG, the six county transportation commissions in the SCAG region, San Diego County, and Caltrans began development of a plan to deal with regional goods movement challenges. This plan, also known as the Multi-County Goods Movement Action Plan (MCGMAP), identified freight movement constraints and included strategies that would lessen community and environmental impacts. Using the MCGMAP as a foundation, SCAG completed additional analyses to develop policies reflected in the 2008 RTP. The goods movement portion of the 2008 RTP identified a number of strategies aimed at facilitating regional freight movement in an economically viable and responsible manner.

Following the completion of the 2008 RTP, SCAG began the multi-year Comprehensive Regional Goods Movement Plan and Implementation Strategy to develop a refined regional goods movement plan along with an accompanying implementation strategy. Through this effort, SCAG has worked with diverse regional stakeholders to conduct in-depth evaluation of the region's goods movement system and associated regional freight patterns. A final version of the Comprehensive Regional Goods Movement Plan and Implementation Strategy documenting the full breadth of study findings will be released in coordination with adoption of the 2012–2035 RTP/SCS. The study integrates existing strategies and projects with newly developed regional initiatives advanced through recent analyses. The following sections highlight key regional initiatives evaluated for the 2012–2035 RTP/SCS.

## Highway Strategies

### EXISTING AND PROJECTED HIGHWAY CONDITIONS

Due to continued growth in freight and market demands, regional truck-related activities are expected to increase over the RTP time horizon. Trucks must be able to efficiently carry freight between businesses and consumers throughout the SCAG region to ensure that Southern California continues to capture the economic benefits of goods movement.

As part of the SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy, considerable enhancements were made to SCAG's existing heavy-duty truck (HDT) model to support the region's goods movement policy decisions. The HDT model is the primary analysis tool to evaluate the impacts of truck traffic and highway goods movement strategies on the regional transportation network. Major sources of truck traffic are grouped into the following categories in SCAG's HDT model:

- **Internal Truck Trips:** These are truck trips that have both an origin and a destination within the SCAG region and are generated by local industries, construction sites, domestic warehouses and truck terminals, and residences.
- **External Truck Trips:** These are interregional truck trips that reflect trade between the SCAG region and the rest of the U.S.
- **Port Truck Trips:** These are truck trips with an origin or destination at the San Pedro Bay Ports.
- **Secondary Port Truck Trips:** These are truck trips with an initial origin or destination at the San Pedro Bay Ports that are moved a second time after the first trip to or from the San Pedro Bay Ports. Transloading trips are in this category.
- **Intermodal (IMX) Truck Trips:** These are domestic intermodal truck trips that have origins or destinations at regional intermodal rail terminals. These truck trips do not include those that have either an origin or destination at the San Pedro Bay Ports.

**TABLE 5** shows the number of regional truck trips in 2008 by category and county.

**TABLE 5** Daily Regional Truck Trips by Category by County

| | Imperial | Los Angeles | Orange | Riverside | San Bernardino | Ventura | Total | Percent |
|---|---|---|---|---|---|---|---|---|
| Internal | 10,271 | 562,841 | 186,547 | 94,469 | 111,621 | 46,244 | **1,011,993** | **87.3%** |
| External | 4,816 | 38,794 | 6,815 | 11,183 | 18,140 | 1,271 | **81,019** | **7.0%** |
| Port | 25 | 37,060 | 2,499 | 855 | 2,752 | 165 | **43,356** | **3.7%** |
| Intermodal (IMX) | 17 | 3,376 | 306 | 271 | 3,143 | 57 | **7,170** | **0.6%** |
| Secondary | 37 | 11,944 | 1,102 | 714 | 2,224 | 268 | **16,289** | **1.4%** |
| **Total** | **15,166** | **654,015** | **197,269** | **107,492** | **137,880** | **48,005** | **1,159,827** | |
| **Percent** | **1.3%** | **56.4%** | **17.0%** | **9.3%** | **11.9%** | **4.1%** | | |

In 2008, the San Pedro Bay Ports were responsible for approximately 50,000 direct daily regional truck trips.[28] As shown in **TABLE 5**, this consitutes only 3.7 percent of regional truck trips. That number is expected to grow to approximately 120,000 daily regional truck trips, an increase of nearly 150 percent, by 2035. Recent data indicates that the vast majority of trips leaving the San Pedro Bay Ports are destined for locations in the southern Gateway Cities, off-dock railyards near downtown Los Angeles, and other locations along the I-710 corridor (**EXHIBIT 2**). Although most truck trips originating at the San Pedro Bay Ports remain in the port vicinity, some still move to destinations throughout the SCAG region, contributing to local challenges on area transportation networks.

However, this pattern is expected to shift in the future with an increase in the number of daily trucks traveling to warehouses in the San Gabriel Valley and the Inland Empire. For example, in 2008, 0.5 percent and 2.3 percent of all truck trips from the San Pedro Bay Ports moved to eastern San Bernardino Valley and western San Bernardino Valley, respectively. By 2035, it is anticipated that 8.8 percent and 7 percent of those truck trips will move to eastern San Bernardino Valley and western San Bernardino Valley, respectively.

Although some areas may show a decline in the percentage of daily truck trips from the San Pedro Bay Ports, all areas will experience higher truck volumes in absolute terms.

All key regional highway corridors used to move goods are expected to see an increase in overall truck volumes by 2035 (**EXHIBIT 3** reflects 2035 baseline conditions). At the corridor level, the highest growth in truck traffic is expected on I-710 as a result of significant growth in port-related traffic. While considerable growth in truck traffic is anticipated on I-10 and I-210, overall growth on SR-60 is forecast to be the highest of all of the east-west corridors. **EXHIBIT 4** illustrates expected speeds on the regional highway network during the PM Peak period in 2035 if no action is taken.

[28] This figure includes inter-terminal truck trips that do not move on the regional highway system, while the figure provided in the table includes only trips on the regional highway system.

**EXHIBIT 2** San Pedro Bay Ports Truck Distribution

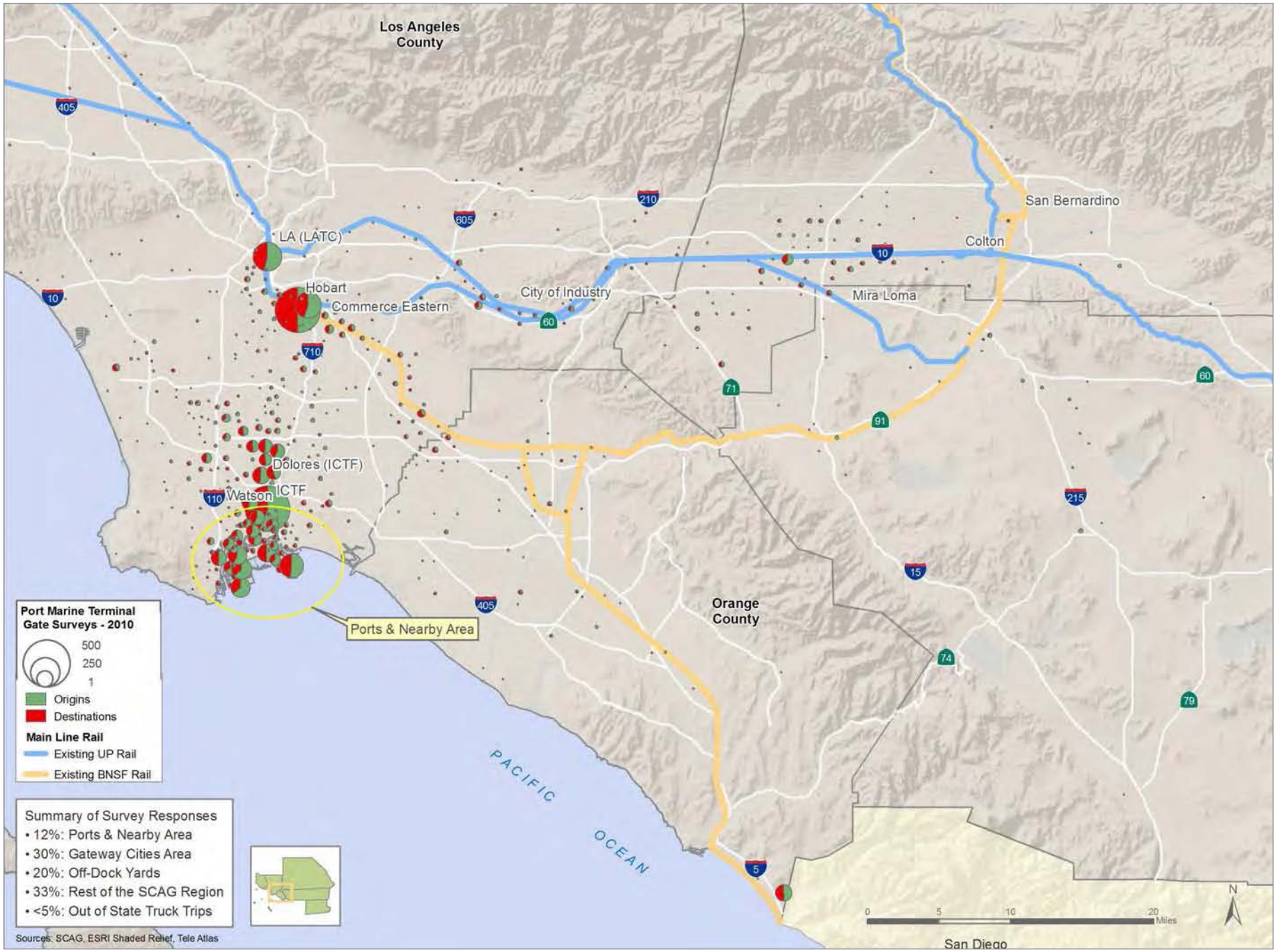


**EXHIBIT 3** Rising Truck Volumes on Key Truck Corridors (2008 and 2035 Baseline)

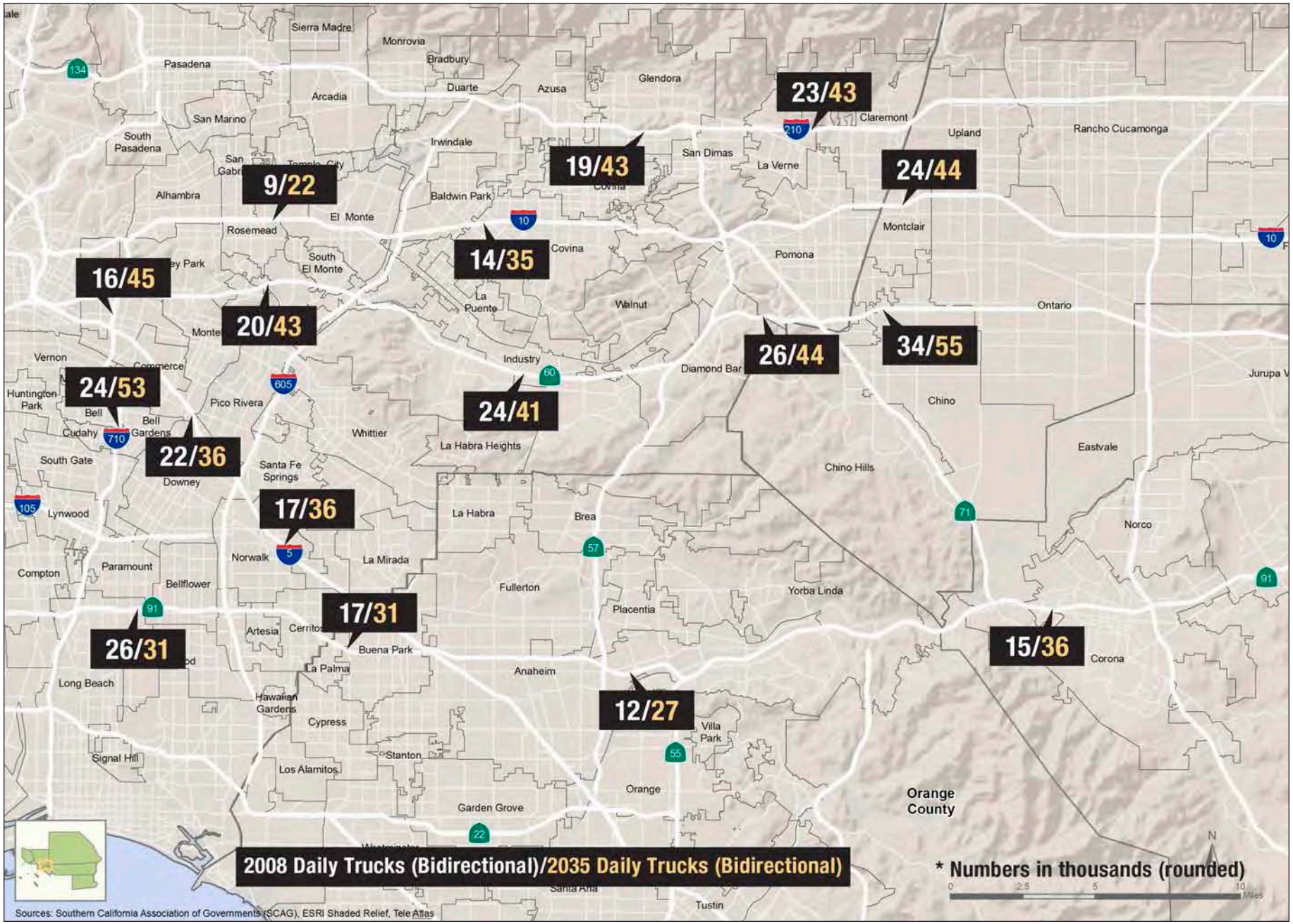


**EXHIBIT 4** Baseline 2035 Highway Speeds – PM Peak

## REGIONAL HIGHWAY STRATEGIES

As truck volumes continue to increase, especially eastward beyond the traditional service areas surrounding I-710, it is critical that regional infrastructure accommodate and mitigate the impacts of this growth. As part of the 2012–2035 RTP/SCS, SCAG has identified strategies to relieve congestion, reduce delay and harmful emissions, and improve safety on major truck corridors.

### Regional Clean Freight Corridor System

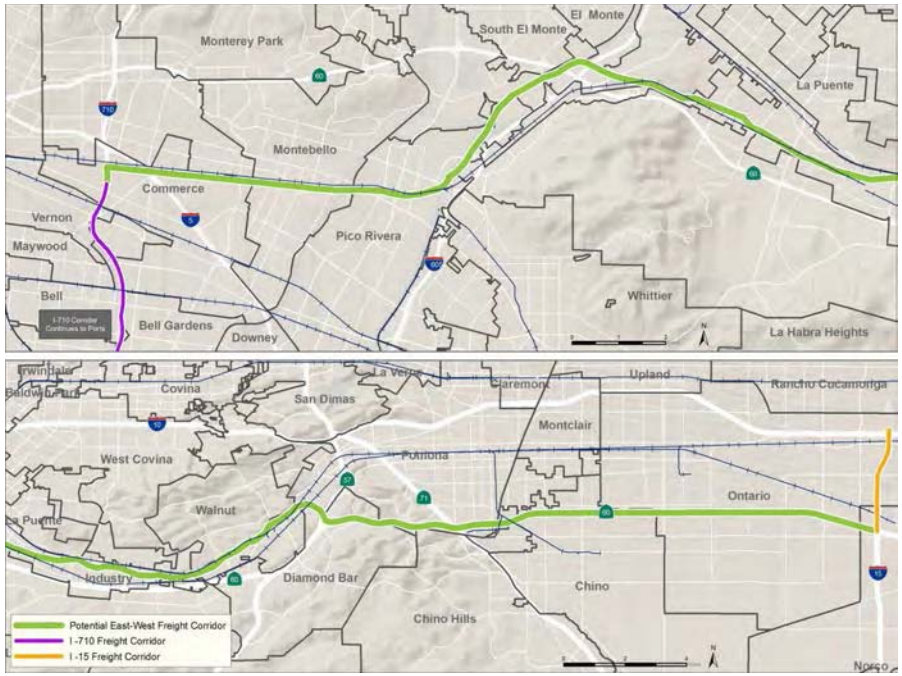
In past RTPs, SCAG has envisioned a system of truck-only lanes extending from the San Pedro Bay Ports to downtown Los Angeles along I-710, connecting to an east-west segment, and finally reaching I-15 in San Bernardino County. Such a system would address the growing truck traffic on core highways throughout the region and serve key goods movement industries in a manner that mitigates impacts on communities and the environment. Physically separated from mixed-flow traffic and with fewer ingress/egress points than typical urban freeways, truck-only freight corridors effectively add capacity in congested corridors, improve truck operations, increase safety by separating trucks and autos, and provide a platform for the introduction and adoption of zero- and/or near-zero emission technologies

SCAG recognizes I-710 as the first segment of a comprehensive regional system of truck-only freight corridors. In the 2008 RTP, SCAG recommended the inclusion of dedicated lanes for zero-emission trucks on I-710. Since that time, significant progress has been made on I-710 as evidenced by recent work on an environmental impact report (EIR) that is expected to be completed in 2013. In the 2012–2035 RTP/SCS, SCAG identifies a refined east-west corridor concept and connections to an initial segment of I-15.

## EAST-WEST FREIGHT CORRIDOR

The 2012–2035 RTP/SCS identifies a corridor concept that would connect to the north end of the I-710 freight corridor and roughly parallel the Union Pacific Railroad Los Angeles Subdivision before finally following a route adjacent to SR-60 just east of SR-57 (**EXHIBIT 5**). While numerous east-west freight corridor options were examined, the RTP/SCS identifies a corridor concept to be explored further. The potential use of two non-roadway routes provides an opportunity to move the facility away from neighborhoods and closer to the industrial activities that it would serve. Utilizing a right-of-way of approximately 100 feet, the bi-directional corridor would be restricted to truck traffic and have limited ingress/egress points. The East-West Freight Corridor would be a catalyst for the use of zero-and/or near-emission truck technologies, improving air quality for communities near the corridor and throughout the region.

**EXHIBIT 5** Potential East-West Freight Corridor

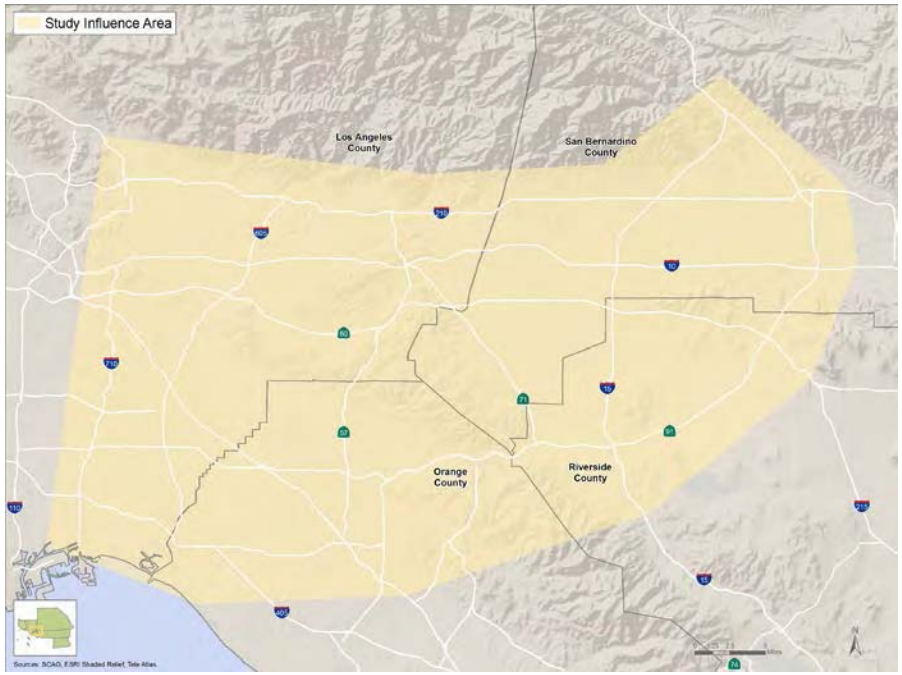



Following adoption of the 2012–2035 RTP/SCS, additional study of this alignment concept, will be conducted. Additional work for the East-West Freight Corridor would be explored through a full environmental impact report. This would provide substantial opportunity for further community input.

## IDENTIFICATION OF THE EAST-WEST FREIGHT CORRIDOR

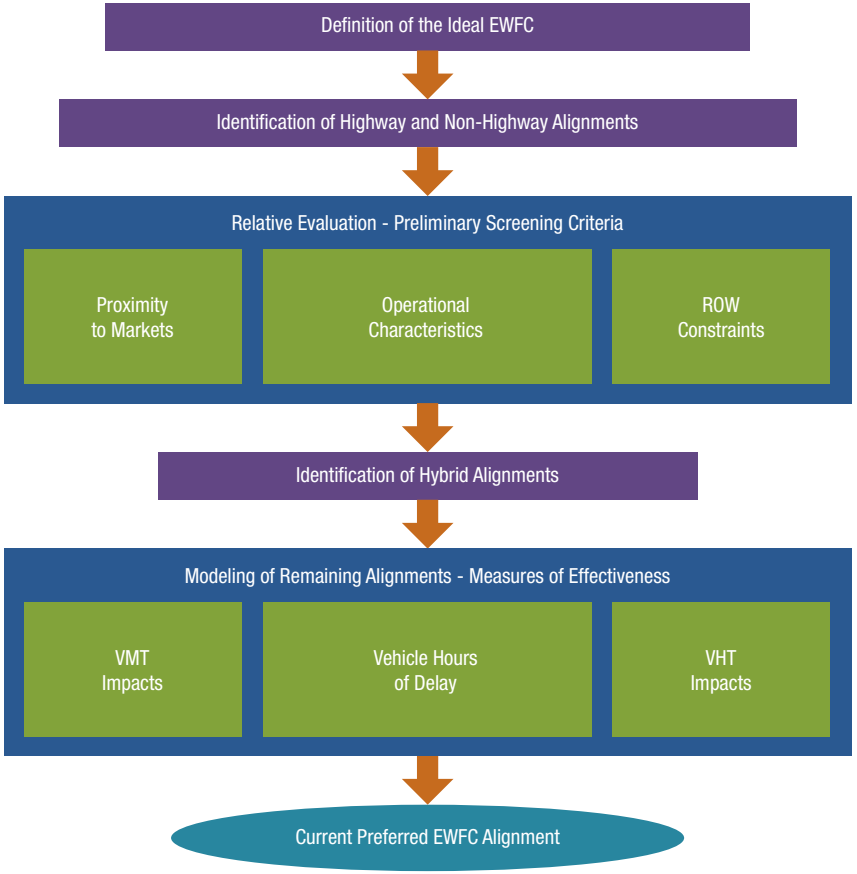
The preferred East-West Freight Corridor concept included in the 2012–2035 RTP/SCS is the culmination of extensive analysis and stakeholder feedback. **EXHIBIT 6** shows the area most likely to be influenced by the development of the East-West Freight Corridor.

**EXHIBIT 6** East-West Corridor Analysis Influence Area




Steps to identify the East-West Freight Corridor are summarized in **FIGURE 5** and explained further below.

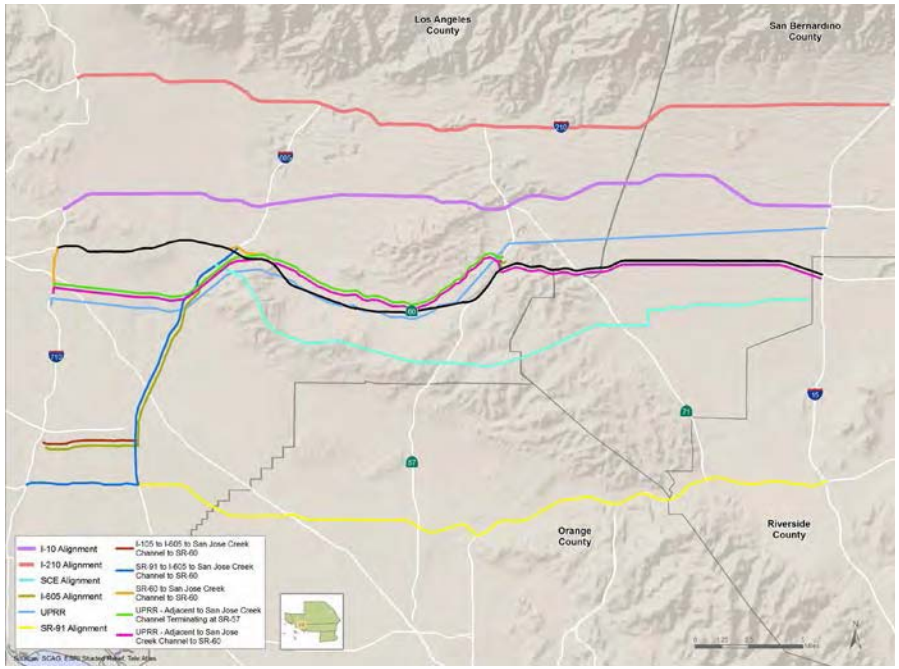
**FIGURE 5** Process for Idenfication of the East-West Freight Corridor



**Step 1:** Definition of the ideal characteristics for the East-West Freight Corridor. An ideal East-West Freight Corridor would support mobility for key industries; serve goods movement markets efficiently; be acceptable to neighboring communities; satisfy regional environmental goals; contribute to regional congestion mitigation; and not conflict with other regional projects under consideration. Satisfying all of these criteria may be a significant challenge, but any East-West Freight Corridor should satisfy as many as possible.

**Step 2:** Identification of the highway and non-highway alignments that could serve as the East-West Freight Corridor. This included highway corridors such as I-210, I-10, SR-60, and SR-91. It also included an SCE utility Right-of-Way (ROW) and a UPRR-adjacent facility, including the San Jose Creek Alignment. These facilities are identified in **EXHIBIT 7**.

**EXHIBIT 7** Initial East-West Freight Corridor Alignments




**Step 3:** Relative comparison of corridors against initial screening criteria. The potential corridors were evaluated for their proximity to current and future markets, their ROW feasibility and constraints, and corridor operational characteristics including the volume of trucks carried and the incidence rate of truck-involved accidents.

**Step 4:** Creation of new "hybrid" alignments that minimized community impacts. Following initial screening, the facilities identified below were further analyzed:

- UPRR-adjacent to San Jose Creek to SR-60
- UPRR-adjacent to San Jose Creek terminating at SR-57
- SR-60 to San Jose Creek to SR-60
- SR-91 to I-605 to San Jose Creek to SR-60
- I-105 to I-605 to San Jose Creek to SR-60

**Step 5:** Modeling of five remaining corridor alignments with the SCAG HDT model, including their impacts on Measures of Effectiveness (MOEs): VMT, VHT, and VHD. MOEs were calculated for the influence area. Results of the modeling analysis are summarized in **TABLE 6**.

Based on this analysis, Alternative 1 (UPRR-adjacent to San Jose Creek Channel to SR-60) was identified as the preferred corridor for further analysis and refinement. It is anticipated that this corridor concept could fall within a five-mile span of Alternative 1 (route illustrated in **EXHIBIT 5**.)

**TABLE 6** Modeling/Summary Comparison of Six Potential East-West Freight Corridor Alignments

| ID | Alignment | Summary/Key Points |
|---|---|---|
| 1 | UPRR-Adjacent to San Jose Creek Channel to SR-60 | Carries the second-highest truck volumes – within 5% of Alt. 5 |
| | | Reduces truck traffic on SR-60 by 65%–85% |
| | | Shows greatest reduction in total delay for all traffic (-4.3%) in influence area, as well as highest reduction (-10%) for heavy-duty truck delay |
| 2 | UPRR-Adjacent to San Jose Creek Channel Terminating at SR-57 | Results in negative traffic impacts – 18% more traffic on SR-60 east of SR-57 |
| | | Shows increase in total delay for all traffic (1%) in influence area, as well as the medium reduction for heavy-duty truck delay |
| 3 | SR-60 to San Jose Creek Channel to SR-60 | Carries the same truck volume as Alt. 1 – within 5% of Alt. 5 |
| | | Reduces truck traffic on SR-60 by 70%–85% |
| | | Shows high reduction in total delay for all traffic (-3.7%) in influence area, as well as high reduction (-9%) for heavy-duty truck delay |
| 4a | SR-91 to I-605 to San Jose Creek Channel to SR-60 | Carries lower truck volumes than Alt. 1, 3, 4b, and 5 |
| | | Shows greatest heavy-duty truck delay reduction (-10.9%) but fairly low (-1.3%) overall total delay for traffic |
| 4b | I-105 to I-605 to San Jose Creek Channel to SR-60 | Shows high heavy-duty truck delay reduction (-10.7%) but fairly low (-1%) overall total delay for traffic |
| 5 | SR-91 | Carries the most trucks of all screenlines – up to 57,780 (two-way volumes) |
| | | Has little impact on parallel freeways east of SR-57 |
| | | Shows high heavy-duty truck delay reduction (-10.5%) but fairly low (-1%) overall total delay for traffic |

## BENEFITS OF THE EAST-WEST FREIGHT CORRIDOR

Continuing to move freight efficiently is critical to retain Southern California's trade competitiveness. The East-West Freight Corridor (Alternative 1) offers the opportunity to address many of the goods movement challenges, including congestion, air quality, and safety concerns. The East-West Freight Corridor will support mobility for key industries, serve goods movement markets in an efficient manner, promote the region's environmental goals, and contribute to alleviating the region's congestion. In addition, it will not conflict with other major regional projects under consideration. Analysis completed as part of the SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy for the 2012–2035 RTP/SCS indicates that major benefits of the potential East-West Freight Corridor include:

- **Mitigation of Future Truck Traffic:** Truck traffic is projected to grow significantly on all existing key east-west freeway segments. These dramatic increases in truck traffic on east-west corridors will cause increased congestion and longer delays to both trucks and general traffic on existing routes. The construction of the East-West Freight Corridor would increase capacity to accommodate the projected growth in truck activity. The corridor's traffic mitigation impacts would be significant, especially considering that some segments of the East-West Freight Corridor are forecast to carry between 58,000 and 78,000 trucks per day in 2035.
- **Reduction in Regional Delay:** The East-West Freight Corridor is projected to result in substantial delay reduction for both trucks and autos. Within the identified influence area, all traffic is expected to experience a reduction of approximately 4.3 percent, with heavy-duty trucks seeing a nearly 10 percent decrease. This reduced delay would provide demonstrable travel time savings as well as reduce emissions from idling vehicles on congested roadways.
- **Impact on Parallel Routes:** The East-West Freight Corridor is projected to draw significant volumes of truck traffic away from parallel routes, easing congestion and creating capacity for other vehicles on general purpose lanes. Estimates indicate that the East-West Freight Corridor could reduce daily traffic on portions of SR-60 (between 42–82 percent), I-10 (up to 33 percent), SR-91 (up to 19 percent), I-210 (up to 17 percent), and major regional arterials (up to 21 percent).

- **Mobility Benefits for Critical Markets:** The East-West Freight Corridor would offer considerable benefits to regional businesses and industries served by the numerous clusters of warehousing and manufacturing facilities near the route. Portions of the recommended potential East-West Freight Corridor lie within a five-mile radius of 52 percent of the region's warehousing square footage and 27 percent of regional manufacturing employment. Supplemental **EXHIBITS A1–A6** show the proximity of major truck corridors to regional warehousing and manufacturing.
- **Reduction of Truck-Involved Accidents:** The East-West Freight Corridor offers the potential to reduce truck-involved crashes as a result of the separation between trucks and other vehicles. Safety analysis revealed that several existing east-west corridors have high rates of truck-involved crashes, including segments of SR-60, SR-91, and I-10. Over a five-year period, the average of truck-involved crashes on key east-west corridors showed that SR-60 between I-605 and SR-57 has the highest average number of truck accidents—10 to 15 truck crashes per mile on an annual basis. A short segment near the intersection of SR-60 and SR-57 had an average of 20 to 30 crashes per mile annually. The East-West freight corridor designed specifically for use by heavy duty trucks has the potential to improve safety and decrease the number of accidents for trucks and autos on parallel routes.
- **Preservation of Jobs and Income:** Increasing congestion is making Southern California a less attractive place to do business, threatening jobs and the positive economic impacts of the goods movement sector. The East-West Freight Corridor delivers a transportation system with greater capacity and less congestion in support of industries that depend on efficient freight movement throughout the SCAG region.
- **Reduction of Harmful Emissions:** The East-West Freight Corridor provides an opportunity to reduce harmful pollutants through the use of zero- and/or near-zero -emission technologies for freight transportation. Although the technology to be used will be determined as the market evolves, the East-West Freight Corridor offers a significant opportunity to catalyze development, deployment, and commercialization of zero- and/or nearemission technologies for freight transportation.

**TABLE 7** Benefits of an East-West Corridor Strategy

| | |
|---|---|
| **Mobility** | ▪ Truck delay reduction of approximately 11%<br>▪ All traffic delay reduction of approximately 4.3%<br>▪ Reduces truck volumes on general purpose lanes—42–82% reduction on SR-60 |
| **Safety** | ▪ Reduced truck/automobile accidents (up to 20–30 per year on some segments) |
| **Environment** | ▪ 100% zero-emission truck utilization removes: 4.7 tons $NO_X$, 0.16 tons $PM_{2.5}$, and 2,401 tons $CO_2$ daily |
| **Community** | ▪ Preferred alignment has least impact on communities<br>▪ Removes traffic from other freeways<br>▪ Zero-emission technology (ZET)—reduces localized health impacts |
| **Economic** | ▪ Supports mobility for goods movement industries, which comprise 34% of SCAG regional economy and jobs |

## Bottleneck Strategy

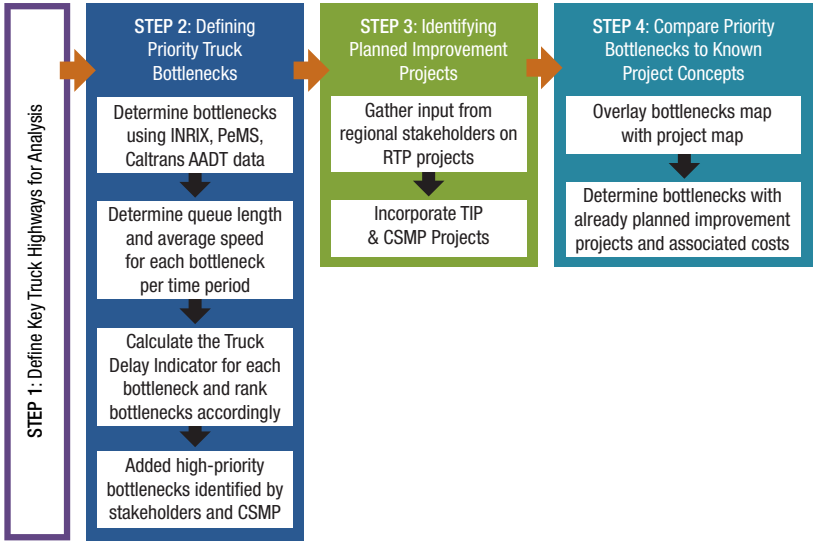
In a recent analysis of critical issues affecting the trucking industry conducted by the American Transportation Research Institute (ATRI), traffic congestion ranked near the top in 2011 after being less of a concern in 2009–2010 as a result of the economic downturn.[29] Besides causing delays to other highway users, heavy truck congestion results in wasted labor hours and fuel. In 2010, it was estimated that the cost of truck congestion in 439 major urban areas was approximately $23 billion.[30] Truck congestion in urban areas within the SCAG region resulted in approximately $2.6 billion in costs.[31] Given that driver wages and fuel costs represent over 50 percent of total motor carrier costs, truck congestion has major impacts on the bottom line of the trucking industry. Truck bottlenecks are also emission "hot spots" and generally have significantly degraded localized air quality caused by increased idling from passenger vehicles and trucks.

A coordinated strategy to address the top-priority truck bottlenecks may be a cost-effective way to improve the efficiency of goods movement in the SCAG region. Additionally, the East-West Freight Corridor concept, alone, will not address congestion on all the major truck corridors; the bottleneck strategy reduces congestion in areas outside of the East-West Freight Corridor. Though some bottleneck projects (such as auxiliary lanes) are large, capital-intensive, projects, others (such as ramp metering) are less complex and would therefore be relatively easier to implement. Regardless of their complexity, bottleneck alleviation projects positively contribute to the region's environmental goals (by reducing emissions "hotspots"), and result in substantial, tangible benefits to commuters and goods movement industries alike.

SCAG recently studied regional truck bottlenecks through a four-step process (**FIGURE 6**) that utilized Caltrans truck data, INRIX and PeMS truck traffic data, feedback from key regional stakeholders, and information from the completed Corridor System Management Plans (CSMPs).

This analysis resulted in a list of the top 44 regional priority bottlenecks (**EXHIBIT 8**). Top priority bottlenecks include those that had the highest truck-related annual delay according to the bottleneck assessment performed with INRIX and PeMS data. [32] Also included on this list are high-priority bottlenecks identified through the CSMP process and stakeholder involvement process.

**FIGURE 6** Key Steps in the Bottleneck Analysis




The 2012–2035 RTP/SCS allocates an estimated $5 billion toward goods movement bottleneck relief strategies. Examples of bottleneck relief strategies include ramp metering, extension of merging lanes, ramp and interchange improvements, capacity improvements, and auxiliary lane additions. Some bottleneck relief concepts have been identified through the CSMP process and others are currently programmed for implementation. Additional project concepts will continue to be refined through SCAG's Comprehensive Regional Goods Movement Plan and Implementation Strategy.

The top 44 congested areas and bottlenecks in the SCAG region, combined, contribute over 1 million hours of truck delay annually to SCAG regional roadways in congested time periods. Addressing these congested areas and bottlenecks could contribute to a reduction in this delay, as well as associated emissions and air pollution benefits.

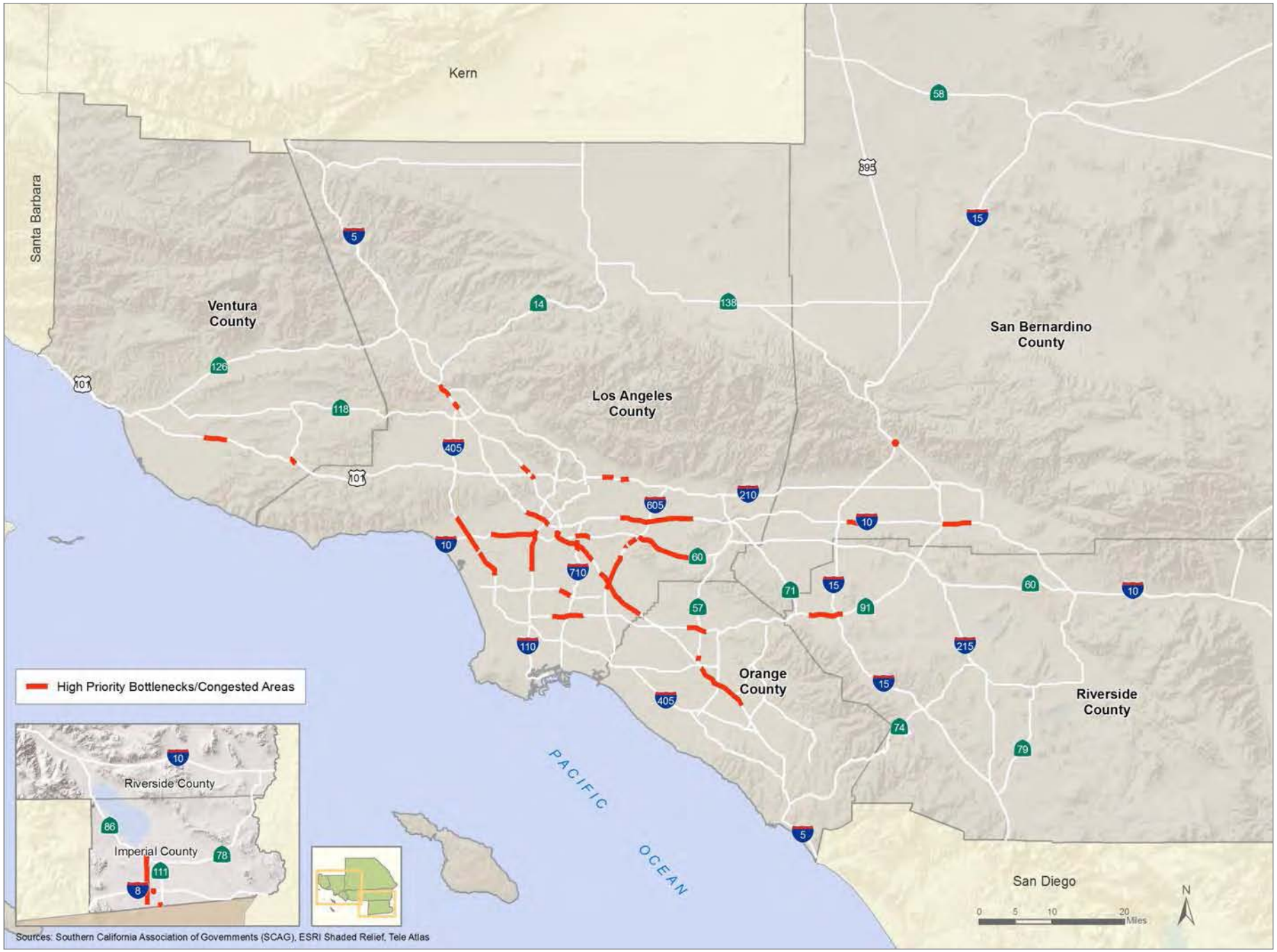
29 http://www.atri-online.org/2011_top_industry_issues.pdf.

30 Texas Transportation Institute 2011 Urban Mobility Report.

31 Texas Transportation Institute 2011 Urban Mobility Report. Urban areas as defined in the report include Los Angeles-Long Beach-Santa Ana, Riverside-San Bernardino, Lancaster-Palmdale, Bakersfield, Indio-Cathedral City-Palm Springs, and Oxnard-Ventura.

32 "Highest annual delay" is defined as all bottlenecks that exhibited 20,000 or more hours of truck-related delay on an annual basis.

**EXHIBIT 8** Priority Truck Bottlenecks in the SCAG Region



## Rail Strategies

The health of the Southern California economy depends on an efficient rail system with the capacity to accommodate projected growth in international and domestic freight. The rail system in the SCAG region provides a critical connection between the largest port complex in the country and producers and consumers throughout the U.S. Over half of the international cargo arriving at the San Pedro Bay Ports utilizes rail, including on-, near-, and off-dock rail. Regional rail also serves domestic industries, predominantly for long-haul freight leaving the region. The extensive rail network in the SCAG region is a critical link in the regional supply chain that offers shippers the ability to move large volumes of goods over long distances at lower costs versus other transportation options. As part of the 2012–2035 RTP/SCS, SCAG has highlighted a comprehensive package of improvements to the regional rail system. The rail package includes goals such as long-term economic competitiveness, job creation and retention, increased freight and passenger rail mobility, improved safety of at-grade crossings, and mitigation of environmental impacts of rail operations. By presenting these goals as a complete rail package, SCAG aims to promote collaboration and coalition building and to develop a unified message to attract leadership support for the program.

### EXISTING AND PROJECTED RAIL CONDITIONS

Southern California is served by two Class I railroads:[33] Union Pacific Railroad (UP) and the Burlington Northern Santa Fe Railway (BNSF). Pacific Harbor Line, Inc. (PHL), a Class III railroad, provides rail transportation, maintenance, and dispatching services within the San Pedro Bay Ports area. The Port of Hueneme is served by the Ventura County Railway (VCR), a Class III railroad, which connects to the UP Coast main line in Oxnard. Another Class III line, the Los Angeles Junction Railway (LAJ), provides industrial switching services in the Cities of Vernon, Maywood, Bell, and Commerce. The LAJ provides connections to both UP and BNSF. **EXHIBIT 9** shows key segments of the rail system described in more detail below.

[33] For purposes of accounting and reporting, the Surface Transportation Board designates three classes of freight railroads based upon their operating revenues for three consecutive years using the following scale: Class I–$250 million or more; Class II–less than $250 million but more than $20 million; and Class III–$20 million or less. These operating revenue thresholds are stated in 1991 dollars and are adjusted annually for inflation using a Railroad Freight Price Index developed by the Bureau of Labor Statistics (BLS).

North of the Ports of Los Angeles and Long Beach, UP and BNSF trains operate on the Alameda Corridor, which was completed in 2002. All harbor-related trains of the UP and BNSF use the Alameda Corridor to access the rail main lines that originate near downtown Los Angeles. East of downtown Los Angeles, freight trains operate on the BNSF San Bernardino Subdivision, the UP Los Angeles Subdivision, or the UP Alhambra Subdivision. North and west of Los Angeles, freight trains operate on the UP Coast line toward Santa Barbara, the Antelope Valley line from the San Fernando Valley to Palmdale, or the UP Mojave Subdivision from West Colton to Palmdale.

To transition from the Alameda Corridor to the Alhambra Subdivision, the UP utilizes trackage rights over Metrolink's East Bank Line, which runs parallel to the Los Angeles River on the east side of downtown Los Angeles. The UP Los Angeles Subdivision terminates at West Riverside Junction where it joins the BNSF San Bernardino Subdivision. The BNSF San Bernardino Subdivision continues north of Colton Crossing and transitions to the BNSF Cajon Subdivision. The Cajon line continues north to Barstow and Daggett, and then east toward Needles, CA, and beyond. UP trains exercise trackage rights over the BNSF San Bernardino Subdivision from West Riverside Junction to San Bernardino and over the Cajon Subdivision from San Bernardino to Daggett, which is a short distance east of Barstow. UP trains continue north of Daggett on the UP Cima Subdivision to Las Vegas.

The UP Alhambra Subdivision and the BNSF San Bernardino Subdivision cross at Colton Crossing in San Bernardino County. East of Colton Crossing, the UP operates its transcontinental Sunset Route main line, also known as the UP Yuma Subdivision. The Yuma Subdivision passes through the Palm Springs area, Indio, and continues to Arizona and beyond.

The UP Yuma Subdivision has two main tracks from Colton to Indio. East of Indio, the Sunset Route still has stretches of single track, but construction of a second main track is underway.

The BNSF San Bernardino Subdivision has at least two main tracks with segments of triple track between Hobart and Fullerton. On the Cajon Subdivision, the BNSF recently completed a third main track from San Bernardino to the summit of Cajon Pass.

The UP Alhambra Subdivision is mostly single track, while the UP Los Angeles Subdivision has two main tracks west of Pomona and a mixture of one and two tracks east of Pomona.

North from West Colton, the single-track UP Mojave Subdivision closely parallels the BNSF Cajon Subdivision as the two lines climb the south slope of Cajon Pass. There are connections at Keenbrook and Silverwood to enable UP trains to enter/exit the main tracks of the BNSF Cajon Subdivision. Beyond Silverwood to Palmdale, the UP Mojave Subdivision has very little train traffic. UP uses this line to reach points in Northern California and the Pacific Northwest.

The BNSF operates intermodal terminals for containers and trailers at Hobart Yard (in the City of Commerce) and at San Bernardino. UP operates intermodal terminals at:

- East Los Angeles Yard at the west end of the UP Los Angeles Subdivision
- Los Angeles Transportation Center (LATC) at the west end of the UP Alhambra Subdivision
- City of Industry on the UP Alhambra Subdivision, and the
- Intermodal Container Transfer Facility (ICTF) near the south end of the Alameda Corridor

In addition, both UP and BNSF operate trains hauling marine containers that originate or terminate at on-dock terminals within the Ports of Los Angeles and Long Beach.

UP also has a large carload freight classification yard at West Colton (at the east end of the Alhambra Subdivision). A large automobile unloading terminal is located at Mira Loma (mid-way between Pomona and West Riverside on the Los Angeles Subdivision).

## CURRENT AND FUTURE VOLUMES AND POTENTIAL CAPACITY CONSTRAINTS

Rail is expected to continue to play a key role in goods movement transportation in the SCAG region. Significant growth in passenger and freight rail traffic is expected on most segments of the SCAG regional rail system by 2035. This anticipated growth is highlighted in **TABLE 8**, which shows 2010, and the projected 2035 peak day train volumes on key segments. Freight train volumes include container trains, also called intermodal trains (marine and domestic), and non-intermodal trains (unit automobile trains, unit oil trains, unit bulk, and carload trains). Passenger trains include Amtrak and Metrolink service. Increases in railroad traffic will require ongoing infrastructure investment to maintain current levels of service. Increased rail traffic also has an impact on highway traffic and congestion, as more trains will result in increased wait times for vehicles at at-grade crossings.

**TABLE 8** Peak Day Train Volumes 2010, 2035 (Metrolink Volumes in Parenthesis)

| Line Segments | Type | 2010 | 2035 |
|---|---|---|---|
| BNSF San Bernardino Subdivision *Hobart–Fullerton* | Passenger | 54(28) | 77(51) |
| | Freight | 45 | 90 |
| BNSF San Bernardino Subdivision *Atwood–W. Riverside* | Passenger | 26(24) | 42(40) |
| | Freight | 49 | 99 |
| BNSF San Bernardino Subdivision *W. Riverside–Colton* | Passenger | 10(8) | 42(40) |
| | Freight | 67 | 147 |
| BNSF Cajon Subdivision *San Bernardino–Silverwood PLUS* UP Mojave Subdivision *W. Colton–Silverwood* | Passenger | 2(0) | 2(0) |
| | Freight | 93 | 147 |
| UP Los Angeles Subdivision *East LA–Pomona PLUS* UP Alhambra Subdivision *Yuma Jct.–Pomona* | Passenger | 13(12) | 21(20) |
| | Freight | 52 | 98 |
| UP Los Angeles Subdivision *Pomona–W. Riverside PLUS* UP Alhambra Subdivision *Pomona–West Colton* | Passenger | 13(12) | 21(20) |
| | Freight | 51 | 109 |
| UP Yuma Subdivision *Colton–Indio* | Passenger | 1(0) | 1(0) |
| | Freight | 45 | 93 |

*Note: A "peak day" experiences the 90th percentile of the distribution of daily train movements.*
*Source: 2011 Regional Rail Simulation Study, SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy. Forecasts performed through rail simulation conducted by Dr. Robert Leachman, Leachman and Associates, LLC. These numbers do not represent forecasts made by BNSF Railway or UP Railroad. Passenger volume totals include Amtrak and Metrolink.*

## REGIONAL RAIL STRATEGIES

The proposed regional rail package has several components. These include main line rail improvements (rail-to-rail grade separations, double or triple tracking, new signal systems, universal crossovers, new sidings, etc.) that would benefit both freight rail and passenger rail service depending on their location; rail yard improvements (upgrades to existing yards as well as construction of new yards); rail operation safety improvements such as Positive Train Control (PTC) that could greatly reduce the risk of rail collisions and increase capacity; grade separations; and emissions reduction strategies.

### Main Line Capacity Enhancements

The 2011 SCAG Regional Rail Simulation Study updates the 2005 Inland Empire Main Line Rail Study. The effort evaluates the main line capacity requirements for projected levels of train traffic on the BNSF and UP lines by considering routing alternatives to meet the following goals:

- Reduce capital costs
- Reduce safety risks and impacts
- Reduce train volumes through the worst bottleneck (Riverside–Colton)
- Avoid the most costly line expansion (UP Pomona–Riverside line)
- Separate Metrolink from heavy UP traffic
- Route freight lines where most environmentally friendly (but sustain service to all rail terminals)

Currently, the UP Alhambra and Los Angeles Subdivisions are used to some extent as a paired double track, with eastbound trains operating via the Los Angeles Subdivision from Redondo Junction or East Los Angeles to West Riverside, via trackage rights over the BNSF line through Riverside to Colton (**FIGURE 7**). Because of the locations of certain rail terminals, approximately one-fourth of the UP trains must move against the current of traffic. **FIGURE 7** shows the existing routing of the UP Alhambra and Los Angeles Subdivisions. As an example, trains carrying automobiles that terminate at Mira Loma must use trackage rights over BNSF Colton–West Riverside and then operate westbound over the Los Angeles Subdivision to Mira Loma.

**EXHIBIT 9** Regional Rail Segments

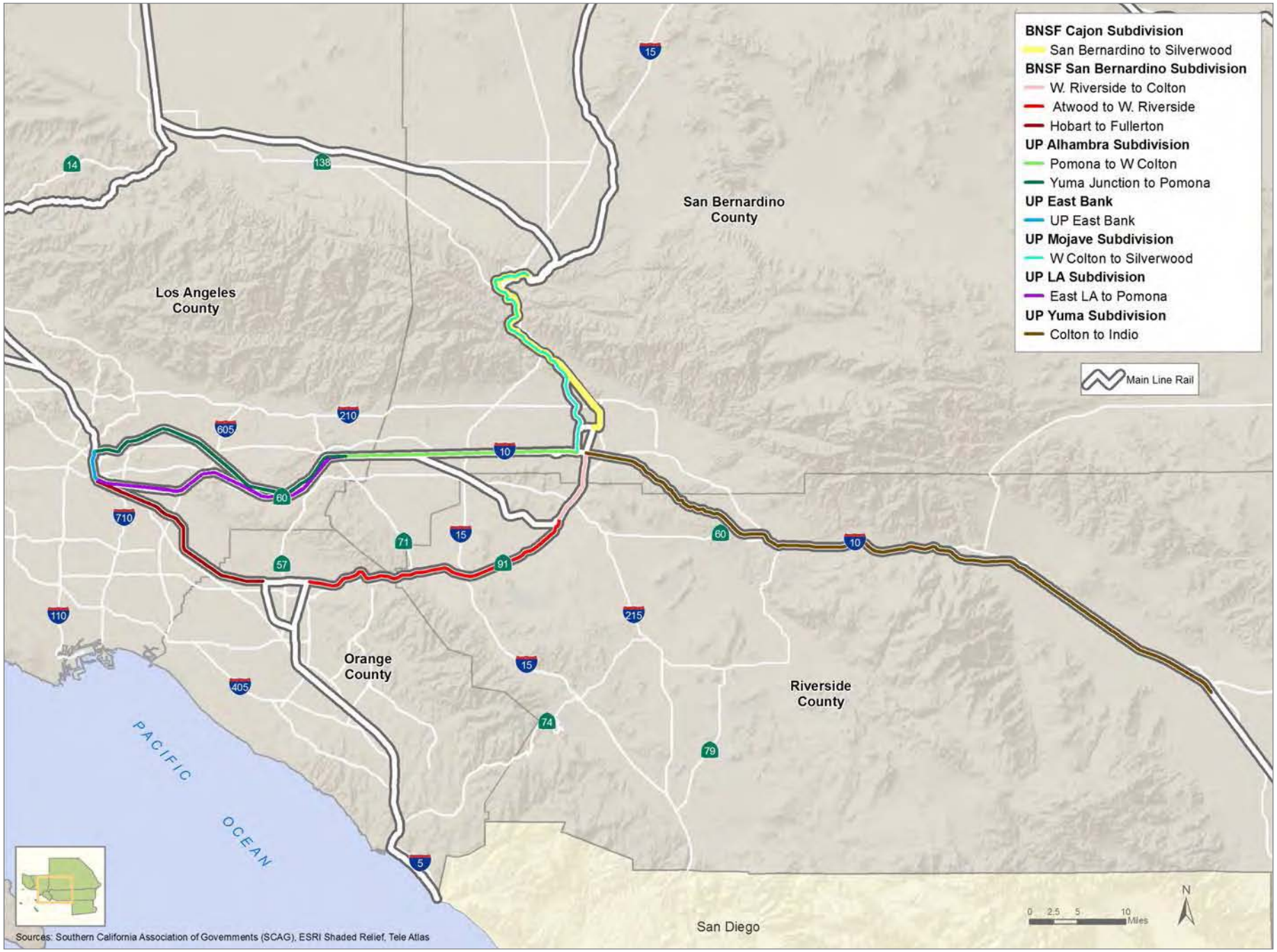
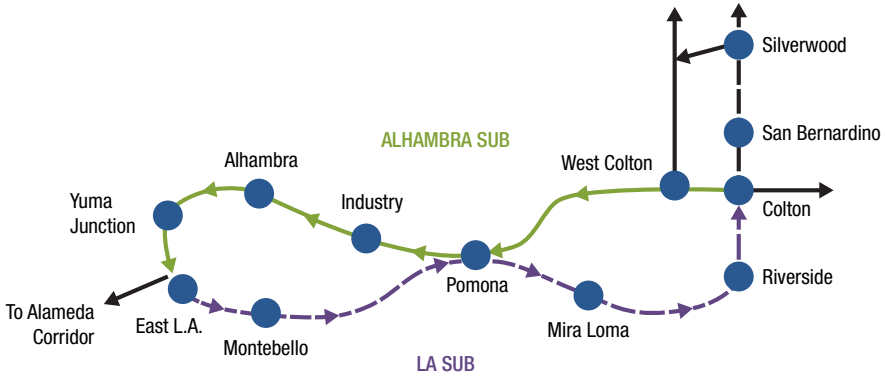
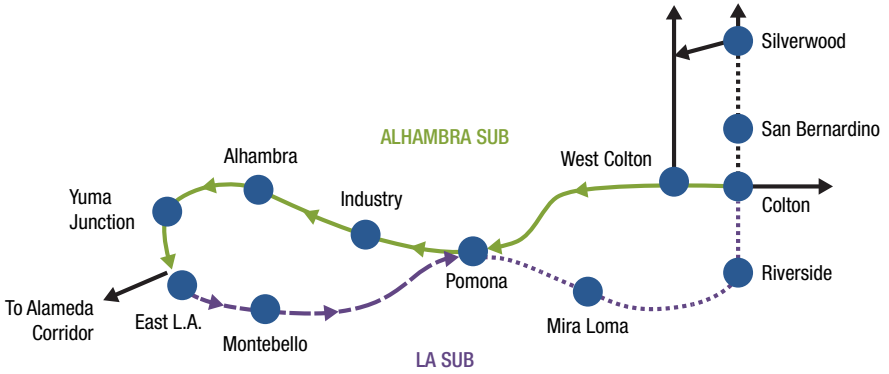


**FIGURE 7** Schematic of Status Quo Routing of Union Pacific Trains




*Source: 2011 Regional Rail Study completed by Dr. Robert Leachman, Leachman and Associates, LLC for SCAG*

**FIGURE 8** Schematic of Modified Status Quo Routing of Union Pacific Trains




*Source: 2011 Regional Rail Study completed by Dr. Robert Leachman, Leachman and Associates, LLC for SCAG*

A complete description of the various routing alternatives considered can be found in the 2011 Regional Rail Simulation Study. One option studied was the Modified Status Quo (**FIGURE 8**). Operations west of Pomona are the same as in the Status Quo (i.e., most UP trains follow a one-way loop westbound on the Alhambra Subdivision and eastbound on the Los Angeles Subdivision). East of Pomona, however, trains that do not have to use the Los Angeles Subdivision are routed via the Alhambra Subdivision from Pomona to West Colton. The Modified Status Quo alternative reduces the total through-train counts in 2035 through downtown Riverside and downtown San Bernardino by 41 and 10 trains, respectively. This alternative concentrates about 92 percent of UP through-train movements via West Colton versus only 8 percent via the UP Los Angeles Subdivision through Riverside.

There are a number of key advantages to the Modified Status Quo routing scenario:

- Routing trains via the UP Los Angeles Subdivision involves use of trackage rights over the BNSF San Bernardino Subdivision between Colton Crossing and West Riverside. This is the most heavily utilized line segment in the Los Angeles Basin. Expansion of the capacity of this segment to accommodate 2035 traffic levels is relatively difficult and expensive under the Status Quo alternative, requiring a fourth main track plus flying junctions to enter and exit BNSF tracks. Moreover, double tracking the remaining portions of the UP Los Angeles Subdivision would be very costly, involving duplication of the lengthy Santa Ana River Bridge and significant property-taking and earth removal in Riverside.
- The cost of main line rail improvements under Modified Status Quo routing is $670 million less costly than the improvements needed under Status Quo routing. Expansion of capacity along the UP Alhambra Subdivision between West Colton and Pomona is much less costly and is consistent with UP's stated capital investment plans.

- Shifting UP trains operating between Cajon Pass and Pomona off the BNSF line and the UP Los Angeles Subdivision and onto the UP Mojave and UP Alhambra Subdivisions reduces conflicts between Metrolink commuter trains and UP freight operations.

For these reasons, the main line track improvements in the 2012–2035 RTP/SCS update are associated with the Modified Status Quo alternative. It is recognized, however, that only UP controls the actual routing of UP trains. While neither BNSF nor UP have committed to route trains as assumed in the study, UP investments to date suggest that the Modified Status Quo represents their plans.

Estimated costs of the recommended main line track improvements are shown in **TABLE 9**. The Colton Crossing rail-to-rail grade separation (already programmed with state, federal, and private funds) involves elevating the east-west Union Pacific tracks over the north-south BNSF line. This project is funded by a $33.8 million TIGER[34] I grant, $91 million from Prop 1B TCIF,[35] and railroad funds.

Improvements to the BNSF Cajon Subdivision include installing a third main track and a fourth main track on specific segments, exceptional earthmoving, crossovers, and bridges across multiple culverts.

Improvements to the BNSF San Bernardino Subdivision include a third main track, as well as a fourth main track along the Hobart to Fullerton segment. Caltrans has provided $121.8 million for the triple tracking from Serapis (MP 151.1) to Valley View (MP 158.7).

Improvements to the UP Mojave Subdivision include a second main track over a key segment and a "flying junction" at Rancho (West Colton).

Improvements to the UP Alhambra Subdivision include double tracking key segments and route connections in Pomona.

34 Transportation Investment Generating Economic Recovery.
35 Trade Corridor Improvement Fund.

**TABLE 9** Estimated Cost of Main Line Rail Improvements (Millions of Nominal Dollars)

| Main Line Rail Improvements | Estimated Costs |
|---|---|
| Colton rail-to-rail grade separation–BNSF Cajon Subdivision | $243.60 |
| Barstow to Keenbrook–BNSF San Bernardino Subdivision | $762.10 |
| Colton Crossing to Redondo Junction–UP Mojave Subdivision | $1,188.70 |
| Devore Road to West Colton (inc. Rancho Flying Junction)–UP Alhambra Subdivision | $522.00 |
| West Colton to City of Industry–UP Los Angeles Subdivision | $376.10 |
| UP Yuma Subdivision | $0 |
| **Total Main Line Rail Improvements** | **$3,092.40** |

*Note: Estimates consistent with Modified Status Quo Alternative. Colton Crossing grade separation cost updated. Estimates have been escalated to nominal dollars using 3.2 percent annual inflation rate. Source: 2011 Regional Rail Simulation Study, SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.*

## On-Dock/Near-Dock Rail Capacity Enhancements

In 2010, approximately 35 percent of the Ports' containers were shipped by rail "intact," meaning the cargo was moved by rail in marine containers without being transloaded or deconsolidated first (**TABLE 10**). An additional market segment is transloaded into 53-foot domestic containers or trailers at deconsolidation facilities in the region. The larger containers are then trucked to off-dock rail yards for loading onto trains and transported out of the region. The 53-foot wheeled trailers are also typically transported out of the region. Containers that are neither shipped by rail intact nor transloaded are trucked directly to/from local warehouses or distribution facilities.

**TABLE 10** shows the percentage of direct intermodal cargo handled at on-dock and near-dock rail yards. In 2010, 23.5 percent of direct intermodal cargo was handled using on-dock rail. Containers moved using on-dock rail do not have to be trucked to/from more distant rail yards. In 2010, 11.7 percent of port containers were handled at off-dock yards (e.g., Hobart, East Los Angeles) or existing near-dock yards (i.e., ICTF). These containers must be trucked to/from these yards.

**TABLE 10** San Pedro Bay Ports Direct Intermodal Volumes as a Percentage of Total Port Container Throughput (2003–2010)

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|
| % On-Dock | 15.9% | 18.1% | 20.7% | 24.1% | 23.0% | 23.7% | 24.6% | 23.5% |
| % Near-/ Off-Dock | 23.4% | 21.2% | 19.5% | 18.7% | 18.4% | 18.5% | 15.3% | 11.7% |
| **Total % Direct Intermodal** | **39.3%** | **39.3%** | **40.2%** | **42.8%** | **41.4%** | **42.2%** | **39.9%** | **35.2%** |
| **Total Throughput (POLA + POLB) Millions of TEUs** | **11.8** | **13.1** | **14.2** | **15.8** | **15.7** | **14.3** | **11.8** | **14.1** |

*Source: Ports of Los Angeles and Long Beach*

## PORT AREA RAIL INFRASTRUCTURE IMPROVEMENTS

The Ports of Los Angeles and Long Beach have proposed almost $2.7 billion in rail improvements within the harbor area (**TABLE 11**). These projects are designed to facilitate an increase in on-dock rail service, to reduce railroad delay associated with train meets and passes, and to reduce conflicts with highway traffic. By allowing more on-dock rail, truck traffic between the San Pedro Bay Ports and distant rail yards can be reduced. Use of on-dock rail eliminates truck vehicle miles of travel (VMT) and associated emissions by allowing trains to be loaded and unloaded inside marine terminals.

Assuming the proposed improvements to on-dock infrastructure are made, on-dock rail is estimated to account for the movement of approximately 30 percent of all port TEUs by 2035. On-dock rail is not expected to be able to accommodate 100 percent of direct intermodal moves. It is limited by factors such as shipper/steamship line logistics (trans-loading, transportation costs, etc.), railroad operations (equipment availability, the need to generate destination-specific unit trains, train schedules, and steamship line contracts/ arrangements), and terminal operation and congestion.

**TABLE 11** Estimated Cost of Port-Area Rail Improvement (Millions of Nominal Dollars)

| Port Area Rail Improvements (excluding SCIG and ICTF) | Estimated Costs |
|---|---|
| Port of Long Beach | |
| On-Dock Railyards | $765.30 |
| Rail Infrastructure Outside Marine Terminals | $1,321.80 |
| Subtotal Port of Long Beach | $2,087.10 |
| Port of Los Angeles | |
| On-Dock Railyards | $232.80 |
| Rail Infrastructure Outside Marine Terminals | $216.10 |
| Subtotal Port of Los Angeles | $448.90 |
| Alameda Corridor Transportation Authority (ACTA) | $152.40 |
| **Total Port Area** | **$2,688.50** |

*Source: Ports of Los Angeles and Long Beach. Cost estimates in 2011 dollars were escalated for five years at 3.2 percent per year*

The "Rail Infrastructure Outside Marine Terminals" category in **TABLE 11** includes the following key projects.

- On-dock Rail Support Facility on Pier B (POLB)
- Cerritos Channel Bridge (triple tracking)
- Third Track at Thenard Junction
- Reconfiguration of Control Point (CP) Mole on Terminal Island
- Reeves Avenue Grade Separation
- Wilmington Avenue Grade Separation
- Pier F Support Yard
- Terminal Island Wye
- Track Realignment at Ocean Boulevard
- Pier 400 Second Lead
- West Basin Rail Improvements

**EXHIBIT 10** Regional Mainline Rail Enhancements

## EXPANSION OF NEAR-DOCK RAIL

Additional lift capacity at near-dock yards is needed to accommodate projected demand and to reduce the number of truck trips to off-dock yards. Near-dock rail terminals provide rail accessibility to import and export cargo, using drayage trucks for the connection to and from port terminals. Expansion of near-dock rail will reduce truck VMT and emissions by eliminating the need to access more distant off-dock rail facilities. Two near-dock rail projects are currently undergoing environmental review: BNSF's Southern California International Gateway (SCIG) and modernization of UP's Intermodal Container Transfer Facility (ICTF). Potential benefits of these railyards include a reduction in regional VMT and therefore emissions. Without the SCIG and ICTF expansion, it is estimated that the growth in Marine IPI container volumes would require that at least 1.5 million container lifts would have to be handled at different yards throughout the SCAG region. While the number of truck trips would not be significantly changed, VMT would be reduced due to the shorter distance from the ports to the SCIG terminal (3–4 miles), versus the distance to Hobart and East Los Angeles yards terminal (20 miles). The Alameda Corridor has sufficient capacity to handle the projected increase in railroad traffic from the ICTF and SCIG. Although regionally beneficial, local congestion and emission impacts may affect the communities near the railyards. However, the ongoing environmental review process will identify these impacts and require that they be mitigated to the extent possible.

### Intermodal Transfer Container Facility (ICTF)

The UP has proposed to invest $500 million in a modernization project that will increase container throughput at the ICTF even as it reduces the size of the existing facility from 277 to 233 acres. The project will include the replacement of diesel cranes and yard hostlers with electric ones as well as the addition of six new railroad tracks totaling 50,000 ft. Clean technologies will be utilized to cut facility emissions by 74 percent. An EIR is currently being prepared for this project.

### Southern California International Gateway (SCIG)

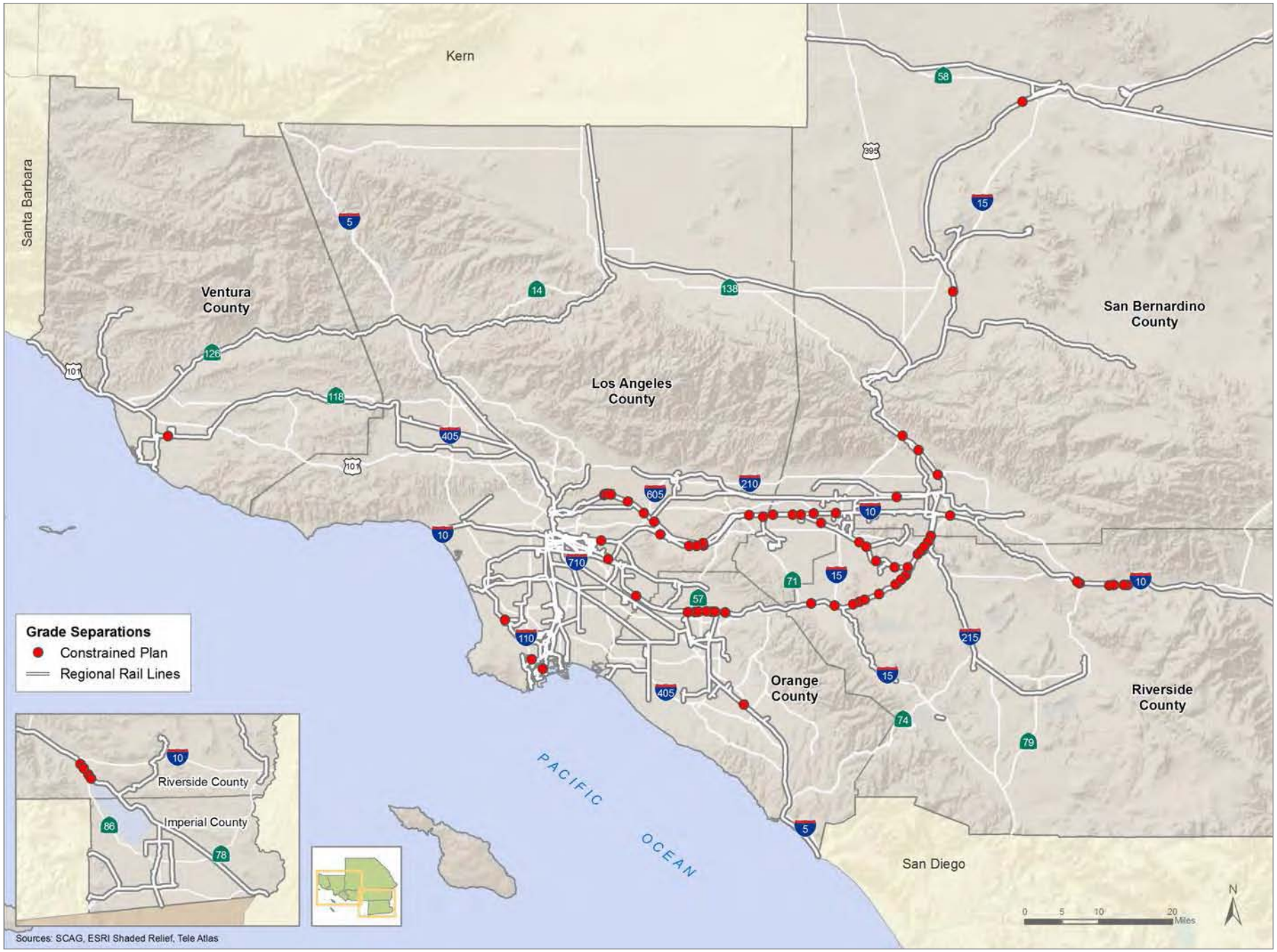
SCIG is a $500 million project that will create a new near-dock facility for the BNSF adjacent to the San Pedro Bay Ports with direct access to the Alameda Corridor. BNSF forecasts the new facility will take millions of truck-miles off regional freeways, easing congestion and reducing air pollution. Although on-dock rail capacity is expected to increase, on-dock rail expansion alone will not be sufficient to keep up with projected growth in demand. The SCIG will include the use of electric and low-emission equipment and requirements that only lower emission trucks serve the facility. The draft EIR for this project was released in September 2011.

### Rail Grade Separations

Due to increasing railroad and highway traffic, vehicle delays at grade crossings are expected to increase substantially from 2010 to 2035. Allowing two intersecting axes of traffic to move concurrently, grade crossings eliminate vehicle delay and decrease associated emissions by reducing vehicle idling times. Grade separations reduce traffic congestion and delays, as well as emissions from idling vehicles, and address other critical rail crossing–related concerns such as noise and safety.

Seventy-one grade crossings throughout the SCAG region were identified for inclusion in the financially constrained 2012–2035 RTP/SCS as shown in **EXIBIT 11**. Constrained and strategic grade separation projects are included at the end of this Technical Appendix, along with constrained grade separation maps by county (**EXHIBITS B1–B6**). Another 56 projects were identified for inclusion in the Strategic Plan. The estimated costs of the grade separations in the financially constrained plan total approximately $5.6 billion.

**EXHIBIT 11** Regional Grade Separations – Constrained



## RAIL PACKAGE SUMMARY

As shown in **TABLE 12**, the combined rail package has been estimated to cost approximately $12.3 billion, including main line rail improvements, port area rail improvements, near-dock railyard improvements, and rail-highway grade separations.

**TABLE 12** Estimated Cost of the Proposed Package of Rail Projects, by Major Category (Millions of Nominal Dollars)

| Category | Estimated Costs |
|---|---|
| Main Line Rail Improvements | $3,092.40 |
| Port Area Rail Improvements | $2,688.50 |
| Near-Dock Railyard Improvements | $1,000.00 |
| Rail-Highway Grade Separations | $5,568.90 |
| **Total** | **$12,349.80** |

## BENEFITS OF THE REGIONAL RAIL STRATEGIES

The benefits of the rail strategies to the region are considerable, and include mobility, safety, and environmental gains. As shown in **TABLE 13**, these strategies could eliminate almost 6,000 hours of vehicle delay per day at grade crossings, decrease emissions ($NO_X$, $CO_2$, and $PM_{2.5}$) by almost 23,000 lb. per day, and reduce overall train delay to 2000 levels.

The capacity enhancements in the rail package would reduce delay so that it does not exceed 2000 levels and provides enough capacity to handle projected tripling of intermodal cargo at the San Pedro Bay Ports. The delay per train is reduced depending on the train type and railroad line. For instance, trains on UP lines would experience almost 50 percent less delay per train, as compared to trains on UP lines in 2000. The rail package therefore allows more cargo to move with less delay than in previous years even with expected rail volume increases.

**TABLE 13** Benefits of the SCAG Regional Rail Strategy

| | |
|---|---|
| **Mobility** | ▪ Reduces train delay to 2000 levels<br>▪ Provides main line capacity to handle projected demand in 2035 (includes 43.2 million twenty foot equivalent units, or TEUs, port throughput)<br>▪ Eliminates 5,782 vehicle hours of delay per day at grade crossings in 2035 |
| **Safety** | ▪ Eliminates 71 at-grade railroad crossings |
| **Environment** | ▪ Reduces 22,789 lb. of emissions per day ($CO_2$, $NO_X$, and $PM_{2.5}$ combined) from idling vehicles at grade crossings<br>▪ Facilitates on-dock rail<br>▪ Reduces truck trips to downtown railyards and associated emissions |

## Other Strategies

### San Pedro Bay Ports Access Projects

Landside access to the San Pedro Bay Ports is provided by highway facilities, including I-110 and I-710, and the Vincent Thomas (SR-47), Commodore Schuyler Heim (SR-103), and the Gerald Desmond Bridges. The San Pedro Bay Ports have long worked with regional and state transportation planning organizations to identify and promote projects that will alleviate congestion to and from port areas and improve air quality in the region.

Some key projects to improve direct access to the San Pedro Bay Ports are already underway, including:

- The Gerald Desmond Bridge replacement – The bridge, which has been designated as a National Highway System Intermodal Connector Route and part of the Strategic Highway Network, carries nearly 15 percent of the nation's waterborne cargo and is a critical access route for the Port of Long Beach, the Port of Los Angeles, downtown Long Beach, and surrounding communities. A final EIR for the bridge replacement was recently certified by the POLB Board of Harbor Commissioners and the California Department of Transportation (CALTRANS). They have identified the North-side Alignment Alternative as the preferred alternative linking Terminal Island to I-710. This project is important, as it improves the safety of the bridge, which was previously deemed to be seismically deficient. In addition, the new bridge will be able to accommodate increased vehicular and vessel traffic. Moreover, the new bridge will provide additional vertical clearance for vessels passing through the Back Channel to the Inner Harbor.
- The I-110/SR-47 Connectors Improvement Program is composed of three major projects that will improve freeway access to port facilities and surrounding neighborhoods, reduce congestion and conflicts between truck and rail traffic, and improve safety. The port has already begun collecting public comments on this project.
- The Schuyler Heim Bridge Replacement and SR-47 Expressway Project includes replacement of the seismically deficient bridge and development of a truck expressway that will transport port truck traffic on an elevated structure from the new bridge 1.7 miles northwest to Alameda Street. This project is already in the design phase. This project will improve safety (by bypassing three signalized intersections and five rail at-grade crossings) and reduce congestion and delay at many of the Port of Los Angeles' terminals.
- South Wilmington Grade Separation. This project will eliminate the conflict between vehicular traffic and two existing at-grade railroad crossings and provide unimpeded grade-separated vehicular access to the South Wilmington area (including for emergency vehicles), eliminate truck queues on surrounding streets, reduce accidents, and improve safety in the area.
- C Street/I-110 Access Ramp Improvements. This will consolidate two closely spaced intersections and improve connectivity to Figueroa Street and Harry Bridges Boulevard and access to several shipping terminals.
- I-110/SR-47 Interchange & John S. Gibson Intersection/NB I-110 Ramp Access. This project will provide an additional lane from the SR-47 connector to NB I-110 and extend the existing off-ramp at John S. Gibson Boulevard. It will eliminate weaving between the slow-moving, on-ramp traffic from San Pedro and the fast-moving bridge traffic from Long Beach to improve the connection between SR-47 and the I-110 Freeway.

### Port of Hueneme Access Projects

In addition to the Ports of Los Angeles and Long Beach, the SCAG region is also home to the Port of Hueneme in Ventura County. Although smaller, the Port of Hueneme supports important economic activities in the region, generating over $650 million for Ventura County's economy every year and supporting 4,500 jobs. The Port of Hueneme Harbor District estimates that $7 billion in trade moves through the port annually. Unlike the San Pedro Bay Ports, the Port of Hueneme does not focus on containerized cargo. Instead, its primary imports and exports are refrigerated goods and produce, automobiles, bulk cargo, and fuels.

Data collected in 2008 indicated that the Port of Hueneme generated approximately 25 percent of truck trips in areas close to the Port. Many of these trucks use the interchanges close to U.S. 101. Average daily traffic counts of heavy-duty trucks on local routes range between 400 and 2,600 trucks per day. In a 2008 study, six out of 25

intersections evaluated had a level of service (LOS) grade of D or F in the AM and PM peak periods.

As residential areas expand into previously agricultural areas in Ventura County, a greater number of people will be exposed to noise, vibration, and pollution impacts of truck traffic along key routes. Encouraging trucks to remain on truck routes through additional signage or restrictions and strategic design of proposed developments can reduce these impacts.

The following projects and strategies are among those anticipated to reduce truck congestion and other impacts:

- Hueneme Road widening between Ventura Road and Rice Avenue
- Reconfiguring the interchange at Rice Avenue and U.S. 101
- Rice Avenue UP Grade Separation
- Rose Avenue UP Grade Separation
- SR-118/Coast Line Grade Separation Maintain Port Hueneme Road/Hueneme Road and Rice Avenue as the primary truck access corridors to the Port of Hueneme and encourage trucks to use this route through additional signage

## Imperial County International Ports of Entry

As discussed previously, international border crossings between the U.S. and Mexico in Imperial County are critical components of the freight transportation system in Southern California. Within Imperial County, the three ports of entry (POEs)–Calexico West-Mexicali I, Calexico East-Mexicali II, and Andrade-Los Algodones–accounted for over $10 billion in international trade in 2010.[36]

While most goods in Imperial County move by truck, the border areas also are served by the UP and Carrizo Gorge Railway (CGR). The Calexico East border crossing is the only international rail crossing in the SCAG region and provides the only rail connection from California into Central Mexico.

According to the Overall Economic Development Commission (OEDC), there are a number of challenges in Imperial County that could constrain future economic development.[37] A significant concern is the lack of adequate transportation infrastructure, especially at the U.S.-Mexico border. Some of the most noticeable gaps in the county's truck network include:[38]

- The lack of direct freeway connections to railyards and intermodal facilities;
- The lack of dedicated truck lanes, passing lanes, and truck bypass routes;
- High truck traffic through urban areas including Brawley and Westmorland; and
- Empty trucks returning to Mexico after unloading their cargo in Calexico.

Key transportation strategies identified to date to improve the flow of goods in the area include:

- Improving interchanges and developing bypasses to the "main streets" in the region
- The Brawley Bypass (SR-78/SR-111) (an eight-mile, four-lane divided expressway connecting SR-86 north of Brawley to 1.5 miles south of the eastern junction of SR-111 and SR-78)–expected completion in 2013.
- The I-8/Imperial Avenue Interchange reconstruction and Imperial Avenue Extension projects in the City of El Centro and expansion of the Calexico East POE

## High Desert Corridor

Some trucks in the region traverse SR-138, linking the Antelope and Victor Valleys. However, SR-138 currently lacks adequate infrastructure to handle heavy truck volumes. The proposed High Desert Corridor between I-15 and I-5 is anticipated to accommodate an expected three- to six-fold increase in traffic, providing a new level of accessibility, carrying trucks and other through traffic.

## Truck Climbing Lanes

Additional highway projects that would facilitate goods movement activities in the region include truck climbing lanes. Examples of corridors identified suitable for truck climbing

[36] The vast majority of goods traded between the U.S. and Mexico through Imperial County are transported through the Calexico East-Mexicali II port of entry, including nearly all Mexican imports to the U.S. amongst these POEs. The Calexico West-Mexicali I and Andrade-Los Algodones POEs serve significantly less commercial traffic, handling only exports from the U.S. to Mexico.

[37] Imperial County (2009), Planning and Development Services Department, Comprehensive Economic Development Strategy 2008–2009, September 2009.

[38] Imperial Valley Association of Governments (2008), Imperial County 2007 Transportation Plan Highway Element. Prepared by KOA Corporation, March 2008.

lanes and currently programmed with funding and/or under construction include I-15, SR-57, and SR-60. Truck climbing lanes are additional lanes located outside mixed-flow lanes, which permit slower-moving trucks to operate at their own pace. This enables other vehicles to move at a faster pace, thereby reducing congestion. These lanes are typically placed where slow-moving trucks would cause an obstruction to other vehicles, such as hillsides or other areas with significant grade increases.

## Goods Movement Environmental Strategy

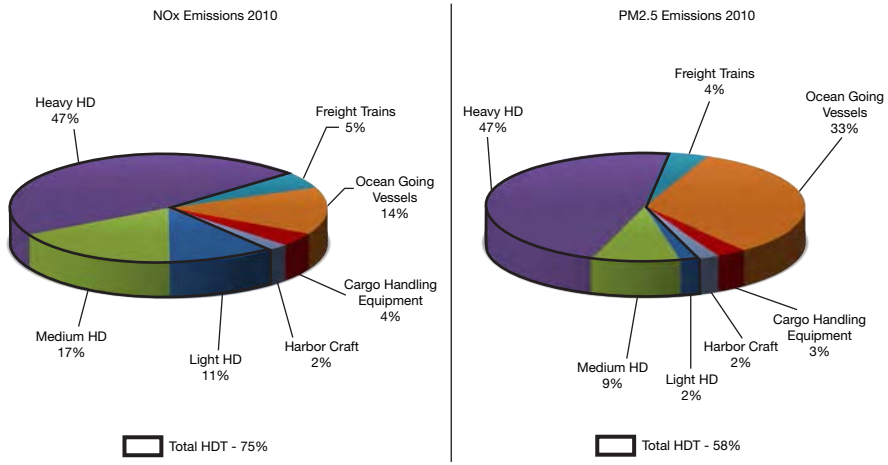
### EXISTING AND PROJECTED ENVIRONMENTAL CONDITIONS

It is a regional priority to reduce and mitigate the environmental impacts of moving goods through our region. Ships, trucks, trains and other goods movement equipment are among the largest contributors to regional air pollution, which must be reduced to comply with federal law. Freight emissions contribute to local health risks, which have raised community concerns and opposition, challenging some freight infrastructure projects. Criteria pollutants such as as $NO_X$, $PM_{2.5}$, $SO_X$, and CO can have significant public health impacts, including asthma and other respiratory ailments, increased stress, and increased cancer risk. In addition, noise, safety issues, aesthetic changes, vibrations, and natural resource depletion impact quality of life and may have health implications. Freight transport is also a major producer of greenhouse gas emissions and a user of energy in the form of diesel fuel; cleaner sources of secure, reliable energy must be part of the solution.

Much of the SCAG region does not meet federal ozone and fine particulate air quality standards as mandated by the federal Clean Air Act. $NO_X$ released from goods movement activities combines with volatile organic compounds (VOCs) in the atmosphere to form ozone pollution. In the South Coast Air Basin,[39] there is a strict deadline to reduce ozone concentrations to 80 parts per billion (ppb) by 2023 with a future deadline of 75 ppb by approximately 2031.[40] Failure to adopt sufficient measures to attain these standards in a timely manner will trigger federal sanctions such as curtailment of transportation funds. To attain the federal ozone standards, the region will need broad deployment of zero-and near-zero-emission technologies in the 2023 to 2035 timeframe.

Goods movement sources include trucks, locomotives, cargo handling equipment, marine vessels, and aircraft. These sources, combined with all mobile sources in the region, emit approximately 90 percent of regional $NO_X$.[41] Currently, heavy-duty trucks contribute 58 and 75 percent of $PM_{2.5}$ and $NO_X$ emissions, respectively, and locomotives contribute 4 and 5 percent, respectively, from goods movement related sources. **FIGURE 9** shows the distribution of emissions from various goods movement sources.

**FIGURE 9** Goods Movement $NO_X$ and $PM_{2.5}$ Emissions in SCAB by Source




*Source: ICF analysis based on EMFAC 2007 (modified for recession effects), ARB regulatory documents for marine fuel requirements, ARB emission inventory, ARB Goods Movement Plan, ARB and U.S. EPA locomotive analyses. Work completed for SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.*

Goods movement activities are also a source of GHG emissions. Although a reduction in goods movement related GHG emissions is not required under SB 375, which focuses solely on light-duty vehicle emissions, the State has established GHG reduction goals under AB 32 as have a number of local governments. Several measures have been passed by the EPA and the California Air Resource Board (CARB) to reduce GHG from heavy-duty

39 Los Angeles, Orange, and non-desert portions of Riverside and San Bernardino Counties.

40 The attainment deadline for the 75 ppb standard (adopted in 2008) has not yet been established by U.S. EPA, but is expected to be by approximately 2031.

41 South Coast Air Quality Management District, The Need for Zero-Emission Technologies, presentation for Zero-Emission Transportation and Roundtable Discussion, April 20, 2011.

trucks and rail. Despite reductions attributable to these measures, GHG from heavy-duty trucks in the SCAG region are expected to increase by 30 percent from current levels by 2023 and 60 percent from current levels by 2035. GHG emissions from rail in the South Coast Air Basin (SCAB) are expected to increase by 50 percent from 2010 levels by 2023 and by 123 percent from 2010 levels by 2035.[42]

Heavy-duty trucks are usually powered by diesel, which contributes to regional $NO_X$ and PM emissions. As shown in **TABLE 14**, federal and state regulations will contribute to a decrease in $NO_X$ and $PM_{2.5}$, but as VMT increases, these gains become relatively smaller over time. In addition, these regulations do not lead to reductions in $CO_2$ emissions. In the 2008 RTP, recommendations for truck emissions strategies included truck replacement, engine repowering, exhaust treatment device retrofits, and alternative fuels. CARB's truck and bus regulation, as well as state and local incentive programs, were put into place to accelerate the introduction of cleaner technology.[43] By 2023, nearly all HDVs will be model year 2010 or newer. But further reductions in truck emissions are critical to the region's air quality and must come from the introduction of advanced technology HDVs.

**TABLE 14** Percent Change in Truck Emissions from 2010 Measurements (Tons per Day)

| | 2010 (Tons per Day) | 2023 | 2035 |
|---|---|---|---|
| $NO_X$ | 352.59 | -67% | -58% |
| $PM_{2.5}$ | 12.00 | -65% | -53% |
| $CO_2$ | 64,319 | 30%+ | 60%+ |

*Source: SCAG Regional Comprehensive Goods Movement Study*

It is a regional priority to reduce rail pollutants and work toward the objective of a zero-emission freight rail system as well. Reduction of emissions from rail would help eliminate pollution hotspots and would improve associated health impacts in neighboring communities. At the federal level, regulations are in place that will contribute to future reductions in rail emissions, including the U.S. EPA Locomotive Engine Standards, the 2008 EPA rulemaking to reduce locomotive idling, and the EPA non-road locomotive and marine (NRLM) fuel sulfur rule. At the state level, the CARB has passed an intrastate locomotive fuel use regulation and has several agreements with the railroads such as a 1998 MOU between CARB and the railroads to accelerate Tier 2 locomotive use and a 2005 agreement to reduce railyard emissions. In addition, the CARB is finalizing a series of 2010 commitments that will further reduce diesel $PM_{2.5}$ at four high-priority railyards. These regulations will lead to a reduction in $PM_{2.5}$ emissions and a smaller reduction in $NO_X$ emissions, as shown in **TABLE 15**. These regulations, however, do not address reductions in $CO_2$ emissions.

**TABLE 15** Percent Change in Rail Emissions from 2010 Measurements (Tons per Day)

| | 2010 | 2023 | 2035 |
|---|---|---|---|
| $NO_X$ | 16 | -3% | -18% |
| $PM_{2.5}$ | 0.62 | -47% | -61% |
| $CO_2$ | 1,313 | 50%+ | 123%+ |

*Source: SCAG Regional Comprehensive Goods Movement Study*

42 SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy.

43 Regulations such as the California truck and bus rule that requires all trucks to have a 2010 or cleaner engine by 2023; HHDT GHG regulation; truck idling limit; low carbon fuel standard, and the EPA's HDV fuel economy and GHG standards will contribute to a decrease in truck emissions over time.

In the South Coast Air Basin, attaining the national ozone standards will require reductions in emissions of nitrogen oxides ($NO_X$) well beyond reductions resulting from current rules, programs, and commercially-available technologies.[44] Because most significant sources are already controlled by over 90 percent, attainment of the ozone standards will require broad deployment of zero- and near-zero-emission[45] technologies in the 2023 to 2031 timeframe. With the projected changes in both truck and rail emissions, greater advancements in technology are needed to meet regional attainment objectives. As such, the 2012–2035 RTP/SCS includes an action plan to facilitate technology development and reduce emissions.

This RTP Goods Movement Environmental Strategy was developed to address community health concerns, federal attainment requirements, and climate change issues, while contributing to our economic and energy security goals. Accordingly, the strategy emphasizes coordinated solutions for mobility, economy, energy, and environment so that investments can provide multiple benefits. A two-pronged approach for achieving such a strategy is identified. For the near term, the regional strategy supports the deployment of commercially available lower-emission trucks and locomotives while centering on continued investments in improved system efficiencies. In the longer term, the strategy focuses on taking critical steps now toward phased implementation of a zero- and near-zero emission freight system. This includes planning for new infrastructure to incorporate evolving technologies—to fuel vehicles as well as to charge batteries and provide power.

## GOODS MOVEMENT ENVIRONMENTAL STRATEGY AND ACTION PLAN

In order to implement this strategy with both near-and long-term objectives, the 2012–2035 RTP/SCS includes a four-phased action plan with key milestones. This plan calls for collaborative decision-making about how to advance research, development, and deployment of new technologies and expands on the use of existing technologies. Where needed, evaluation will be conducted to better understand costs and operational impacts to guide decision-making. The timeline for this action plan is shown in **FIGURE 10**. The four phases of the action plan are:

Phase 1 – **Project Scoping and Evaluation of Existing Work**

Phase 2 – **Evaluation, Development, and Prototype Demonstrations**

Phase 3 – **Initial Deployment and Operational Demonstration**

Phase 4 – **Full-Scale Demonstrations and Commercial Deployment**

The phases above provide a structured means to further develop, evaluate and deploy the technologies that will help the region to meet the objective of a zero-emissions goods movement system. The timeframe represents an estimation of when various technologies may be available for full deployment. However, the development and evaluation process may vary depending on the technology. As this plan is technology neutral, this proposed timeline serves as a general framework for making the decisions necessary to advance technology in the region. It is acknowledged that the timeframe may be subject to further revisions as additional information about specific technologies becomes available with further research and development as well as stakeholder input. The ability to create partnerships and procure funding for research and development efforts may help to accelerate the timeline for specific technologies. As explained below, this plan of technology development, evaluation and eventual deployment will be undertaken in close cooperation with all goods movement stakeholders.

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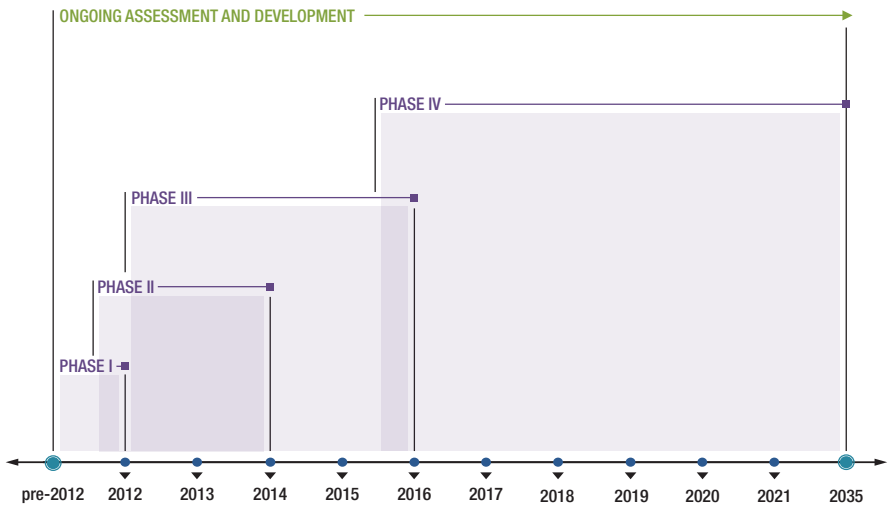
44 Preliminary SCAQMD projections indicate a need to reduce regional $NO_X$ emissions by about two-thirds by 2023 and three quarters by approximately 2030. South Coast Air Quality Management District, The Need for Zero-Emission Technologies, presentation for Zero-Emission Transportation and Roundtable Discussion, April 20, 2011.

45 The term “near zero-emissions” refers to emissions approaching zero and will be delineated for individual source categories through the process of developing the Air Quality Management Plan/State Implementation Plan. Based on current analyses, on-land transportation sources will need to achieve zero-emissions where possible, and otherwise will need to be substantially below adopted emission standards-including standards with future effective dates. Near-zero-emissions technologies can help meet this need, particularly if they support a path toward zero emissions (e.g., electric/fossil fuel hybrids with all-electric range).

**FIGURE 10** Timeline to Implement a Zero-and Near-Zero-Emission Freight System




- 2012 – Identify potential funding to support truck, wayside power, and rail evaluation and prototype demonstration efforts; incorporate into financially constrained RTP
- 2012 – Implement plan of advocacy to secure action by federal or other governments
- 2012–2013 – Continue to evaluate truck technology implementation and funding mechanisms; initiate testing of zero-emission container movement system along the Terminal Island Freeway and connecting routes to the Ports (or alternative routes serving the same locations)
- 2012-2013 – Continue to evaluate practicability of applying electrified rail or other zero-/near-zero-emission technologies, and evaluate funding and implementation mechanisms
- 2015–2016 – Resolve need for wayside power for trucks (in 2015) and incorporate decisions on wayside power and technology direction, including strategy, funding, and timeframe into 2016 RTP update and SIP revisions; if existing rail technologies are practicable for freight, identify technologies, infrastructure, and implementation mechanisms in RTP update and SIP
- 2015–2020 – Begin deployment of appropriate zero- and near-zero-emission trucks and continue operational demonstration
- 2018–2020 – If existing rail applications were determined not practicable for freight, resolve need for wayside power for new rail technologies (in 2018) and incorporate planning into the 2020 RTP and next major SIP
- 2017–2035 – Full deployment of appropriate zero-and near-zero-emission trucks for substantially all regional transport; if existing electrified rail technologies can be practicably applied to the region, fully deploy such technologies

## ACTION PLAN FOR ADVANCEMENT OF ZERO-EMISSION TECHNOLOGY

### Phase 1: Project Scoping and Evaluation of Existing Work

Key Action Step:

- Continue to research goods movement user-markets and associated infrastructure needs while exploring a range of technologies as appropriate with equipment manufacturers

The first phase of this environmental strategy has already been initiated through the cooperative efforts of regional stakeholders. Our long-term objective of an economically viable zero-emission freight transport system requires continued coordinated efforts and funding from multiple stakeholders. In addition to the work SCAG has recently undertaken with the Comprehensive Regional Goods Movement Plan and Implementation Strategy, other organizations such as the Ports of Long Beach and Los Angeles, CALSTART, and Los Angeles County Metro are working toward the objective of zero-emission freight transport.[46] [47]

Over the last several years, numerous studies have evaluated our regional transportation corridors that carry high volumes of freight truck traffic. Recent assessment of the I-710 corridor identifies key freight segments as high priority for the introduction of zero-emission technology.[48] Selection of an east-west freight corridor and evaluation of the potential regional penetration of zero-and/or near-zero-emission technology are ongoing additional priorities.

Additionally, significant effort has gone into analyzing the options for a zero- and/or near-zero emission rail system in the Basin. These include recent efforts by the Ports of Los Angeles and Long Beach in their Roadmap study[49] and by SCAG in the freight rail electrification report.[50] Each of these efforts highlights the technical opportunities and the need to pursue a zero-emission freight transportation system for the future. However, they also highlight the difficult challenges associated with this sector, especially with regard to operational needs, integration of the technologies into the national rail system, federal safety requirements, and costs. These challenges will be addressed through various phases of the environmental strategy. Further discussion of potential technologies for locomotives and trucks are addressed in later sections of this appendix.

Phase 1 requires the continued effort of various stakeholders to work through the technical, operational, practical and financial issues to define a long-term zero-emission freight system for the SCAG region. This scoping work will be done by the conclusion of 2012, however communication among stakeholders about various regional efforts will continue throughout the technology development process.

### Phase 2: Evaluation, Development, and Prototype Demonstrations

Key Action Steps:

- Convene logistics working groups
- Determine a set of market criteria to move truck vehicles forward to successful commercialization.
- Secure funding commitments for the development of vehicle prototypes and infrastructure demonstrations
- Advance pathway technologies through regulatory, financial, and marketing mechanisms
- Develop and demonstrate truck and truck wayside power prototypes

46 Port of Long Beach and Port of Los Angeles, *Roadmap for Moving Forward with Zero-Emissiona Technologies at the Ports of Long Beach and Los Angeles*, Technical Report, August 2011.

47 California Hybrid, Efficient and Advanced Truck Research Center (CalHEAT), *Vehicle and Technologies Characterization and Baseline*. Draft Report. January 31, 2011.

48 Los Angeles County Metropolitan Transportation Authority, *Alternative Goods Movement Technology Analysis-Initial Feasibility Study Report. Final Report. I-710 Corridor Project EIR/EIS*. Prepared by URS. January 6, 2009.

49 Port of Long Beach and Port of Los Angeles, *Roadmap for Moving forward with Zero-Emission Technologies at the Ports of Long Beach and Los Angeles*, Technical Report, August 2011.

50 Southern California Association of Governments. *Task 8.2 Analysis of Freight Rail Electrification in the SCAG Region*, Technical Memorandum. Draft Version, Prepared by Cambridge Systematics, August 26, 2011.

- Further study operational impacts of zero-emission rail technologies
- Evaluate practicability of applying existing electrified rail technologies
- Select truck technologies for continued fleet evaluation under Phase 3
- Identify vehicle technologies and wayside power applications to be tested under operational demonstrations in Phase 3

Phase 2 involves the development, design validation, and initial demonstration of several types of advanced prototype vehicles (trucks). Phase 2, and Phase 3 if necessary, also includes initial proof of concept and testing of several types of zero-emission locomotive technologies and supporting infrastructure.

To foster regional collaboration during this phase, a logistics working group will be convened to assess logistics decisions and efficiencies as they relate to changes with a long-term freight system. Two additional groups will be formed, one to focus on trucking, the other on rail. One responsibility of these groups will be to collaborate with public and private partners to secure funding commitments for the development of vehicle prototypes and infrastructure demonstrations. These groups may overlap with or draw upon membership from existing regional forums. For instance, the Southern California National Freight Gateway Collaboration provides a forum composed of leaders from regional transportation as well as state and federal resource agencies. One mission of this group is to advocate for a first-class goods movement system and the funding necessary to support such a system.

Phase 2 includes performance assessment of new technologies, including addressing market risks/uncertainties. As prototypes are developed and demonstrated, significant evaluation will also occur. For instance, a truck corridor market mechanism study will assess effective models for financial and regulatory structures to support and enable zero- and/or near-zero-emission truck commercialization and widespread deployment. Models may include incentives, buy-down rebates, preferred or exclusive access to port service, exclusive or preferred access to corridors, regulatory inducements, etc. Truck manufacturers and technology developers will be included to determine a set of market criteria–minimum market size and volumes of vehicles needed to move forward to successful commercialization.

For rail, uncertainties associated with new technologies would be addressed through a rail operational assessment study that evaluates the potential operational impacts of a zero- and/or near-zero rail system both within the Basin and on the larger national freight railroad system. This study would build on the work of SCAG's 2011 Rail Electrification Study, but would further clarify total capital and operating costs for such a system. Because overhead catenary systems have already been proven for passenger and some freight applications, this study would also evaluate the practicability of utilizing existing technologies for rail service.

For rail technologies, initial demonstration would include technology optimization along prescribed routes under conditions applicable to goods movement activities. An initial step in Phase 2 or Phase 3 if necessary, would entail creating a test track to allow for the demonstration of various technologies to move containers. For rail prototypes, basic performance requirements include, but are not limited to, sufficient tractive power to haul a double-stacked railcar, adequate braking capability and other parameters to support safe operation, and the ability to operate in zero-emission mode.

For trucks, certain pathway technologies are currently available but have had limited applications to date. For example, plug-in hybrid technologies are being demonstrated in parcel delivery and utility bucket truck applications; these systems could be scaled to larger vehicles for drayage and local service.

Additionally, the 2012–2035 RTP/SCS includes demonstration and initial deployment for zero-emission truck technologies along the Terminal Island Freeway and connecting routes to the Ports, (or alternative routes serving the same locations.) The shorter distance (approximately 5 miles) reduces technological and cost obstacles and is an important part of the initial effort to develop a regional zero- and/or near-zero freight transportation system. Please see the text box for more information on this important near-term project.

At the conclusion of Phase 2, efforts would be evaluated and technologies selected to continue into Phase 3.

### Phase 3: Initial Deployment and Operational Demonstration

**Key Action Steps:**

- For trucks, scale up efforts to develop, deploy, and evaluate full truck fleets
- Demonstrate wayside power and ability for multiple trucks to enter, exit, and be powered on a corridor
- Conduct advanced technology locomotive demonstrations on test tracks that have sufficient length, switches, and grades to validate operational feasibility within the Basin
- Move the most promising technologies to initial demonstration of operational service
- Select advanced locomotive technologies for Phase 4 initial deployment
- Select truck technologies and infrastructure for Phase 4 deployment and incorporate needed infrastructure into financially constrained RTP for high-priority corridors

In Phase 3, technologies that have been advanced by the Logistics Working Group will be further tested in an operational demonstration. This phase entails initial deployment of multiple vehicles or test tracks as appropriate, with on-going data collection and analysis for rapid iterative design improvement.

### Phase 4: Full Scale Demonstrations, Commercial Deployment, and Infrastructure Construction (if wayside power is needed)

**Key Action Steps:**

- Continue to launch and expand commercialization of zero-emission trucks using regulatory and market mechanisms identified in prior phases
- Continue expanding plans for any needed wayside power infrastructure along high-priority corridors (e.g., the East-West Freight Corridor)
- Foster integration of advanced technologies into regional transportation networks
- Advance rail technologies from small-scale demonstration to full-scale demonstration in operational service, as locomotive technologies will likely require additional field demonstrations prior to full commercialization
- Coordinate locomotive technology deployment with any needed infrastructure improvements

The prior stages of technology testing and demonstrations will have prepared the region for Phase 4 deployment using the commercialization, regulatory, and market steps determined in prior phases. Any new technology deployment must be coordinated with infrastructure planning, and key decisions will be incorporated into RTP updates and future SIP revisions. During Phase 4, technologies will be deployed as they meet the criteria for deployment established by regional stakeholders. As various technologies are currently in different stages of readiness, it is assumed that their deployment will be staggered throughout Phase 4.

## Near-Term Zero-Emission Technology Demonstration and Initial Deployment

**Description:** This project is for near-term demonstration and, if successful, initial operational deployment of zero-emission trucks receiving wayside electric power.

**Location:** The project will be located in Los Angeles County along the Terminal Island Freeway and connecting routes to the Ports, (or alternative routes serving the same locations).

**Schedule:**

- By 2013 – Demonstration: Develop and build trucks and wayside power infrastructure sufficient for demonstration within the transport corridor consisting of the Terminal Island Freeway and connecting routes to the Ports (or alternative routes serving the same locations); commence demonstration upon completion of trucks and infrastructure.
- By 2015 – Initial Operational Deployment: Build wayside power infrastructure sufficient for operation on the Terminal Island Freeway and connecting routes to the Ports (or alternative routes serving the same locations), and build maximum number of trucks for initial operational deployment allowed by available funding (with all feasible leveraging of private resources), unless a zero-emission technology not utilizing wayside power is determined to be superior and can be implemented in a similar or earlier timeframe. In the latter case, remaining funds allocated to this project will be applied to demonstration and deployment of zero-emission trucks not utilizing wayside power.

**Cost:** Project cost is $35 million, for both demonstration and initial operational deployment phases. This includes construction of infrastructure, design and build of demonstration trucks, and acquisition of a small fleet for initial operational deployment.

**Funding:** AQMD will actively partner in supporting this effort by providing available funding for vehicle technology or infrastructure (staff will make a proposal to the AQMD Board in 2012), seeking funding partners, and developing other support. Additionally, SCAG will work with local transportation agencies, the Ports, and other private and public stakeholders in 2012 to identify funding for this project. Other potential co-funding sources include:

- California Energy Commission AB 118 program
- California Air Resources Board
- California greenhouse gas cap and trade auction revenues
- Federal grants
- In-kind contributions and public private partnerships with technology developers, drayage companies, etc.
- Funds available for project mitigation

**Project Rationale:** The Ports, vehicle manufacturers, and other entities are currently demonstrating new zero-emission truck technologies, including battery-electric, fuel-cell, and hybrid-electric trucks with all electric range (AER). The purpose of this project is to demonstrate and initially deploy wayside power technology to provide power to these and other types of vehicles along certain high-volume corridors, thus allowing extended zero-emission range. Wayside technology has been used for many decades to power electric buses, mining trucks, and rail systems. It is thus a particularly proven and promising technological approach to achieving zero-emission transport. If coupled with hybrid AER technologies currently in use for passenger cars and now being demonstrated for heavy trucks, wayside power could provide flexibility, range, and compatibility with current port, railyard, and warehouse operations. Hybrid AER trucks could produce zero-emissions along key high-volume corridors (e.g. Terminal Island Freeway, I-710, east-west freight corridor), but could operate off the electrified corridor powered by conventional natural gas or diesel fuels, by fuel cells, or—within certain range—by batteries. Such vehicles thus could provide zero emissions where most needed, and would have range to travel long distances in other modes. The Terminal Island Freeway corridor, as a short, high-volume transport corridor with substantial air pollution impacts to local communities, is an important and ideal venue to initially deploy such technology. Deployment of wayside power technology is compatible with, and builds upon, the current Port efforts to develop and demonstrate electric and hybrid-electric trucks.

## AGENCY ROLES AND RESPONSIBILITIES FOR ACTION

**TABLES 16** and **17** describe the actions needed by SCAG and its air quality partner agencies to develop plan revisions and implementation mechanisms (e.g. funding and regulatory mechanisms) to deploy zero and near-zero-emission truck and rail technologies as part of a long-term freight system that meets the performance objectives described earlier. These actions will be made through an open process with the collaboration of our stakeholders.

**TABLE 16** Trucks: Agency Major Implementation Actions

| Year(s) | Agency | Agency Action |
|---|---|---|
| 2012 | SCAG | ▪ Incorporate "footprint" for regional truck lanes to accommodate potential use of wayside power in financially constrained 2012 RTP<br>▪ Include funding to support truck and wayside power evaluation and demonstration efforts into financially constrained RTP See text box for more information.<br>▪ Implement plan of advocacy to secure action by federal or other governments where required to implement any related elements of the SIP or RTP; include evaluation of impacts of zero- and/or near-zero-emission technologies on national priorities, (e.g. energy security, energy cost certainty, interstate transportation, climate protection). |
| 2012–2014 | SCAG, with AQMD/ARB on SIP, other transportation agencies and private sector partners on demonstration and funding efforts | ▪ Evaluate potential truck technology implementation and funding mechanisms, including: regulatory requirements; incentives (local, state, federal, interstate cooperative); differential tolls; and public-private partnerships<br>▪ Evaluate potential funding mechanisms for truck infrastructure (e.g. wayside power), including federal, state, local government funding; tolling; public-private partnerships; and electric utility funding of corridor construction<br>▪ Demonstrate trucks and wayside power infrastructure sufficient along the Terminal Island Freeway and connecting routes to the Ports, (or alternative routes serving the same locations) |
| 2015 | SCAG, with AQMD/ARB on SIP, other transportation agencies and private sector partners on demonstration and funding efforts | ▪ Resolve need for wayside power infrastructure for trucks on I-710 and other corridors beyond near-dock rail yards, including East-West Freight Corridor; decision would be based upon whether zero-and near-zero-emission technologies would have sufficient range without wayside power; if wayside power is needed, incorporate such technology description into RTP constrained plan and next major SIP<br>▪ Build wayside power infrastructure sufficient for operation along the Terminal Island Freeway and connecting routes to the Ports, (or alternative routes serving the same locations), and build maximum number of trucks for initial operational deployment allowed by available funding (with all feasible leveraging of private resources), unless a zero-emission technology not utilizing wayside power is determined to be superior and can be implemented in a similar or earlier timeframe<br>▪ Develop and incorporate recommendations regarding type of funding and implementation mechanisms (including infrastructure needed) into RTP constrained plan and next major SIP, including:<br>  ▪ Strategy description and timeframe for any rules<br>  ▪ Strategy description, potential funding sources and timeframe for any incentives |

**TABLE 17** Locomotive/Rail: Agency Major Implementation Actions

| Year(s) | Agency | Agency Action |
|---|---|---|
| 2012 | SCAG, with AQMD/ARB on SIP, other transportation agencies and private sector partners (UP/BNSF) on demonstration and funding efforts | ▪ Identify funding to support rail evaluation and demonstration efforts<br>▪ Implement plan of advocacy to secure action by federal or other governments where required to implement any related elements of the SIP or RTP; include evaluation of impacts of zero and near-zero-emission technologies on national priorities, (e.g. energy security, energy cost certainty, interstate transportation, climate protection) |
| 2012–2014 | SCAG, with AQMD/ARB on SIP, other transportation agencies and private sector partners (UP/BNSF) on demonstration and funding efforts | ▪ Evaluate and determine practicability of applying existing electrified rail technologies to region (by 2013)<br>▪ Evaluate potential funding and implementation mechanisms for zero-and/or near-zero-emission locomotives, and wayside power, including: Private (railroads); federal, state, local governments; public-private partnerships; electric utilities |
| 2015–2016 | SCAG, with AQMD/ARB on SIP, other transportation agencies and private sector partners (UP/BNSF) on demonstration and funding efforts | ▪ If existing electrified rail technologies are determined practicable for the region, identify technologies, infrastructure, and implementation mechanisms in RTP amendment and next major SIP |
| 2018–2020 | SCAG, with AQMD/ARB on SIP, other transportation agencies and private sector partners (UP/BNSF) on demonstration and funding efforts | ▪ If existing electrified rail technologies were determined to not be practicable for the region, resolve need for wayside power for new rail technologies; decision would be based upon whether new technologies can achieve sufficient zero-or near-zero-emission range without wayside power<br>▪ If wayside power is needed, include planning for wayside power for rail lines into 2018 constrained RTP<br>▪ Include recommendations regarding type of funding and implementation mechanisms into constrained RTP and next major SIP, including:<br>  ▪ Strategy description and timeframe for any rules<br>  ▪ Strategy description, potential funding sources. and timeframe for any incentives. |

## Near-Term and Long-Term Technologies for Commercial Deployment

The 2012–2035 RTP/SCS recommends a two-pronged environmental strategy to be implemented in the four phases outlined in the previous section. SCAG recognizes that not all technologies have advanced to the stage where they can be implemented immediately. As the region works to advance and deploy current prototype technologies, focus should be placed on commercializing and implementing existing solutions as well. For trucks, an aggressive program to bring more currently available clean-fuel and hybrid trucks into service represents the best near-term strategy. In the longer term, our infrastructure can serve as a catalyst for the development of longer-range hybrid, dual-mode or battery-operated trucks. For rail, near-term technologies for switcher locomotives can reduce emissions at railyards. A longer-term objective of a zero-emission rail system can be reached through further technology development. This section will briefly describe both near- and long-term technologies that have the potential to reduce emissions and help the region meet attainment deadlines. The technologies identified in this section serve as examples of potential near- and long-term options for further study and do not constitute specific technologies under the financially constrained RTP/SCS.

## NEAR-TERM TRUCK TECHNOLOGIES

Natural gas trucks use compressed natural gas (CNG) or liquefied natural gas (LNG) to power an internal combustion engine. Natural gas trucks have already been deployed at the Ports, and have the potential for greater deployment based on provision of fueling infrastructure. Range can be a concern due to limited on board fuel storage; however, adequate fueling infrastructure and/or the use of LNG could address the range issue. Several efforts are underway to expand use of natural gas trucks in the region as a near-term solution. Southern California Clean Cities Coalition is currently assisting with the marketing and education outreach for three projects funded through U.S. Department of Energy (DOE) Clean Cities ARRA 2009 Petroleum Reduction Technology Projects solicitation. These projects include the UPS Ontario–Las Vegas LNG Corridor Expansion Project and the Heavy-Duty Natural Gas Drayage Truck Replacement Initiative, both with the South Coast Air Quality Management District (SCAQMD). A third project is being implemented in partnership with the San Bernardino Associated Governments (SANBAG) and Ryder Truck Rental, Inc. to deploy 202 heavy-duty natural gas trucks and construct two liquefied natural gas fueling stations.

Hybrid-electric trucks contain an internal combustion engine as well as an electric motor, generator, and energy storage device (e.g., a battery). The electric motor and generator absorb energy via regenerative braking and store that energy to offset acceleration and power demands of the vehicle. Several hundred hybrid-electric trucks are on the road due to the ARB's Hybrid Truck and Bus Voucher Incentive Project (HVIP). The incremental cost of this truck is its largest barrier to market penetration; some of this has the potential to be offset through incentive programs or reduced fuel costs for operators.

## NEAR-TERM TRUCK OPERATIONAL STRATEGIES

In addition to deployment of new technologies, several programs that address truck operations have the potential to reduce emissions, including increased enforcement of anti-idling regulations, truck inspection and maintenance programs, and use of conditional use permits for warehouses. These are operational changes that do not require new technologies, but may require changes in business practice and enforcement of these changes. Many of these strategies may also reduce noise and vibration impacts.

## LONG-TERM TRUCK TECHNOLOGIES

Plug-in hybrid-electric trucks and battery-electric trucks are examples of technologies that may be used in the future. Plug-in hybrid-electric trucks differ from hybrid-electric trucks in that they have a larger battery and can draw energy from the electric grid. This enables the truck to travel under all-electric power when on electrified corridors. These trucks are currently in the development and demonstration stage. The cost and weight of the battery is the most significant barrier to further developing this truck type. Currently, plug-in hybrid technologies are being demonstrated in parcel delivery and utility bucket truck applications; as previously discussed, these systems could be scaled to larger vehicles for drayage and local service. Arvin Meritor is currently developing a dual-mode hybrid, and Vision Motor Corporation has a contract with the Port of Los Angeles to test units made specifically for drayage, using a combination of lithium-ion batteries and fuel cells.

Battery-electric trucks replace the entire engine and drive train of a conventional vehicle with an electric motor and generator. Battery-electric trucks could run entirely on battery packs that are charged when the vehicle is plugged into the grid and via regenerative braking or possibly using an on-board hydrogen fuel cell. Alternatively, these trucks could receive power from an external power source in the roadway, such as an overhead catenary system or through electromagnetic induction from a contact-less power system embedded in the roadway. Zero- and near-zero-emission truck prototype testing is underway with funding from the Port of Los Angeles, the Port of Long Beach, and AQMD. For instance, a demonstration of the Balqon lead-acid battery-electric truck was initiated in 2007. The battery was upgraded to a lithium-ion battery, and testing of the upgraded system is underway. Balqon has a contract at the Port of Los Angeles to test five on-road drayage trucks.

## TRUCK TECHNOLOGIES FOR ZERO-EMISSION FREIGHT CORRIDORS

Development of both the proposed I-710 freight corridor and East-West Freight Corridor provide opportunities to commercialize technologies and create incentives for development. Recent studies, such as the I-710 EIR/EIS, research completed by the San Pedro Bay Ports, and the SCAG Comprehensive Goods Movement Study, suggest that fixed guideway systems are less practical to serve the region's needs, as they lack the flexibility to serve the various markets. Zero-emission trucks, however, that either charge

through wayside power infrastructure, at charging stations off the system, or through fuel cell systems, show promise for goods movement corridors.

Wayside power offers a potential advantage to trucks that move on key freight corridors as it offers the potential to extend the range of the vehicle while operating in a zero-or near-zero-emissions mode. There is always a tradeoff between the weight of battery systems (which reduce payload carrying capacity) and the range of the vehicle. Current battery technologies have range limitations of approximately 40 miles in common truck duty cycles. A wayside power system on a freight corridor (truck lanes), for example, could charge batteries so that the truck can continue to operate with a 40-mile range when it leaves the freight corridor. This could provide a more extended range system than would charge stations located at truck stops and fuel stations similar to the current fueling infrastructure. Ongoing efforts are underway to evaluate the costs and operational parameters associated with either method.

Wayside power technologies include overhead catenary, in-road power such as third rail or linear synchronous motor (LSM), and fast charging. All three technologies must be integrated closely with the zero and/or near-zero-emission trucks, and all have the potential to significantly increase the functionality and range of trucks utilizing batteries, including dual-mode hybrids. (It is unlikely that fuel cell trucks would need wayside power, due to their range and relatively quick refueling capability.) In overhead catenary systems, power is delivered from the electrical grid through the overhead wire to a pantograph on the vehicle itself. Catenary systems are well-established and efficient in light-rail applications, trolley cars and buses, and even mining trucks. For in-road power, the roadway itself provides power to the vehicles, which must be equipped with pick-up devices. Alternatively, fast charging is a high-power charging system used to quickly recharge the batteries in an electric vehicle at destination points, e.g., rail yards or distribution centers. While technically not "wayside" power, fast charging is similarly grouped with other approaches that require infrastructure to be designed and built into the freight facilities and corridors. These systems have different operational requirements. Ideally, the system would allow for trucks to enter and exit the system seamlessly, change lanes and could be shared with standard trucks.

## NEAR-TERM RAIL EMISSION REDUCTION STRATEGIES

Switcher locomotives contribute only a small share of total locomotive emissions; however, their activity is concentrated in railyards and greatly impacts surrounding communities. Nevertheless, low-emission technologies are available, or soon to be available, and have relatively low costs. To reduce emissions from switcher locomotives, one option is to replace remaining Tier 0+ switchers with cleaner engines, such as Tier 4 switchers when they become available. $NO_X$ and $PM_{2.5}$ emission rates from a Tier 4 switcher would be approximately 10–15 times lower than a Tier 0+ engine. Another option is to rebuild existing Genset switchers with engines that meet the U.S. EPA Tier 4 non-road emission standards, which could cut $NO_X$ and $PM_{2.5}$ emissions by a factor of 10. The emission reductions of these strategies could reduce emissions for switcher engines between 27 and 53 percent. However, since switchers are a small part of the overall fleet, these two switcher strategies would reduce total freight locomotive $NO_X$ and $PM_{2.5}$ emissions by only 1 to 3 percent. Tier 4 engines are not currently available, but are required by the EPA for all new purchases after 2015. **TABLES 18** and **19** show emissions reductions associated with upgrading all engines to Tier 4 after 2015. Such a strategy can be implemented on a voluntary basis, subject to funding availability. This strategy is presented for illustrative purposes and is not part of the financially constrained RTP/SCS.

**TABLE 18** Emission Reductions from Replacing Tier 0 with Tier 4 Switchers (Tons per Day)

| | $NO_X$ | | | $PM_{2.5}$ | | | $CO_2$ | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Switcher baseline | With Strategy | % Change | Switcher baseline | With Strategy | % Change | Switcher baseline | With Strategy | % Change |
| 2010 | 1.37 | 1.37 | 0% | 0.041 | 0.041 | 0% | 94 | 94 | 0% |
| 2023 | 0.68 | 0.35 | -49% | 0.017 | 0.001 | -45% | 123 | 123 | 0% |
| 2035 | 0.37 | 0.37 | 0% | 0.010 | 0.010 | 0% | 153 | 153 | 0% |

*Source: SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy*

**TABLE 19** Emission Reductions from Repowering Gensets with Tier 4 Non-Road Engines (Tons per Day)

| | $NO_X$ | | | $PM_{2.5}$ | | | $CO_2$ | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Switcher baseline | With Strategy | % Change | Switcher baseline | With Strategy | % Change | Switcher baseline | With Strategy | % Change |
| 2010 | 1.37 | 1.37 | 0% | 0.041 | 0.041 | 0% | 94 | 94 | 0% |
| 2023 | 0.68 | 0.50 | -27% | 0.017 | 0.011 | -36% | 123 | 123 | 0% |
| 2035 | 0.37 | 0.18 | -50% | 0.010 | 0.004 | -62% | 153 | 153 | 0% |

*Source: SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy*

## LONG TERM EMISSION REDUCTIONS STRATEGIES FOR RAIL

### Electrification

Several U.S. commuter rail systems use overhead lines to power electric trains, and electrified systems for both passenger and freight trains are common throughout Europe and Asia. There are no major electrified freight rail systems in North America. Electrification technologies require further evaluation to more precisely address questions about cost, funding, and how to best implement such systems with minimal operational impacts. Because of the cost and potential operational challenges associated with main line electrification, such a strategy should be considered a longer-term initiative, requiring further studies as well as proof of concept and prototype testing of zero-emission locomotive technologies which have the potential to minimize cost and operational impacts, as discussed under the phased implementation section of this Appendix.

Three electrification options were analyzed for consideration in SCAG's recent rail electrification study, each with varying costs and levels of technological readiness. Electric catenary rail systems are perhaps the most technologically ready. Dual-mode locomotives are in use for passenger service and, if they could be adapted for freight, could reduce the operational difficulties of removing and switching locomotives, as they can operate both on a catenary or with traditional diesel power. A third option would use linear synchronous motors in the railway to generate a propulsive force by creating an electromagnetic field, thereby avoiding the need to acquire or switch electric locomotives. Construction of any electrified rail system in Southern California would be a large investment, and would need the participation of the BNSF and UP railways.

Electrification of the railroad main lines would reduce line-haul $NO_X$ and $PM_{2.5}$ emissions produced in the SCAG region by introducing cleaner, more efficient electric-powered locomotives and also by shifting the location of emissions to power plants. Although some emissions would still be produced in electricity generation, power plants are highly regulated and release fewer emissions. Furthermore, all power plants in the SCAB region are natural gas powered and also release fewer emissions. Most power plants are located outside the SCAB region and therefore emissions from these sources would be further from population centers.

### Battery Hybrid And Fuel Cell Rail Technologies

In future analyses, other additional viable technologies would be considered outside of electrification options. Two promising technologies that are under development include hybrid diesel-electric locomotives and battery-electric tender cars. Each requires additional development and a more thorough understanding of operational considerations. Hybrid diesel-electric locomotives (utilizing advanced batteries) are under development by General Electric (GE). The prototype is based on GE's Tier 2 Evolution locomotive platform (4,400 hp) that will capture energy dissipated during braking and store it in a series of sodium-nickel chloride batteries housed in the locomotive frame. Fuel savings would allow for a small fuel storage tank and provide space for storage of the necessary batteries on individual locomotives. The locomotives would therefore switch between Tier-4 diesel-electric and battery modes. The batteries would recharge as the locomotive is operating in diesel-electric mode.

Also, battery-electric tender car technology could be used with current locomotives. Battery tender cars would be placed behind diesel-electric locomotives and would carry batteries that could power locomotives through environmentally sensitive areas. Such a system could have many of the same advantages as the hybrid diesel-electric locomotives, including zero-emission operation, but would also have the added benefit of being compatible with current locomotives and reducing or eliminating the need for wayside power such as from overhead catenary wires.

## IMPLEMENTING THE ENVIRONMENTAL STRATEGY

Broad deployment of zero-and near-zero-emission transportation technologies in the 2023 to 2035 timeframe is a critical and significant undertaking with technological, cost, and operational challenges. As outlined above, the 2012–2035 RTP/SCS delineates a path forward–a series of steps and decision points to move the region to that objective. Industry stakeholder participation will be necessary, including the efforts of numerous state and federal resources agencies, transportation agencies, along with commercial technology developers/manufacturers, and logistics experts. The 2012–2035 RTP/SCS, developed in coordination with many of these stakeholders, reaffirms zero- and near-zero-emission technologies as a priority and establishes the regional path forward to such a goods movement system.

**EXHIBIT A.1** Manufacturing and Warehousing Concentrations Along I-210 (5-Mile Radius)

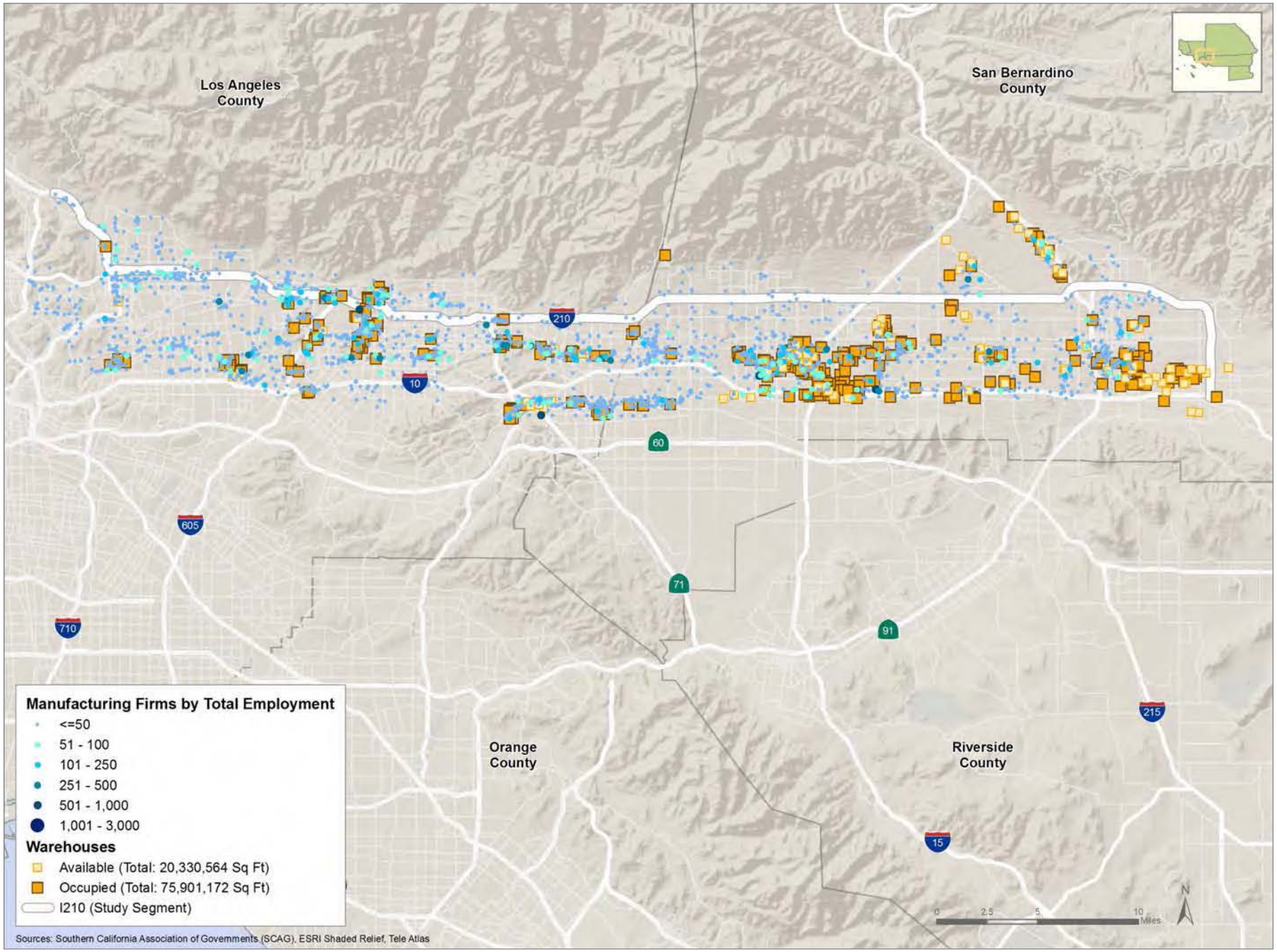


**EXHIBIT A.2** Manufacturing and Warehousing Concentrations Along I-10 (5-Mile Radius)

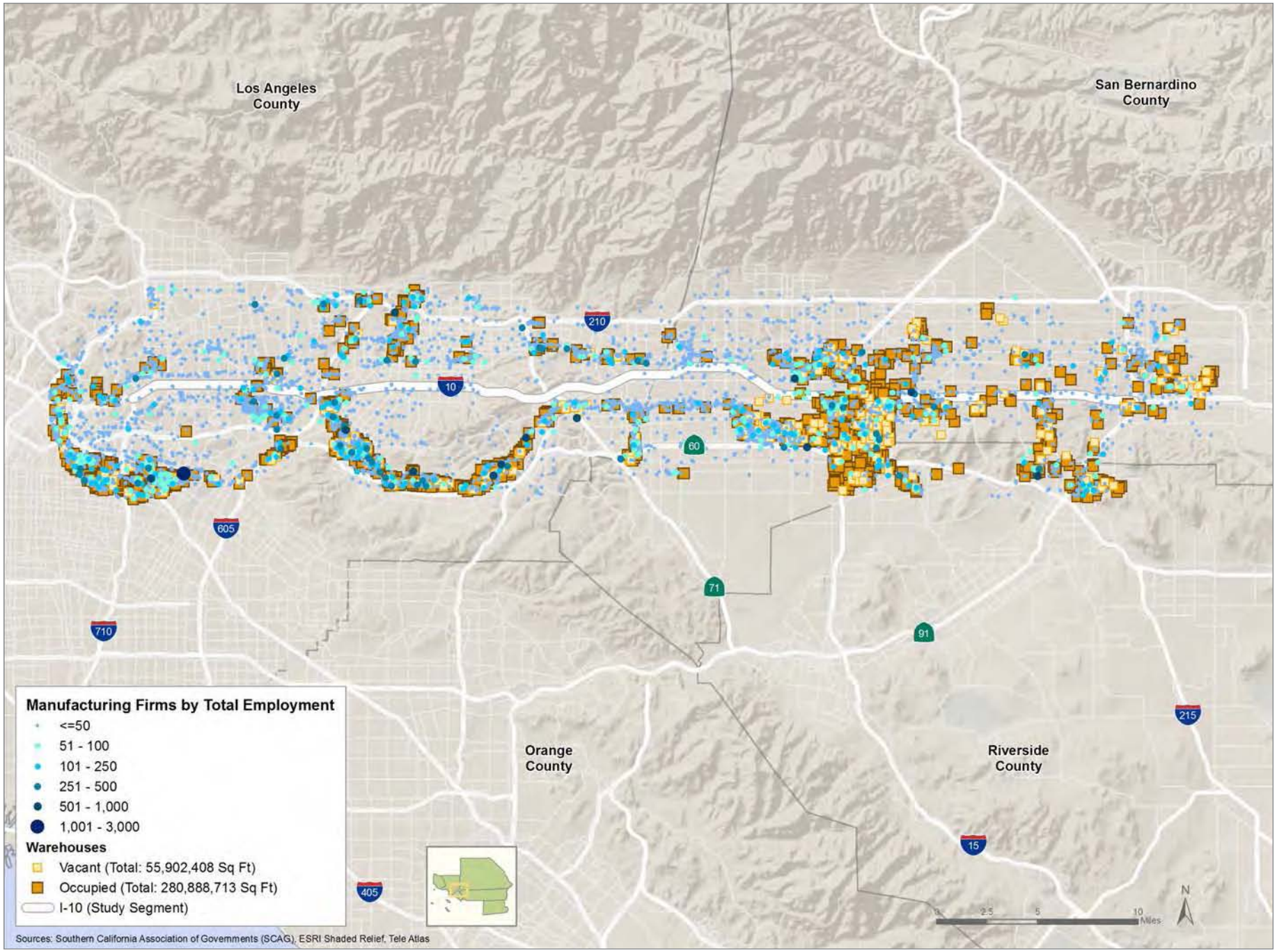


**EXHIBIT A.3** Manufacturing and Warehousing Concentrations Along SR-60 (5-Mile Radius)

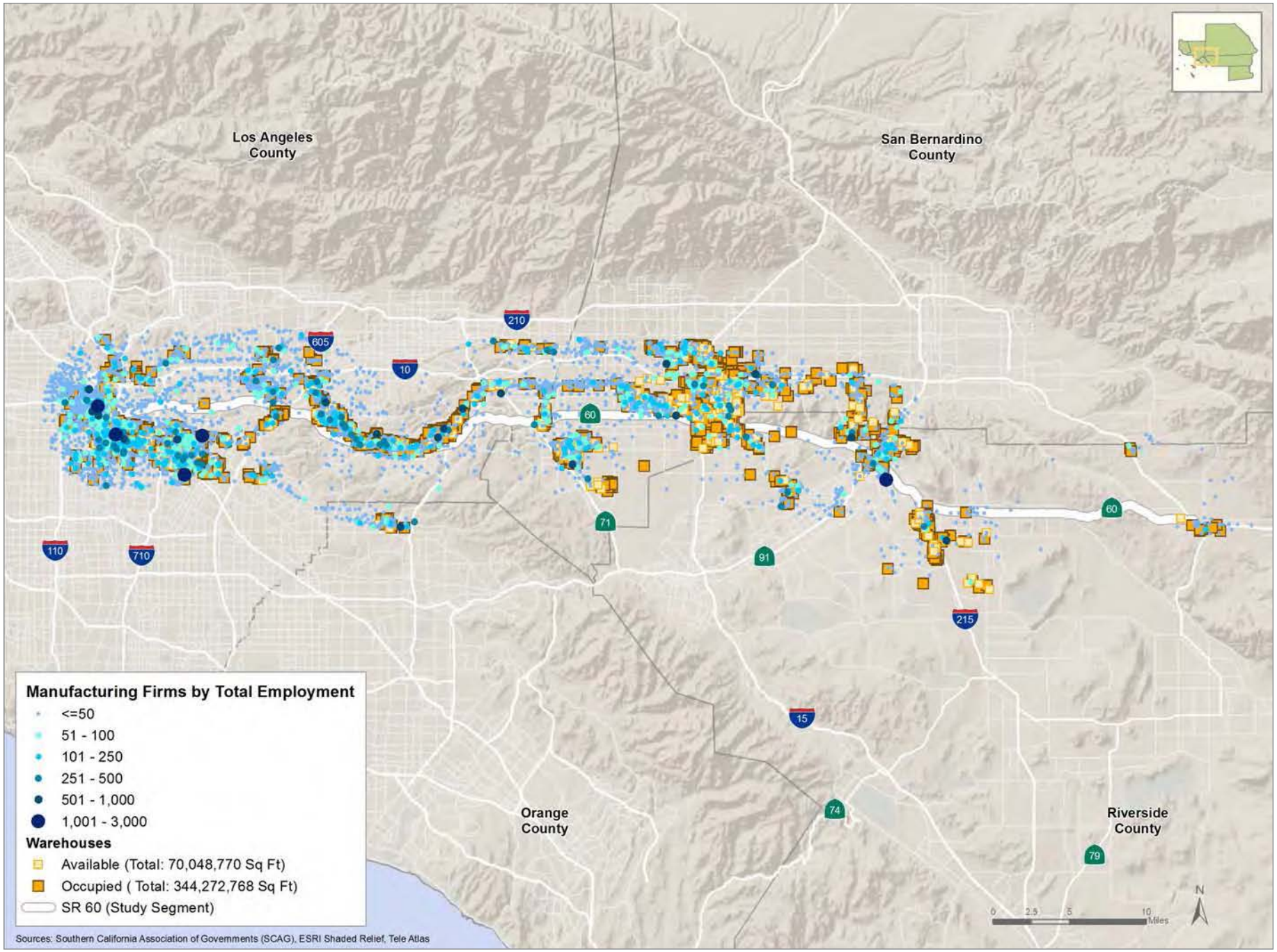


**EXHIBIT A.4** Manufacturing and Warehousing Concentrations Along SR-91 (5-Mile Radius)

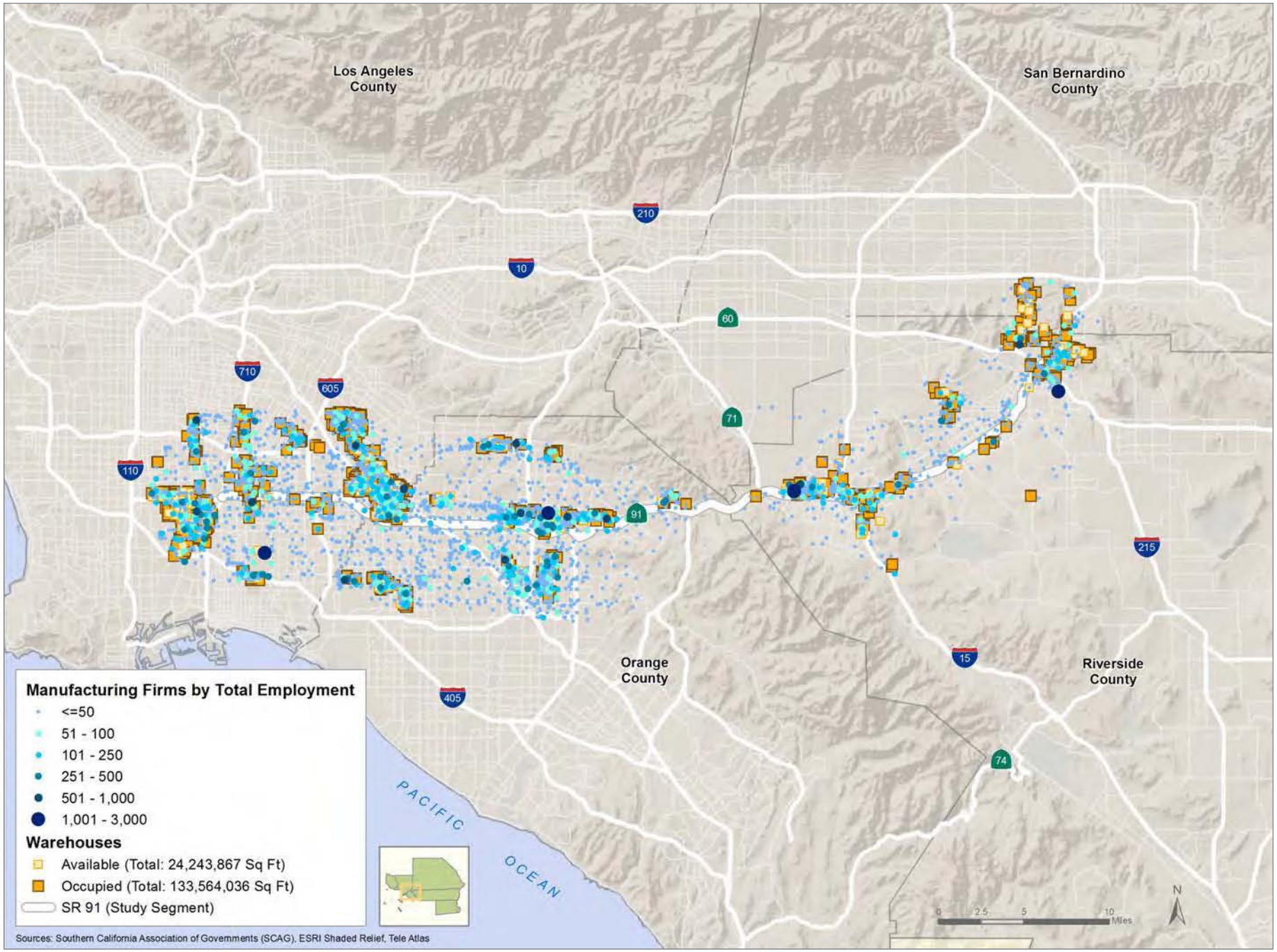


**EXHIBIT A.5** Manufacturing and Warehousing Concentrations Along Union Pacific Railroad Adjacent Alignment (5-Mile Radius)

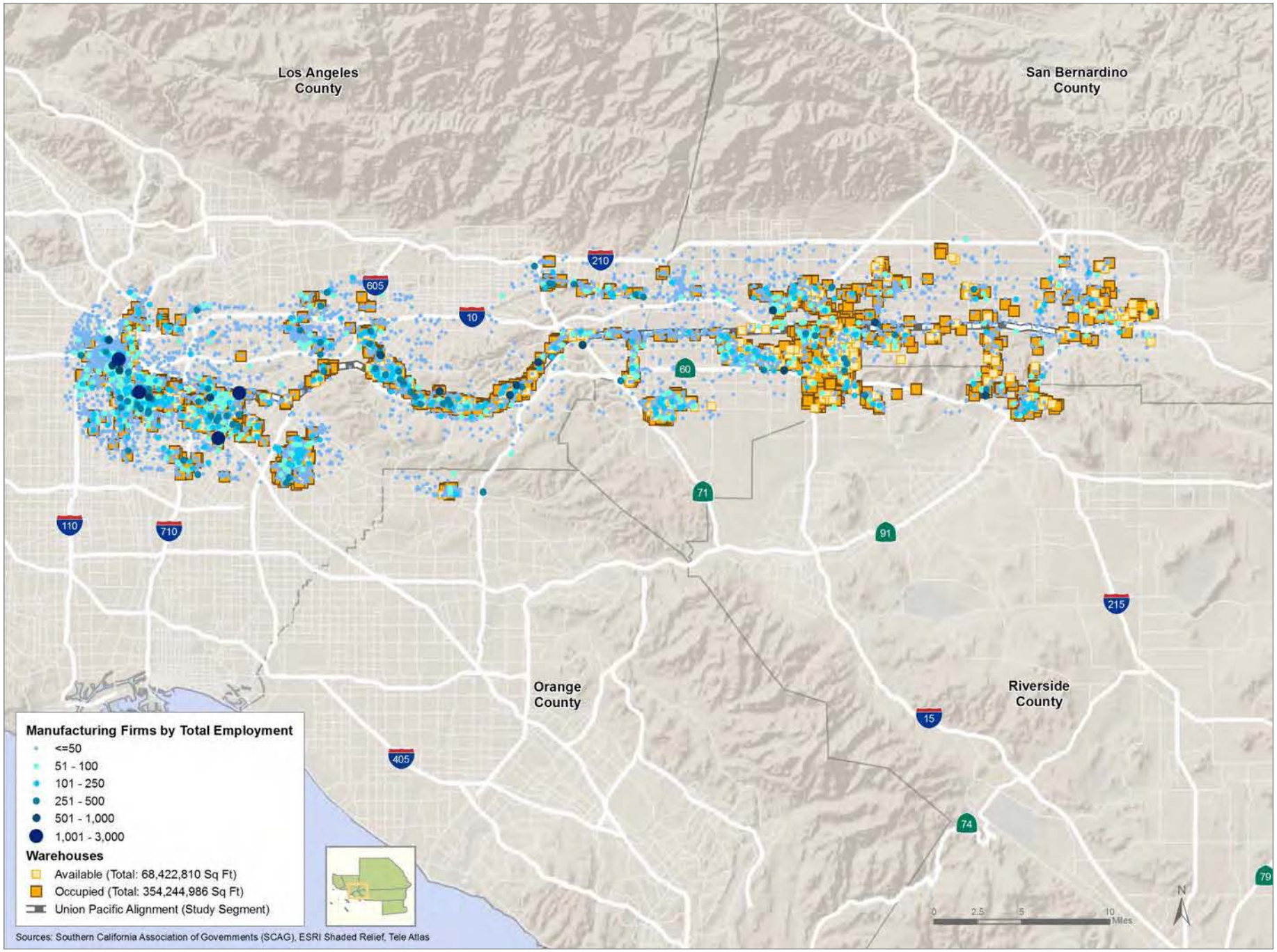


**EXHIBIT B.1** Regional Grade Separations – Constrained and Strategic Plan

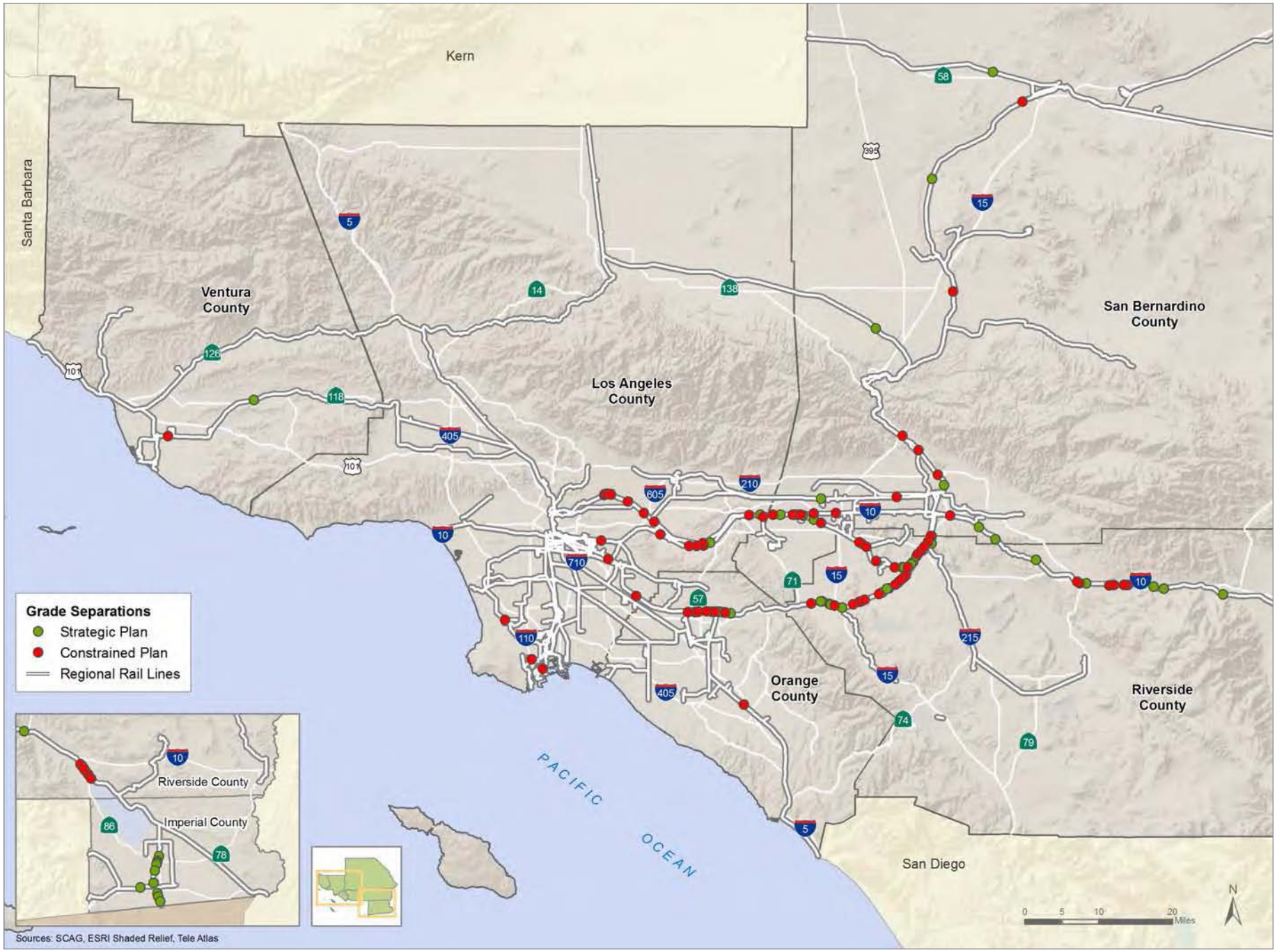


**TABLE B.1** Constrained Grade Separations (Not Listed in Priority Order)

| County | Grade Separation |
|---|---|
| ORANGE | RAYMOND AVE |
| ORANGE | STATE COLLEGE BLVD |
| ORANGE | PLACENTIA AVE UNDER CROSSING |
| ORANGE | KRAEMER BLVD |
| ORANGE | ORANGETHORPE AVE |
| ORANGE | TUSTIN AVE / ROSE DR |
| ORANGE | LAKEVIEW AVE |
| ORANGE | JEFFERY RD |
| SAN BERNARDINO | LENWOOD RD |
| SAN BERNARDINO | GREEN TREE BLVD |
| SAN BERNARDINO | GLEN HELEN PARKWAY |
| SAN BERNARDINO | PALM AVE |
| SAN BERNARDINO | MT. VERNON AVE |
| SAN BERNARDINO | RAMONA AV |
| SAN BERNARDINO | SAN ANTONIO AVE |
| SAN BERNARDINO | CAMPUS AVE |
| SAN BERNARDINO | NORTH VINEYARD AVE |
| SAN BERNARDINO | SOUTH ARCHIBALD AVE |
| SAN BERNARDINO | S. MILLIKEN AVE |
| SAN BERNARDINO | LAUREL ST |
| SAN BERNARDINO | MAIN ST |
| SAN BERNARDINO | HUNTS LN |
| VENTURA | RICE AVE |
| RIVERSIDE | AUTO CENTER DRIVE |
| RIVERSIDE | JOY ST |
| RIVERSIDE | MCKINLEY ST |
| RIVERSIDE | MAGNOLIA AVE |
| RIVERSIDE | PIERCE ST |
| RIVERSIDE | BELLGRAVE AV |
| RIVERSIDE | JURUPA RD |
| RIVERSIDE | CLAY ST |
| RIVERSIDE | TYLER ST |
| RIVERSIDE | ADAMS ST |
| RIVERSIDE | STREETER AVE |
| RIVERSIDE | MADISON ST |
| RIVERSIDE | MARY ST |
| RIVERSIDE | RIVERSIDE AVE |
| RIVERSIDE | 3RD STREET |
| RIVERSIDE | SPRUCE ST |
| RIVERSIDE | CHICAGO AVE |
| RIVERSIDE | IOWA AVE |
| RIVERSIDE | VIELE AVE |
| RIVERSIDE | CALIFORNIA AVE |
| RIVERSIDE | SUNSET AVE |
| RIVERSIDE | 22ND ST |
| RIVERSIDE | SAN GORGONIO AV |
| RIVERSIDE | HARGRAVE ST |
| RIVERSIDE | AVENUE 52 |
| RIVERSIDE | AVENUE 56 |
| RIVERSIDE | AVENUE 62 |
| RIVERSIDE | AVENUE 66 |
| LOS ANGELES | DEL AMO BLVD |
| LOS ANGELES | SOUTH WILMINGTON AVE |
| LOS ANGELES | REEVES AVE |
| LOS ANGELES | VALLEY VIEW AVE |
| LOS ANGELES | PASSONS BLVD |
| LOS ANGELES | GREENWOOD AVE (MONTEBELLO) |
| LOS ANGELES | RAMONA ST (SAN GABRIEL) |
| LOS ANGELES | MISSION RD (SAN GABRIEL) |
| LOS ANGELES | DEL MAR AVE (SAN GABRIEL) |
| LOS ANGELES | SAN GABRIEL BLVD (SAN GABRIEL) |
| LOS ANGELES | BALDWIN AVENUE (EL MONTE) |
| LOS ANGELES | DURFEE AVE (PICO RIVERA) |
| LOS ANGELES | PUENTE AVENUE (INDUSTRY/LA COUNTY) |
| LOS ANGELES | TURNBULL CYN RD (INDUSTRY/LA COUNTY) |
| LOS ANGELES | FULLERTON RD (INDUSTY/LA COUNTY) |
| LOS ANGELES | NOGALES ST (INDUSTRY/LA COUNTY) |
| LOS ANGELES | FAIRWAY DRIVE (INDUSTRY/ WALNUT) |
| LOS ANGELES | FAIRWAY DRIVE (INDUSTRY/LA COUNTY) |
| LOS ANGELES | HAMILTON BLVD (POMONA) |
| LOS ANGELES | MISSION BLVD (POMONA) |

**TABLE B.2** Strategic Grade Separations (Not Listed in Priority Order)

| County | Grade Separation |
|---|---|
| IMPERIAL | WARD ROAD (IMPERIAL COUNTY) |
| IMPERIAL | SR-78/SR-111 (BRAWLEY) |
| IMPERIAL | MALAN STREET (BRAWLEY) |
| IMPERIAL | MEAD ROAD (BRAWLEY) |
| IMPERIAL | KEYSTONE ROAD (IMPERIAL COUNTY) |
| IMPERIAL | ATEN ROAD (IMPERIAL) |
| IMPERIAL | EVAN HEWES HIGHWAY (IMPERIAL COUNTY) |
| IMPERIAL | DOGWOOD ROAD (IMPERIAL COUNTY) |
| IMPERIAL | HEBER AVENUE (IMPERIAL COUNTY) |
| IMPERIAL | WEST COLE ROAD (CALEXICO) |
| LOS ANGELES | SAN ANTONIO AVE (POMONA) |
| LOS ANGELES | LEMON AVE (LA SUBDIVISION) |
| ORANGE | JEFFERSON ST (ANAHEIM) |
| ORANGE | VAN BUREN AVE (PLACENTIA) |
| ORANGE | RICHFIELD RD (PLACENTIA) |
| ORANGE | KELLOGG DRIVE UNDERCROSSING (ANAHEIM) |
| SAN BERNARDINO | HINCKLEY AVE (SAN BERNARDINO COUNTY) |
| SAN BERNARDINO | SHADOW MOUNTAIN RD (SAN BERNARDINO COUNTY) |
| SAN BERNARDINO | PHELAN RD (SAN BERNARDINO COUNTY) |
| SAN BERNARDINO | ARCHIBALD AVE (RANCHO CUCAMONGA) |
| SAN BERNARDINO | CENTRAL AVE (MONTCLAIR) |
| SAN BERNARDINO | VINE AVE (ONTARIO) |
| SAN BERNARDINO | SULTANA AVE (ONTARIO) |
| SAN BERNARDINO | BON VIEW AVE (ONTARIO) |
| SAN BERNARDINO | VINEYARD AVE (ONTARIO) |
| SAN BERNARDINO | OLIVE ST (SAN BERNARDINO) |
| SAN BERNARDINO | BEAUMONT AVE (SAN BERNARDINO COUNTY) |
| SAN BERNARDINO | ALESSANDRO RD (REDLANDS) |
| VENTURA | ROUTE 118 (VENTURA COUNTY) |
| RIVERSIDE | SMITH AVE (CORONA) |
| RIVERSIDE | RAILROAD ST (CORONA) |
| RIVERSIDE | COTA STREET (CORONA) |
| RIVERSIDE | RADIO ROAD (CORONA) |
| RIVERSIDE | BUCHANAN ST (RIVERSIDE) |
| RIVERSIDE | RUTILE STREET (JURUPA VALLEY) |
| RIVERSIDE | HARRISON STREET (RIVERSIDE) |
| RIVERSIDE | GIBSON STREET (RIVERSIDE) |
| RIVERSIDE | JACKSON STREET (RIVERSIDE) |
| RIVERSIDE | JEFFERSON STREET (RIVERSIDE) |
| RIVERSIDE | PALM AVE (RIVERSIDE) |
| RIVERSIDE | WASHINGTON STREET (RIVERSIDE) |
| RIVERSIDE | BROCKTON AVE (RIVERSIDE) |
| RIVERSIDE | APACHE TRAIL (RIVERSIDE COUNTY) |
| RIVERSIDE | PANORAMA ROAD (RIVERSIDE) |
| RIVERSIDE | CRIDGE STREET (RIVERSIDE) |
| RIVERSIDE | PALMYRITA AVE (RIVERSIDE) |
| RIVERSIDE | CENTER ST (RIVERSIDE COUNTY) |
| RIVERSIDE | MAIN STREET (RIVERSIDE COUNTY) |
| RIVERSIDE | SAN TIMOTEO CANYON (CALIMESA) |
| RIVERSIDE | SHERIDAN ST (CORONA) |
| RIVERSIDE | PENNSYLVANIA AVENUE (BEAUMONT) |
| RIVERSIDE | 7TH ST (RIVERSIDE) |
| RIVERSIDE | BROADWAY (RIVERSIDE COUNTY) |
| RIVERSIDE | TIPTON ROAD (PALM SPRINGS) |
| RIVERSIDE | AVENUE 54 (COACHELLA) |
| RIVERSIDE | AVENUE 58 (RIVERSIDE COUNTY) |

**EXHIBIT B.2** Los Angeles County Grade Separations – Constrained Plan (Not Listed in Priority Order)

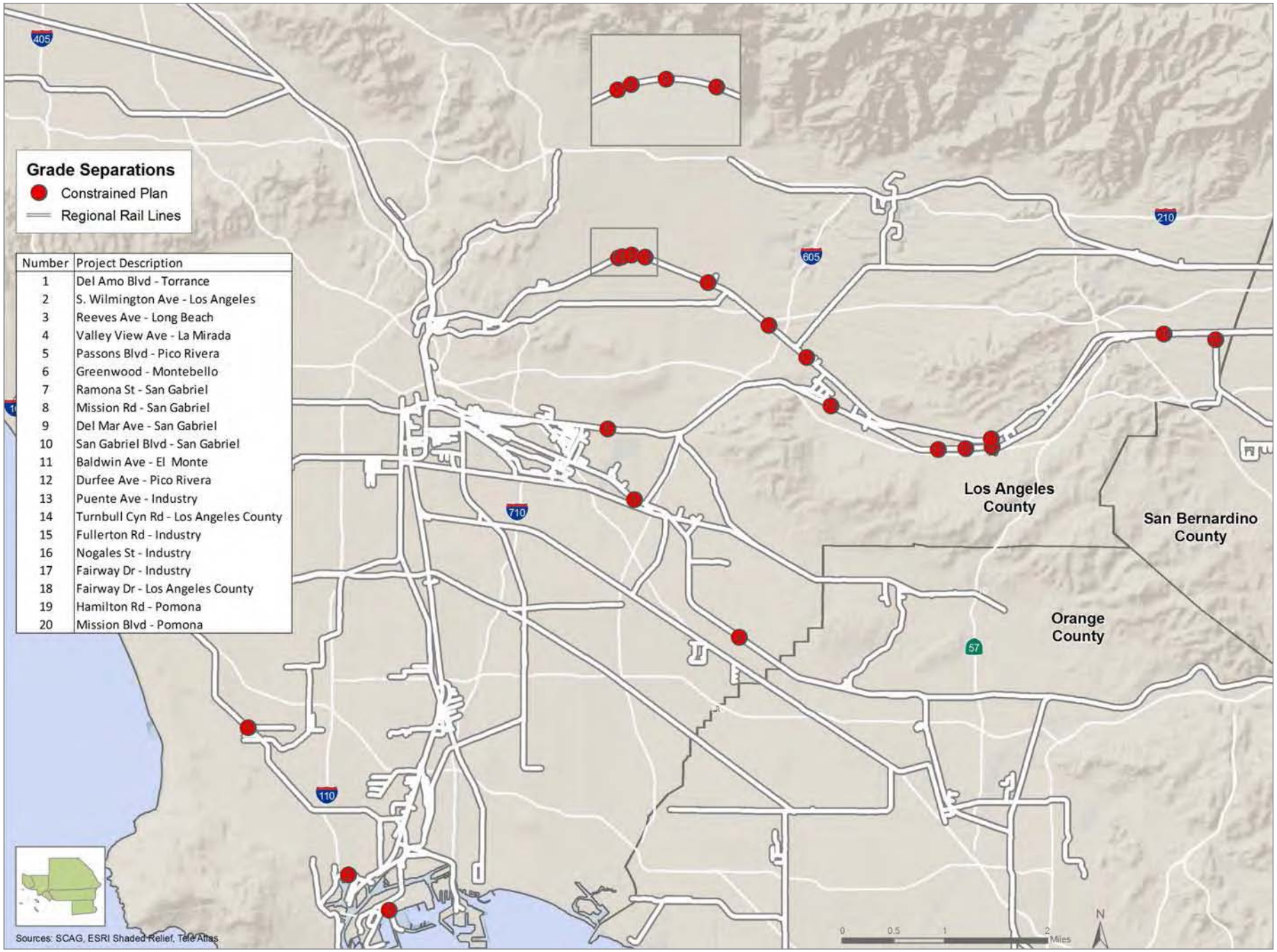


**EXHIBIT B.3** Orange County Grade Separations – Constrained Plan (Not Listed in Priority Order)

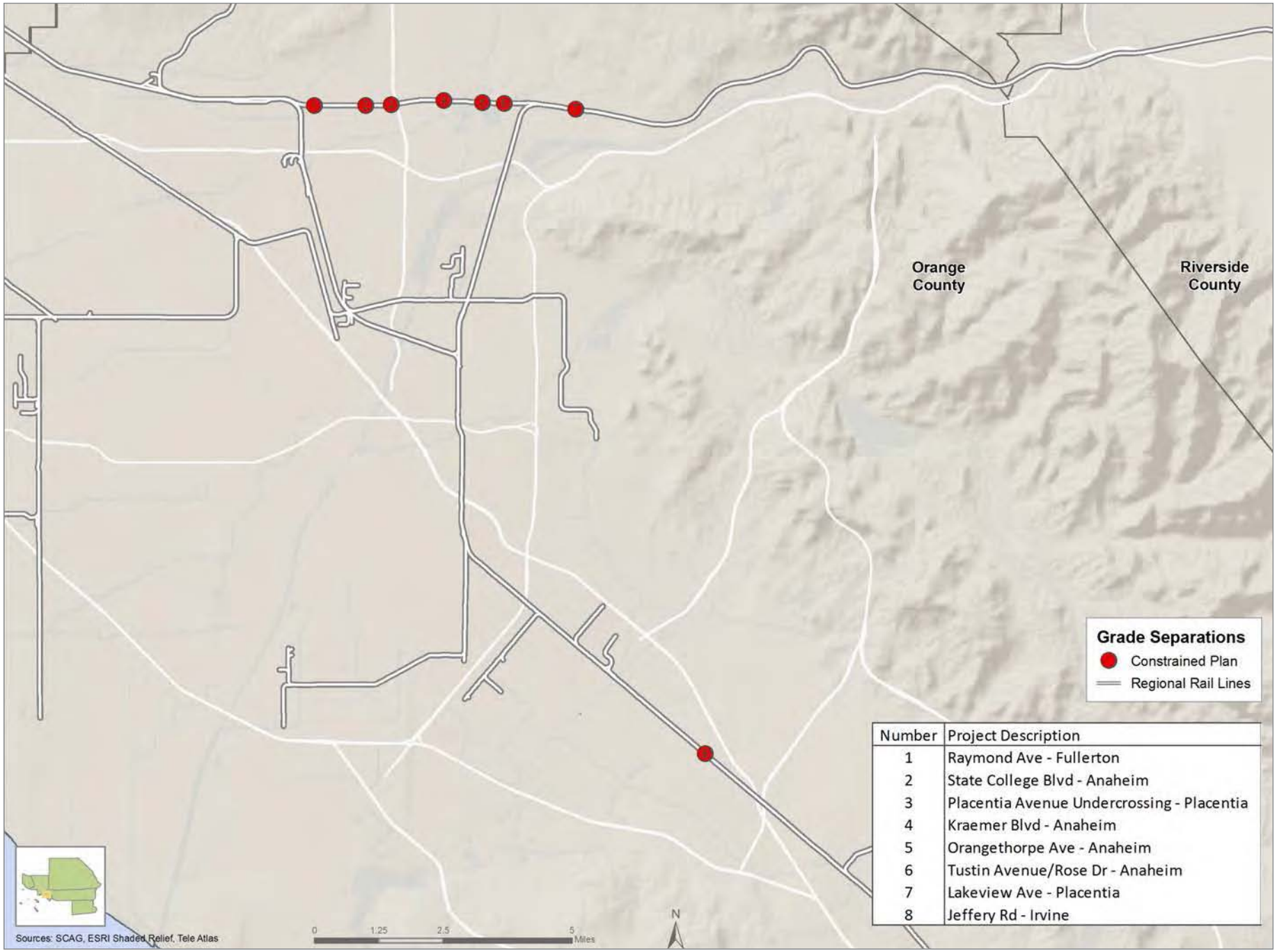
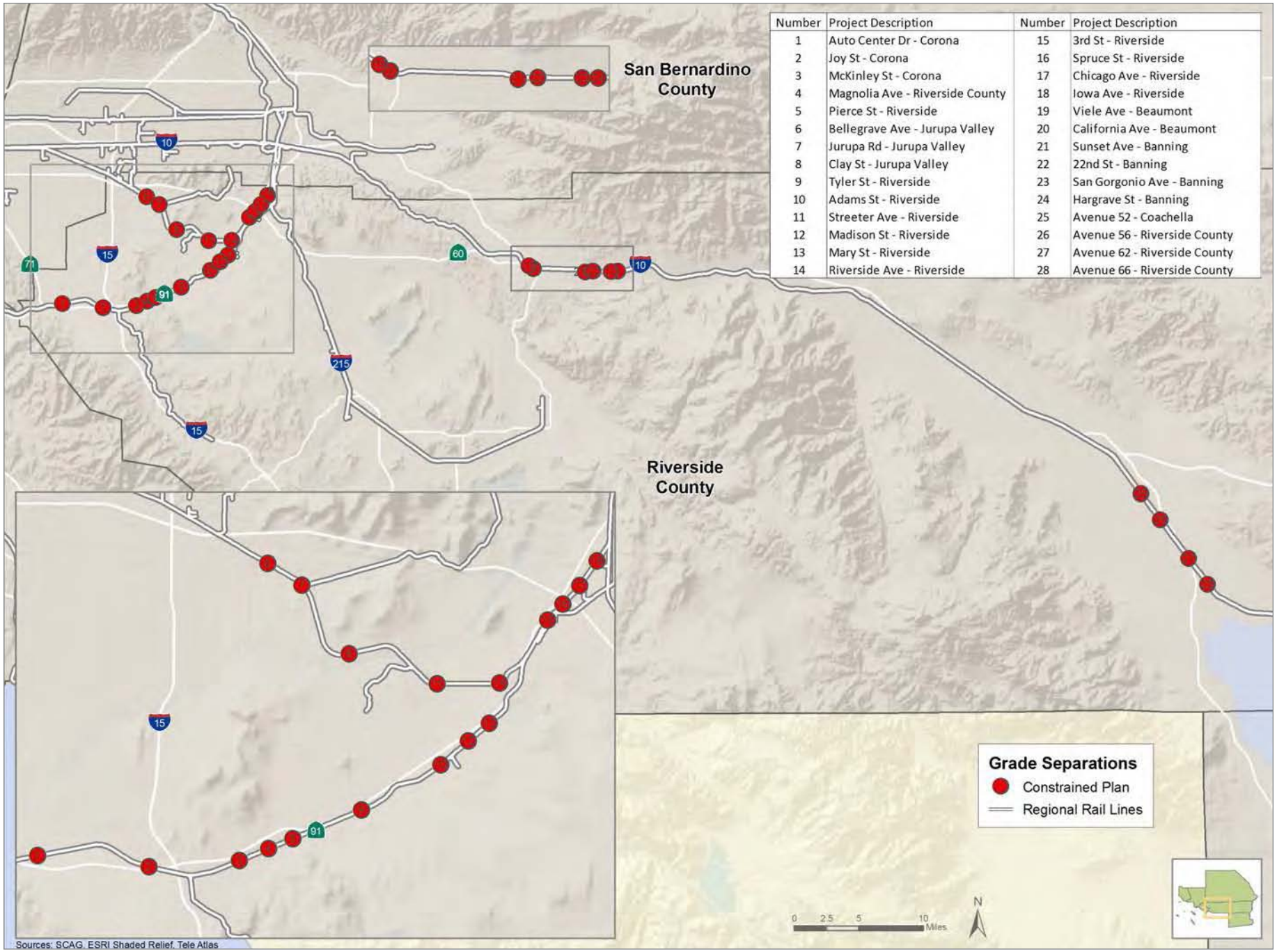


**EXHIBIT B.4** Riverside County Grade Separations – Constrained Plan (Not Listed in Priority Order)




| Number | Project Description | Number | Project Description |
|---|---|---|---|
| 1 | Auto Center Dr - Corona | 15 | 3rd St - Riverside |
| 2 | Joy St - Corona | 16 | Spruce St - Riverside |
| 3 | McKinley St - Corona | 17 | Chicago Ave - Riverside |
| 4 | Magnolia Ave - Riverside County | 18 | Iowa Ave - Riverside |
| 5 | Pierce St - Riverside | 19 | Viele Ave - Beaumont |
| 6 | Bellegrave Ave - Jurupa Valley | 20 | California Ave - Beaumont |
| 7 | Jurupa Rd - Jurupa Valley | 21 | Sunset Ave - Banning |
| 8 | Clay St - Jurupa Valley | 22 | 22nd St - Banning |
| 9 | Tyler St - Riverside | 23 | San Gorgonio Ave - Banning |
| 10 | Adams St - Riverside | 24 | Hargrave St - Banning |
| 11 | Streeter Ave - Riverside | 25 | Avenue 52 - Coachella |
| 12 | Madison St - Riverside | 26 | Avenue 56 - Riverside County |
| 13 | Mary St - Riverside | 27 | Avenue 62 - Riverside County |
| 14 | Riverside Ave - Riverside | 28 | Avenue 66 - Riverside County |

**EXHIBIT B.5** San Bernardino County Grade Separations – Constrained Plan (Not Listed in Priority Order)

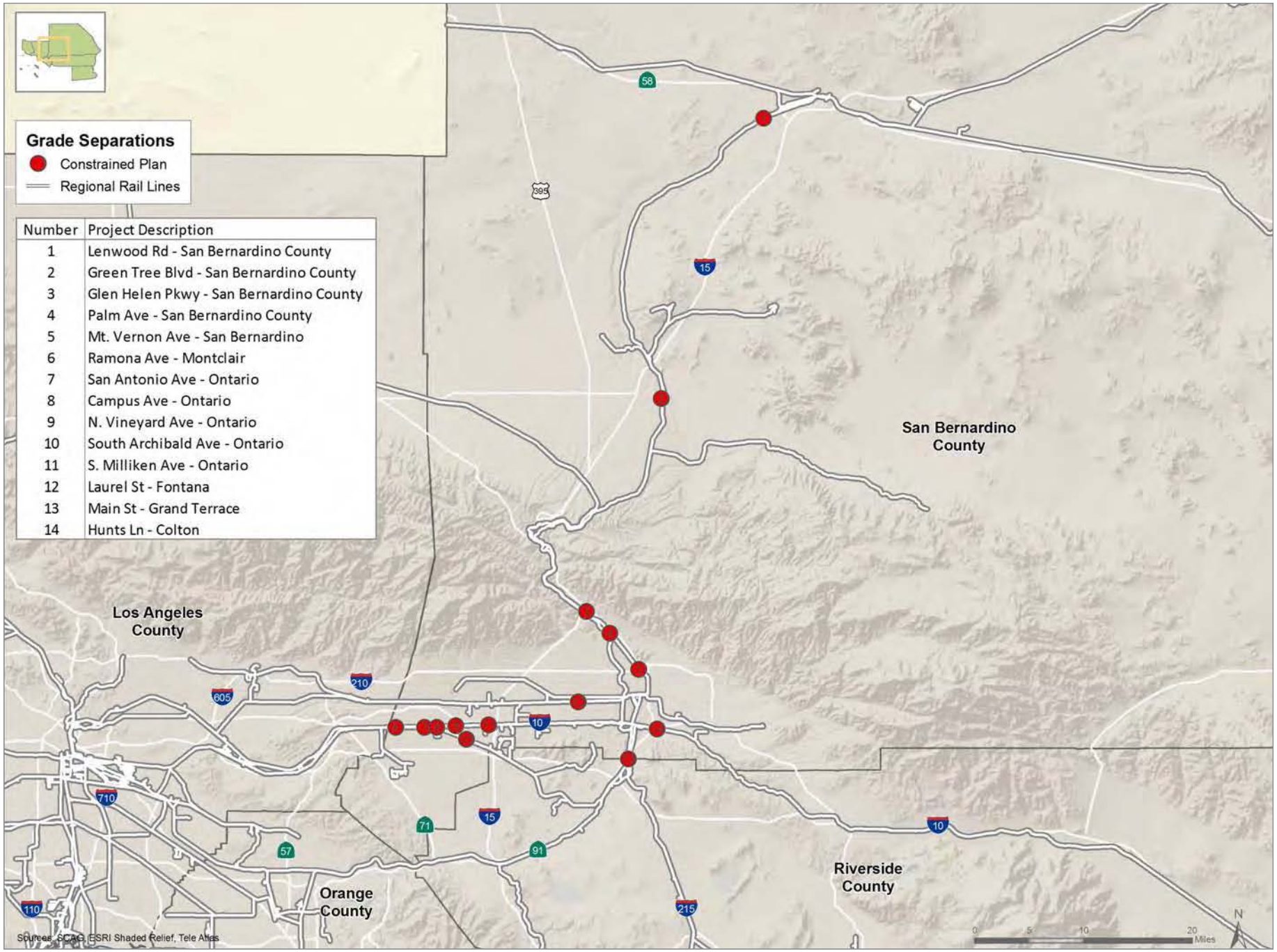
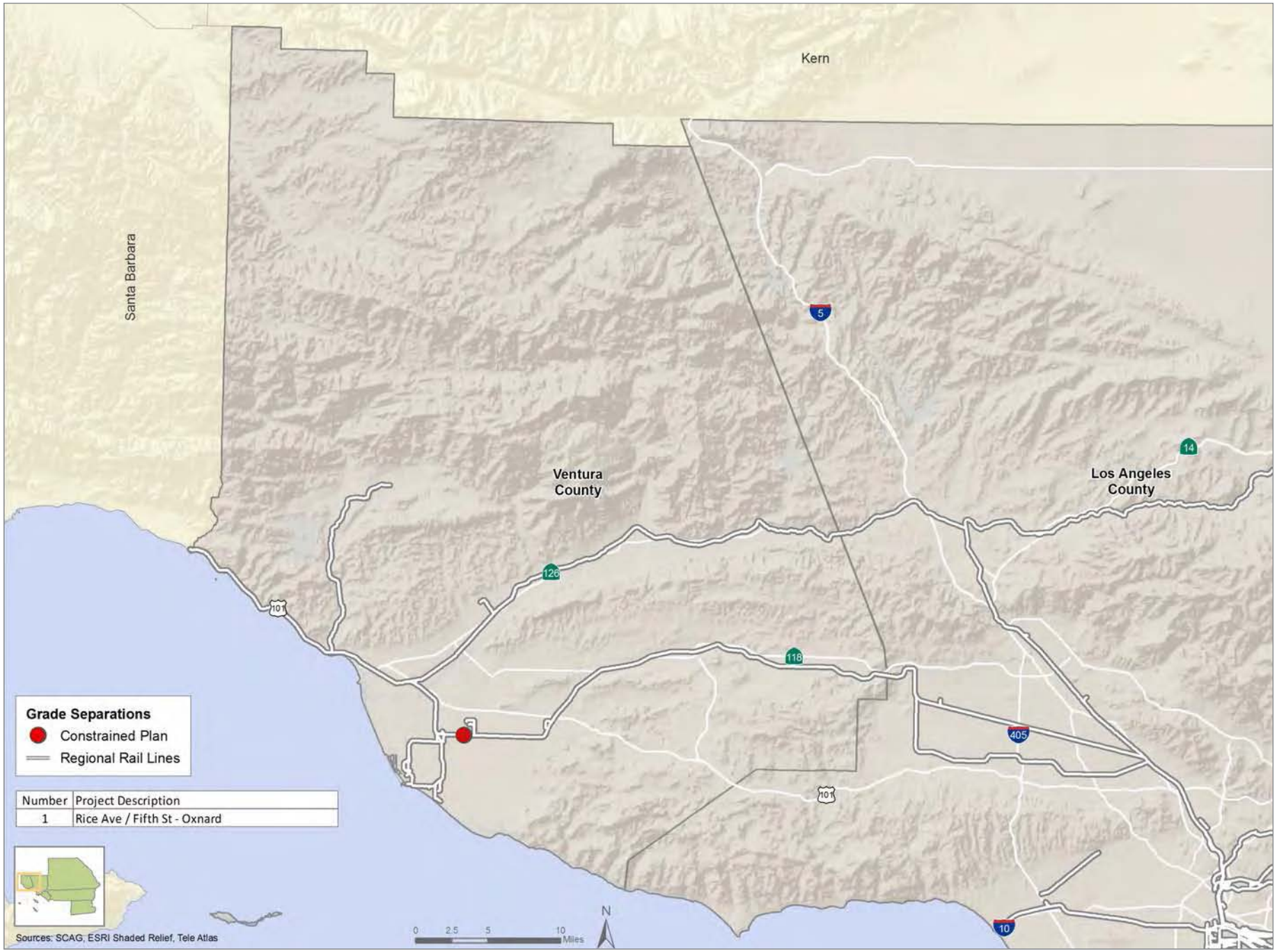


**EXHIBIT B.6** Ventura County Grade Separations – Constrained Plan



REGIONAL TRANSPORTATION PLAN
# 2012–2035 RTP
SUSTAINABLE COMMUNITIES STRATEGY
Towards a Sustainable Future


SOUTHERN CALIFORNIA
**ASSOCIATION of GOVERNMENTS**

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Suite 101
Ventura, CA 93003
Phone: (805) 642-2800
Fax: (805) 642-2260



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# EXHIBIT 4

Most Views

1. Man who exposed himself to west Torrance teens sought by police
2. South Bay / Harbor area restaurant closures
3. Wanted: Thief steals cellphone as victim fills soda cup at KFC in Torrance
4. Things To Do This Weekend
5. Harbor City man arrested as suspect in 'Skater Office Creeper' burglaries
6. '48 Hours' report: David Viens, Lomita chef convicted of killing his wife, sticks to accident story (video)
7. Off-duty deputy testifies that he never saw elderly woman in crosswalk
8. Los Angeles woman identified as victim of fatal crash with tow truck in Torrance
9. Police seek man who dumped parts from stolen Lexus at Maui Chicken in Torrance
10. American Airlines looking at increasing

# Los Angeles Harbor Commission to vote on embattled BNSF railyard project

By Karen Robes Meeks and Brian Sumers
Staff Writers
Posted: 03/02/2013 04:19:59 PM PST
Updated: 03/02/2013 06:48:04 PM PST




Vanessa Bacon, Ashley Hernandez, Alyssa Alvarez joins other protesters against the the Southern California International Gateway (SCIG) Project in Wilmington, Calif. on October 18, 2012. The SCIG involves the construction and operation of a railyard between Sepulveda Boulevard and Pacific Coast Highway along SR-47. (Jeff Gritchen / Staff Photographer)

Los Angeles harbor leaders this week will decide whether to endorse the environmental impact report of a controversial $500 million railyard that could support rising cargo demands but also abuts neighborhoods in West Long Beach and Wilmington.

Hundreds of people are expected to attend the Los Angeles Board of Harbor Commissioners meeting on Thursday, when the board is expected to vote on the final EIR of the 153-acre Southern California International Gateway railyard project being proposed by BNSF Railway.

The proposed facility, to be located in an industrial area bounded by Sepulveda Boulevard, Pacific Coast Highway, the Terminal Island Freeway and the Dominguez Channel, would allow trucks to load containers and put them on trains closer to the ports of Long Beach and Los Angeles, rather than having trucks drive 24 miles away to another facility in downtown Los Angeles.

But health and environmental groups and residents in the area say the project will worsen traffic and health problems already affecting the neighborhoods. The project, which was proposed in 2005, is in proximity of several schools and parks, including the Villages at Cabrillo, a Long Beach transitional housing facility for homeless veterans, families and youths.

frequency of LAX to New York City flights

More News



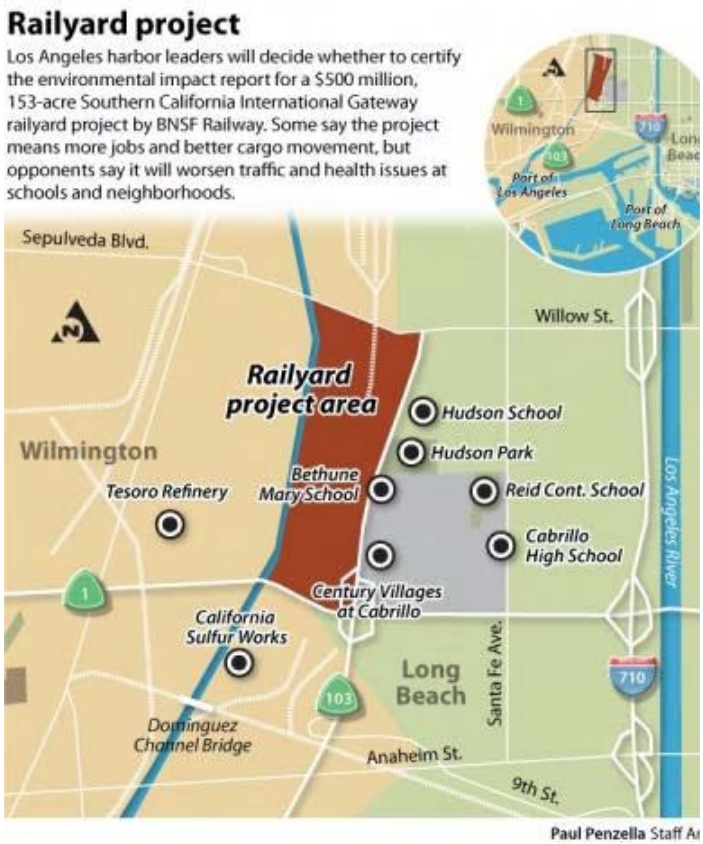
Long Beach Councilman James Johnson, whose 7 th District includes the affected neighborhoods, said the city of Los Angeles and the Port of Los Angeles "made no good faith effort to meet the needs of Long Beach

communities."

"This is a textbook case of environmental injustice, where you take a mostly minority, working-class community that already has some of the worst air quality in the United States and you add pollution to that neighborhood," Johnson said. "I think it's just wrong."

Proponents, including the Long Beach Area Chamber of Commerce, said the project will use green technology at the facility and help remove 1.5 million trucks annually from the Long Beach (710) Freeway.

BNSF spokeswoman Lena Kent said that the railroad's decision to move forward on the project has been the result of several years of meetings with hundreds of community members and business leaders.






"BNSF believes that we have proposed a project that not only meets the current and anticipated containerized cargo demands at the San Pedro Ba Ports, but will also create 'greener' capacity for the ports to grow and to continue to be a source of even more good paying jobs for the Southern California economy," Kent said in an emailed statement.

Los Angeles City Council member Joe Buscaino, whose 15 th District includes San Pedro, Wilmington, Harbor City and Harbor Gateway, said he supports the project. He said he is especially pleased it will encourage private investment and create tens of thousands of new jobs. He also said the port needs the railyard to ensure it remains competitive with others in North America.

"This has been eight years in the making," Buscaino said. "The time is now. I think we have hashed out all the concerns the port has had and the community has had. We cannot delay."

Representatives of both ports have said the ports aren't taking an official position on the project, though the decision lies in the hands of the Los Angeles harbor commissioners.

Kat Madrigal, a Wilmington resident and the development and communications coordinator for East Yard Communities for Environmental Justice, said proponents of the project are being short-sighted. She said her group plans to mobilize at least 100 people to attend Thursday's meeting and speak out against the railyard.

She said the project might actually increase pollution locally, especially for low-income residents living near the port.

"We believe that it is important that the community both in Wilmington and in Long Beach don't want this railyard," Madrigal said. "The commissioners should be held accountable to the community. This is not something the community sees as a community improvement project."

The Los Angeles Board of Harbor Commissioners meeting will take place at 8:30 a.m. Thursday at the Cruise Center Terminal Annex Building, 390 N. Harbor Blvd. in San Pedro, just north of the USS Iowa. For more information or to check out the report, visit www.portoflosangeles.org.

karen.robes@presstelegram.com, 562-714-2088, twitter.com/KarenMeeksPT

**WANT TO GO?**

**Los Angeles Board of Harbor Commissioners meeting**

**WHEN:** 8:30 a.m. Thursday

**WHERE:** Cruise Center Terminal Annex Building, 390 N. Harbor Blvd. in San Pedro, just north of the USS Iowa.

**INFO:** www.portoflosangeles.org

Return to Top

# EXHIBIT 5

## News Release

### BNSF Plans $120 Million Capital Program in California to Maintain and Expand Rail Capacity

**FORT WORTH, TEXAS, May 29, 2012 :**

BNSF Railway Company (BNSF) plans to invest an estimated $120 million on maintenance and rail capacity improvement projects in California this year.

BNSF will install an automated gate system at its Hobart Intermodal Facility to increase the velocity of container/trailer processing. BNSF will also continue its robust track maintenance program in California, which will include 786 miles of track surfacing and undercutting work, the replacement of 40 miles of rail and about 377,000 ties, as well as signal upgrades for federally mandated positive train control (PTC).

"BNSF's investments will improve our ability to provide rail freight services to California businesses and communities, and will expand opportunities to create more jobs and growth for the California economy," said Matthew K. Rose, Chairman and Chief Executive Officer.

The planned capital investments in California are part of BNSF's total 2012 capital commitment of $3.9 billion. The largest component of the capital plan is spending $2.1 billion on BNSF's core network and related assets. BNSF also plans to spend approximately $1.1 billion on locomotive, freight car and other equipment acquisitions, many of which will serve California. The program also includes about $300 million for federally mandated positive train control and $400 million for terminal, line and intermodal expansion and efficiency projects.

U.S. Department of Commerce economic data indicates that every dollar invested in freight railroads yields $3 in economic output and according to a Department of Commerce economic model, every freight rail job supports another 4.5 jobs somewhere else in our economy.

**About BNSF**

BNSF Railway is one of North America's leading freight transportation companies operating on 32,000 route miles of track in 28 states and two Canadian provinces. BNSF is one of the top transporters of consumer goods, grain, industrial goods and low-sulfur coal that help feed, clothe, supply, and power American homes and businesses every day. BNSF and its employees have developed one of the most technologically advanced, and efficient railroads in the industry. We work continuously to improve the value of the safety, service, energy, and environmental benefits we provide to our customers and the communities we serve. You can learn more about BNSF at www.BNSF.com.

**BNSF Headquarters**
BNSF Railway Company
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Fort Worth, TX 76131-2830
P.O. Box 961057
Fort Worth, TX 76161-0057
Phone: (817) 352-1000

# EXHIBIT 6

## 2.1.5 Traffic and Circulation

This section addresses the potential impacts to traffic and circulation associated with construction and long-term operation of the proposed project. The traffic and circulation impact analysis is based on the results of a traffic study conducted for the project (Iteris, 2009). The study identified existing (year 2005) and future projected (years 2015 and 2030) traffic volumes and lane configurations to determine the traffic LOS for roadway elements within the study area. For this analysis, the "existing" traffic conditions are defined as the conditions that existed in year 2005 at the time that the CEQA NOP for this project was issued.

### 2.1.5.1 Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

### 2.1.5.2 Affected Environment

The existing lane configurations, traffic volumes, and LOS within the study area are presented in this subsection.

LOS denotes the possible range of traffic operating conditions that may occur on a roadway or at an intersection when it is subjected to various traffic volumes. LOS analysis is based on hourly traffic and typically examines the peak travel hours of the day. It is a measure of the "quality of flow" defined in six levels, A through F, by the *Highway Capacity Manual – 2000 Edition* (HCM) published by the Transportation Research Board (TRB). The six levels, A to F, relate to traffic congestion from best to worst, respectively. In general, LOS A represents free-flow conditions with no congestion. Conversely, LOS F represents severe congestion with stop-and-go conditions. Levels E and F typically are considered unsatisfactory operating conditions. For a multi-lane highway such as Ocean Boulevard in the vicinity of the Gerald Desmond Bridge, LOS is determined by the density of vehicles on the roadway. A very low density allows free-flow conditions, and a very high density provides stop-and-go conditions. Table 2.1.5-1 presents LOS information for multi-lane highways.

**Table 2.1.5-1**
**Level of Service Criteria for Highway Segment**

| LOS | Maximum Density* | Description of Conditions |
|---|---|---|
| A | 11 | "Free-flow" conditions |
| B | 18 | Slight congestion |
| C | 26 | Moderate congestion |
| D | 35 | Significant congestion |
| E | 43** | Extreme congestion |
| F | >43** | Gridlock/stop-and-go condition |

* Density is measured in passenger cars per lane per mile.

** Assuming a free-flow speed of 50 miles per hour.

Source TRB, 2000.

The intersection capacity utilization (ICU) analysis methodology compares the level of traffic volume during the peak hours at an intersection to the amount of traffic that intersection is able to carry (capacity). Table 2.1.5-2 describes the LOS concept and the operating conditions expected with each LOS for signalized intersections.

Analysis of unsignalized intersections is conducted differently than signalized intersections due to different operating characteristics. For unsignalized intersections, LOS is based on average delay in seconds per vehicle. Table 2.1.5-3 describes the LOS concept for unsignalized intersections. Stop-controlled intersections were analyzed using the delay-based HCM method of determining LOS.

#### Traffic Study Area

The traffic study area is shown in Exhibit 2.1.5-1. The overall study area extends along Ocean Boulevard from Navy Way on the west to downtown Long Beach on the east. It includes the access between Ocean Boulevard, SR 710, and Pico Avenue. It extends north along Pico Avenue and SR 710 to 9th Street, and it includes the Terminal Island Freeway (SR 47) interchange with Ocean Boulevard, as well as the Terminal Island Freeway interchange with New Dock Street. The


**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**
**Traffic Study Area**

**EXHIBIT 2.1.5-1**

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**Table 2.1.5-2**
**Level of Service Criteria for Signalized Intersections**

| LOS* | V/C Ratio | Description of Conditions |
|---|---|---|
| A | 0 to 0.60 | Little or no delay/congestion |
| B | >0.60 to 0.70 | Slight congestion/delay |
| C | >0.70 to 0.80 | Moderate delay/congestion |
| D | >0.80 to 0.90 | Significant delay/congestion |
| E | >0.90 to 1.00 | Extreme congestion/delay |
| F | 1.00 + | Intersection failure/gridlock |

LOS – Level of Service

* The intersection LOS calculations were based on a maximum lane volume of 1,600 vehicles per lane for through lanes and single turn lanes and 2,880 vehicles per hour for multiple left-turn lanes as used by the POLB. For intersections within the City of Los Angeles, the maximum lane volume was based on 1,425 vehicles per hour per the capacities in the Circular 212 Critical Movement Analysis (CMA) methodology used by the City. Intersections with vehicular volumes that are at or near capacity (V/C ≅ 1.0) experience greater congestion and longer vehicle delays.

Source: TRB, 1985; and NCHRP, 1982.

**Table 2.1.5-3**
**Level of Service Criteria for Unsignalized Intersections**

| LOS | Average Delay (seconds/vehicle) | Description of Conditions |
|---|---|---|
| A | ≤ 10 | Little or no delay |
| B | > 10 and ≤15 | Slight delay |
| C | > 15 and ≤ 25 | Moderate delay |
| D | > 25 and ≤ 35 | Significant delay |
| E | > 35 and ≤50 | Extreme congestion |
| F | > 50 | Intersection gridlock |

LOS – Level of Service

Source: TRB, 2000.

study area extends west along New Dock Street from its interchange with the Terminal Island Freeway to Pier S Avenue.

The traffic study area was defined to include the project site and other roadways estimated to carry sufficient additional traffic as a result of the construction and long-term operation of the Bridge Replacement Alternatives to potentially result in adverse traffic effects. Roadways receiving sufficient additional traffic to be included in the traffic study area were determined based on the criterion of including any intersection increasing in volume by 50 or more trips in any one peak hour. The number of additional trips was determined from a comparison of the future traffic volumes with and without the Bridge Replacement Alternatives, as presented in the section Traffic Forecasting Model below. The proposed build alternatives of the project, which entail rehabilitation or replacement of the existing roadway and bridge facilities, would not directly generate any additional new trips; however, the bridge replacement alternatives are expected to result in some local redistribution of traffic as motorists modify their travel paths to take advantage of the congestion-relief benefits of the Bridge Replacement Alternatives.

The study area includes roadway facilities where traffic changes are expected to be of sufficient magnitude to warrant study. The elimination from further consideration of the Toll-Operation Alternative substantially reduced the study area. (Section 1.7.1 presents the reasons that the Toll-Operation Alternative was eliminated from further consideration.) A toll facility would potentially impact traffic on I-110, SR 91, and I-405, as noted in Section 1.2. The proposed Bridge Replacement Alternatives would have more localized potential traffic effects. The northern limit of the study area on SR 710 is at 9th Street. Because there was no adverse effect of the proposed project on the portion of SR 710 south of 9th Street, which has fewer lanes than portions to the north, it was concluded that there would be no adverse effects to SR 710 or I-710 farther north where the highway has more lanes.

Within the traffic study area, eight roadway segments with potential traffic impacts associated with the project have been investigated. These are shown on Exhibit 2.1.5-2 and include:

1. Ocean Boulevard from Navy Way to Pier S Avenue;
2. Ocean Boulevard from Pier S Avenue to the Terminal Island Freeway;
3. Ocean Boulevard from the Terminal Island Freeway to the Horseshoe Ramps;
4. EB bridge upgrade (direction of travel is uphill) to the crest of the bridge;
5. WB bridge upgrade to the crest of the bridge;
6. Connectors between SR 710 and Ocean Boulevard;
7. SR 710 north of the Ocean Boulevard connectors; and
8. Ocean Boulevard from SR 710 Connectors to downtown Long Beach.

Within the traffic study area, 13 intersections with potential traffic impacts associated with the project have been investigated. The intersections are shown on Exhibit 2.1.5-3 and include:

1. Terminal Island Freeway and Ocean Boulevard (signalized);
2. Pier S Avenue and Ocean Boulevard (signalized);
3. Pier S Avenue and New Dock Street (signalized);
4. Navy Way and Seaside Avenue (signalized);
5. Pico Avenue/Pier B Street and 9th Street (signalized);
6. Pico Avenue and Pier C Street (signalized);
7. Terminal Island Freeway SB Off-Ramp and New Dock Street (stop sign controlled);
8. Terminal Island Freeway Northbound (NB) On-Ramp and New Dock Street (stop sign controlled);
9. Pico Avenue and Pier D Street (stop sign controlled);
10. Pico Avenue and Broadway (stop sign controlled);
11. Pico Avenue and Pier E Street (stop sign controlled);
12. Ocean Boulevard and Golden Shore (signalized); and
13. Ocean Boulevard and Magnolia Avenue (signalized).

The intersection of Navy Way and Seaside Avenue (Intersection 4) is located in Los Angeles, while the other intersections are located in Long Beach. Intersections 1 through 6, 12, and 13 are signalized in the existing year 2005 condition. Intersections 7 through 11 are currently controlled with stop signs. Traffic signals are proposed at intersections 9 and 11 as part of the construction traffic detour plans for the North-side and South-side Alignment Alternatives (bridge replacement alternatives), and these signals would remain after implementation of the proposed project; therefore, these signals are considered implemented in the analysis of future year 2015 and 2030 conditions with the proposed Bridge Replacement Alternatives of the project.

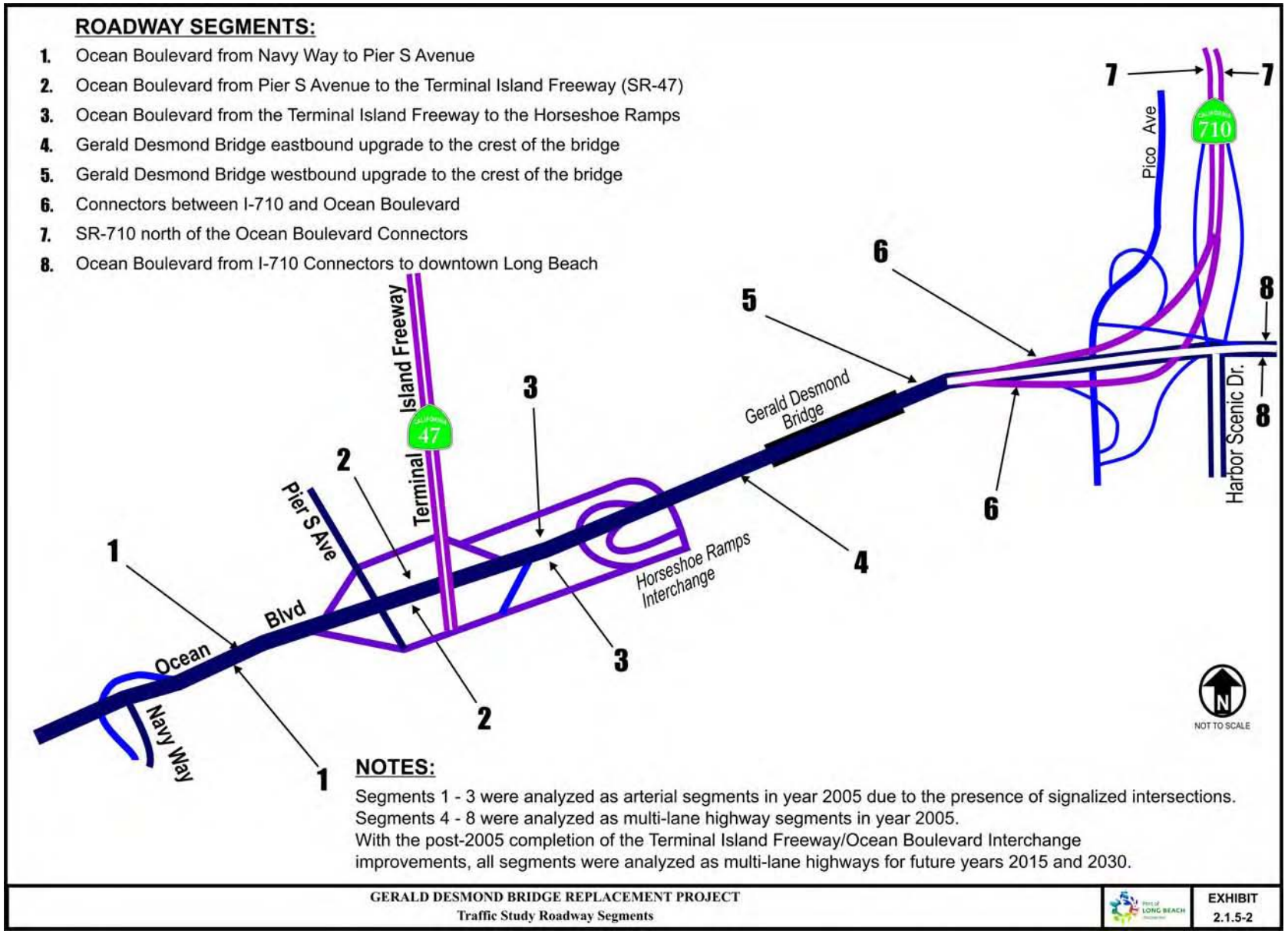
The analysis of future year 2015 and 2030 conditions with the No Action/Rehabilitation Alternatives assumes that signals would not be in place at intersections 9 and 11, because no construction traffic detour plans would be necessary if the existing bridge is rehabilitated or if no action is taken.

## Existing Lane Configuration

Exhibits 2.1.5-4a and 2.1.5-4b show the existing lane configuration of the Gerald Desmond Bridge and roadways within the immediate project area.

Gerald Desmond Bridge

The Gerald Desmond Bridge is a five-lane thoroughfare with two traffic lanes in each direction and one truck lane in each direction on the uphill side of the bridge. The truck lanes end at the roadway crest on the bridge.


ROADWAY SEGMENTS:
1. Ocean Boulevard from Navy Way to Pier S Avenue
2. Ocean Boulevard from Pier S Avenue to the Terminal Island Freeway (SR-47)
3. Ocean Boulevard from the Terminal Island Freeway to the Horseshoe Ramps
4. Gerald Desmond Bridge eastbound upgrade to the crest of the bridge
5. Gerald Desmond Bridge westbound upgrade to the crest of the bridge
6. Connectors between I-710 and Ocean Boulevard
7. SR-710 north of the Ocean Boulevard Connectors
8. Ocean Boulevard from I-710 Connectors to downtown Long Beach
Ocean Blvd
Navy Way
Pier S Ave
Terminal Island Freeway
47
710
Pico Ave
Gerald Desmond Bridge
Horseshoe Ramps Interchange
Harbor Scenic Dr.
NOT TO SCALE
NOTES:
Segments 1 - 3 were analyzed as arterial segments in year 2005 due to the presence of signalized intersections.
Segments 4 - 8 were analyzed as multi-lane highway segments in year 2005.
With the post-2005 completion of the Terminal Island Freeway/Ocean Boulevard Interchange improvements, all segments were analyzed as multi-lane highways for future years 2015 and 2030.
GERALD DESMOND BRIDGE REPLACEMENT PROJECT
Traffic Study Roadway Segments
EXHIBIT
2.1.5-2

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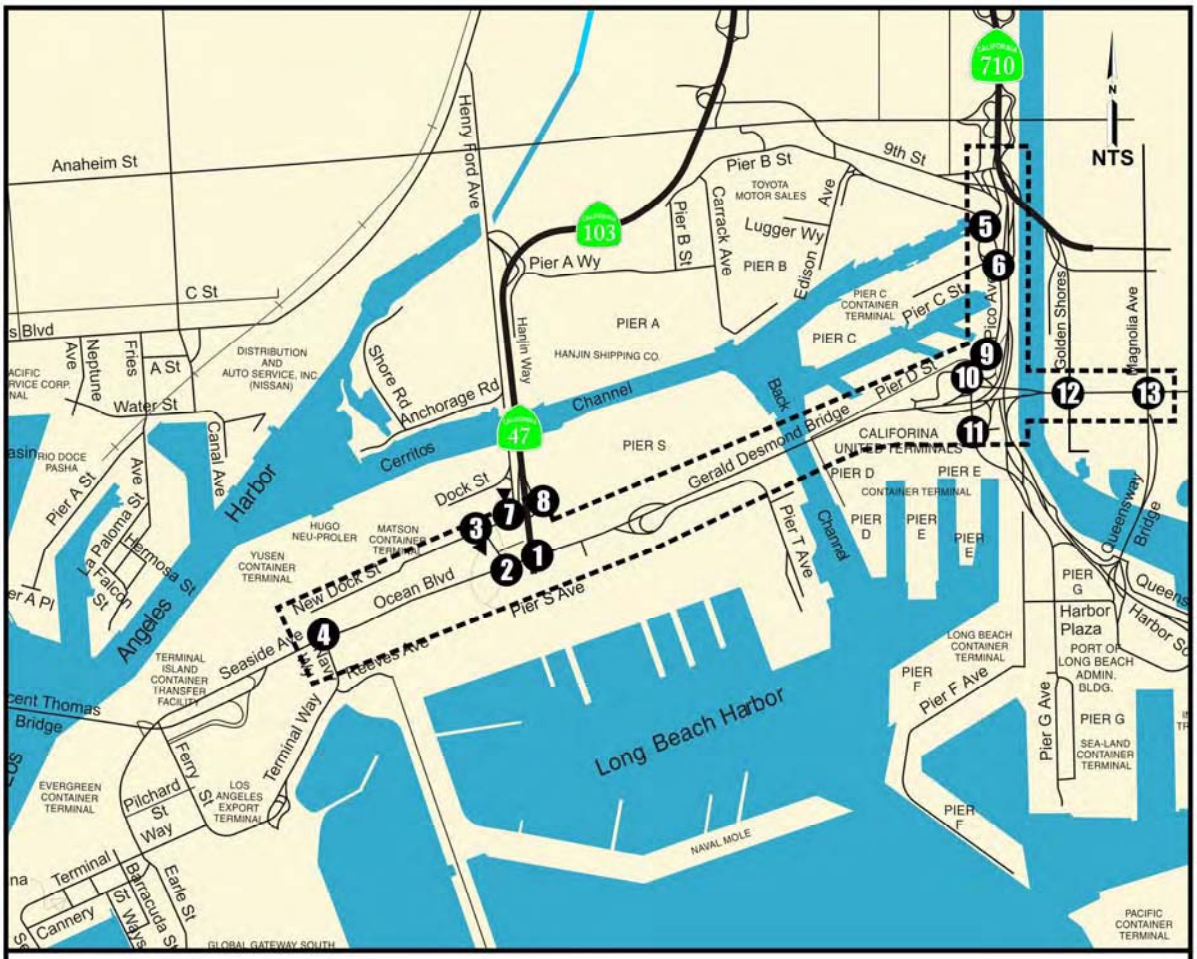


1. Terminal Island Freeway and Ocean Boulevard
2. Pier S Avenue and Ocean Boulevard
3. Pier S Avenue and New Dock Street
4. Navy Way and Seaside Avenue
5. Pico Avenue/Pier B Street and 9th Street
6. Pico Avenue and Pier C Street
7. Terminal Island Freeway Southbound Off-Ramp and New Dock Street
8. Terminal Island Freeway Northbound On-Ramp and New Dock Street
9. Pico Avenue and Pier D Street
10. Pico Avenue and Broadway
11. Pico Avenue and Pier E Street
12. Ocean Boulevard and Golden Shore Street
13. Ocean Boulevard and Magnolia Avenue

**Key**

- 13 Study Intersection
- Traffic Study Area
- Signalized Intersection
- STOP Stop Sign Controlled

**Note:**

Intersections #5, #6, and #9-11 are currently controlled with stop signs. Traffic signals are proposed at intersections #9 and #11 as part of the construction traffic detour plans for the North-side and South-side Alignment Alternatives (Bridge Replacement Alternatives) and these signals would remain after implementation of the proposed project. Therefore, these signals are considered implemented in the analysis of future year 2015 and 2030 conditions under the proposed Bridge Replacement Alternatives of the project. The analysis of future year 2015 and 2030 conditions under the No Action/Rehabilitation Alternatives assumes that signals would not be in place at intersections #9 and #11, since no construction traffic detour plans would be necessary if the existing bridge is rehabilitated or if no action is taken.

**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**
**Traffic Study Intersections**

Port of LONG BEACH

**EXHIBIT 2.1.5-3**

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PARSONS - HNTB

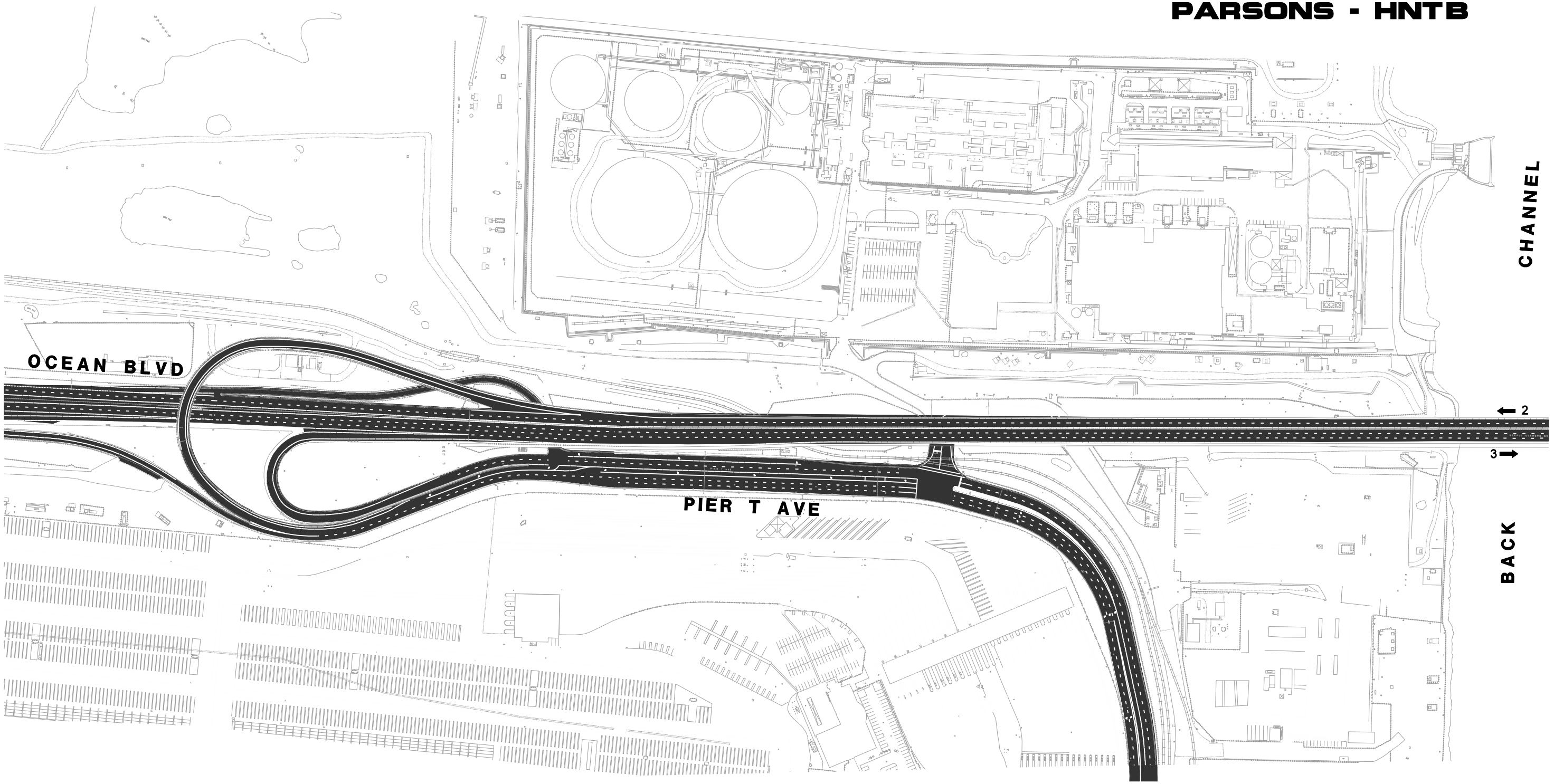


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EXHIBIT 2.1.5-4a

| MARK | DATE | BY | REVISIONS |
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DRAWN DMP DATE 03/28/08
DESIGNED _____ P.E. NO. _____
PROJ. MGR. _____ P.E. NO. _____
SECT. HEAD _____ P.E. NO. C-

ASS'T CHIEF HARBOR ENGR. P.E. NO. C-25677 DATE .....

CHIEF HARBOR ENGINEER P.E. NO. C-43065 DATE .....

Port of LONG BEACH
The Green Port

GERALD DESMOND BRIDGE REPLACEMENT PROJECT

Existing Roadway Segment Lane Configuration

SCALE
SHEET ____ OF ____
SPECIFICATION NUMBER
DRAWING NUMBER

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PARSONS - HNTB

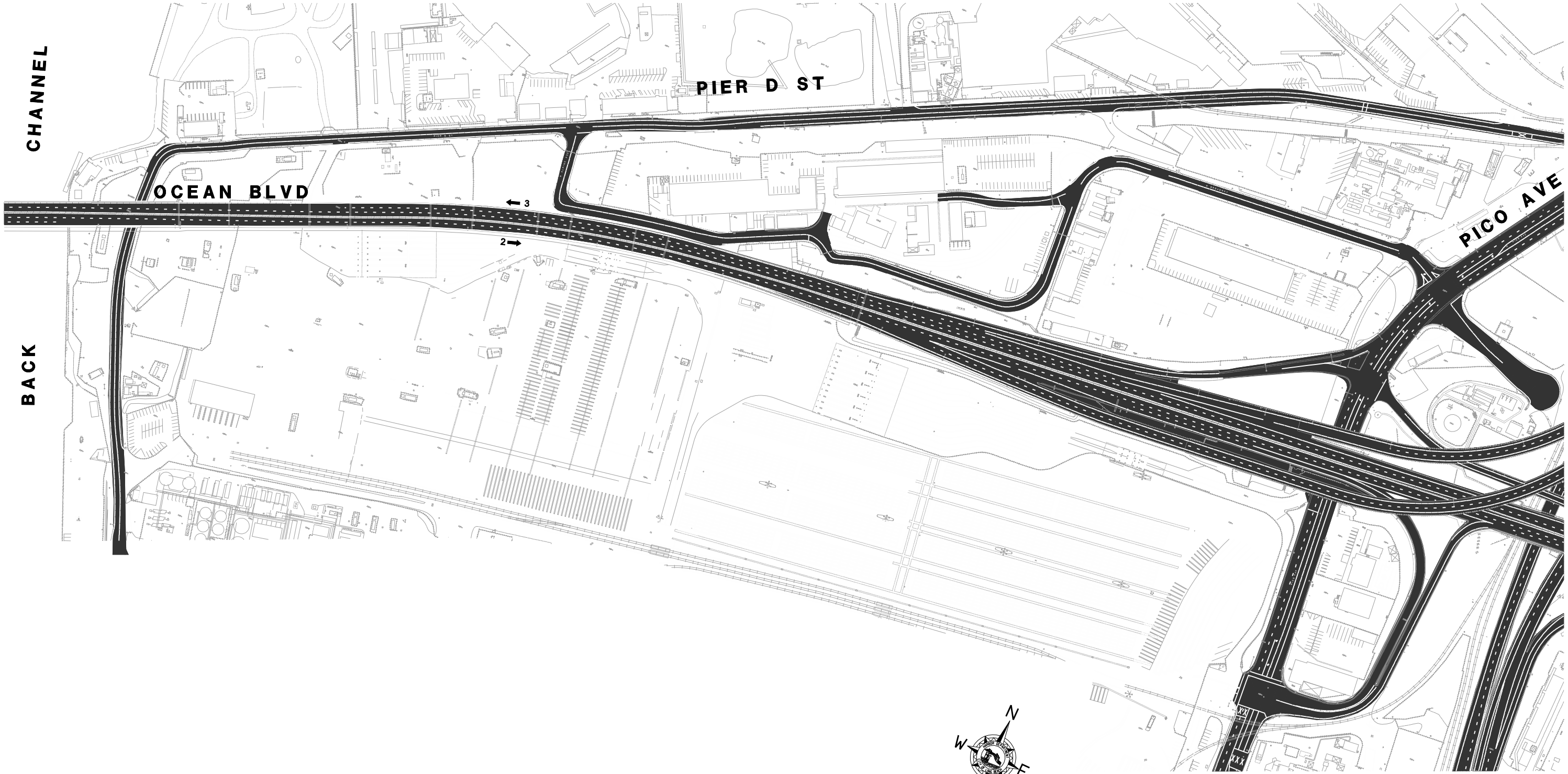


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EXHIBIT 2.1.5-4b

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|---|---|---|---|
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DRAWN DWP DATE 03/28/08
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PROJ. MGR. _____ P.E. NO. _____
SECT. HEAD _____ P.E. NO. C _____

ASS'T CHIEF HARBOR ENGR. P.E. NO. C 25077 DATE .....
CHIEF HARBOR ENGINEER P.E. NO. C 43065 DATE .....

Port of LONG BEACH The Green Port

GERALD DESMOND BRIDGE REPLACEMENT PROJECT

Existing Roadway Segment Lane Configuration

SCALE
SHEET _____ OF _____
SPECIFICATION NUMBER _____
DRAWING NUMBER _____

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USER: p0033148

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Ocean Boulevard

The section of Ocean Boulevard connecting to the Gerald Desmond Bridge also has two or three lanes in each direction, depending upon the exact location and direction. The roadway has three lanes in each direction east of the Pico Avenue interchange and west of the Ocean Boulevard/ Terminal Island Freeway interchange.

Interchanges and Ramps

Major interchanges along Ocean Boulevard within the project area include Terminal Island East, SR 710, and Pico Avenue, as shown in Exhibit 2.1.5-2.

The Terminal Island East interchange, which is identified by its "horseshoe ramps," is located at the west end of the Gerald Desmond Bridge. (Note: the Terminal Island East interchange is referred to in this subsection as the Horseshoe Ramps to avoid confusion with the Terminal Island Freeway interchange.) The Horseshoe Ramps provide access to the Pier T area and include ramps to and from Ocean Boulevard in both directions. The SR 710 freeway and Pico Avenue interchanges lie immediately east of the Gerald Desmond Bridge. The SB SR 710 connector ramp to WB Ocean Boulevard consists of two lanes that merge into one lane prior to merging with Ocean Boulevard. The connector ramp for the opposite move (EB Ocean Boulevard to NB SR 710) consists of two lanes.

## Existing (Year 2005) Traffic Conditions

The existing (year 2005) average daily traffic (ADT) on the Gerald Desmond Bridge is approximately 59,700 vpd, which includes approximately 25 percent trucks. This truck percentage is higher than on typical urban roadways and is principally attributable to the large truck volumes generated by the ports.

Study Methodology

Based on traffic counts taken for the existing year (2005), the morning (AM), midday (MD), and evening (PM) peak traffic hours were determined to be 8:00 a.m. to 9:00 a.m., 2:00 p.m. to 3:00 p.m., and 4:00 p.m. to 5:00 p.m., respectively. The AM and PM peak hours represent traffic peaks typical of commuter traffic. In addition to commuter traffic, the traffic activity at the Ports consists of a component associated with cargo movement. The cargo movement traffic peaks during the typical workday in the early afternoon and creates a third peak hour (MD). Because of this distinctive tri-modal peaking of traffic, all three peak-hour time periods were used for analysis of the existing and future traffic conditions.

Subsequent to 2005, the segment of Ocean Boulevard between Pier S Avenue and the Terminal Island Freeway was improved with a grade-separated overpass for through traffic on Ocean Boulevard. Because these improvements were implemented subsequent to the 2005 issuance of the NOP, they are not included in the analysis of existing year (2005) traffic conditions; the improvements are included in all analysis of future year traffic conditions. The grade separation improvements elevate the mainline of Ocean Boulevard over the Terminal Island Freeway and Pier S Street, so that through traffic on Ocean Boulevard avoids intersections at both the Terminal Island Freeway and Pier S Street. At-grade segments of Ocean Boulevard parallel to the elevated segment serve Ocean Boulevard traffic going to and from the Terminal Island Freeway and Pier S Street. Thus, intersections of Ocean Boulevard with the Terminal Island Freeway and Pier S Street remain but are avoided by Ocean Boulevard motorists continuing past both the Terminal Island Freeway and Pier S Street. The intersections of Ocean Boulevard with the Terminal Island Freeway and Pier S Street are signalized.

Because Ocean Boulevard was a restricted-access facility east of its intersection with the Terminal Island Freeway in the year 2005 condition, it was analyzed using the HCM multi-lane highway method. The segments of Ocean Boulevard west of the Terminal Island Freeway with at-grade intersections were analyzed as arterial streets using the HCM method. Exhibit 2.1.5-2 indicates which segments were analyzed as multi-lane highway segments and which were analyzed as arterial segments.

The LOS analysis of multi-lane highway segments was performed using the Traffic Software Integrated System Corridor Simulation (CORSIM) micro-simulation program developed by FHWA. CORSIM uses microscopic traffic following logic to simulate corridor segment operations on freeways and arterial streets. Results are reported in terms of vehicle density (vehicles per mile per lane) during peak hours on analysis segments, along with travel speeds, to determine the segment LOS, consistent with the HCM methods. CORSIM was used because it incorporates the effects of upstream and downstream operations into each study segment, and it can explicitly model the merge condition at the crest of the Gerald Desmond Bridge where the truck climbing lanes end under the existing and no action/rehabilitation alternatives conditions.

LOS analysis was conducted for the unsignalized study intersections in the City of Long Beach using the HCM unsignalized intersection method.

The signalized intersections in the City of Long Beach were analyzed using the ICU method, consistent with City of Long Beach requirements. The one signalized intersection in the City of Los Angeles was analyzed using the Critical Movement Analysis (CMA) method, consistent with City of Los Angeles requirements. Traffix software was used to perform the HCM, ICU, and CMA intersection analyses.

The merge and diverge areas (ramp junctions) where ramps enter and leave a roadway represent locations of potential congestion and delay. The HCM ramp junction method was used for these analyses. Because of the more complex traffic maneuvers occurring at ramp merges and diverges than on a multi-lane highway segment, similar vehicle densities result in slightly lower LOS at ramp junctions than on a mainline segment. Merge/diverge analysis was performed for the ramp junction areas where the ramp from SR 710 SB merges with Ocean Boulevard WB and the ramp to SR 710 NB diverges from Ocean Boulevard EB. On-ramp locations that join the mainline by adding a mainline lane and off-ramps that diverge by dropping a mainline lane were not analyzed because they are not true ramp junctions and do not constitute true merge/diverge sections.

Results of Analysis

Exhibit 2.1.5-5 shows the existing peak-hour traffic volumes on roadway segments in the traffic study area for the AM, MD, and PM peak periods.

The LOS analysis results of the study segments with existing year 2005 conditions are shown in Table 2.1.5-4. Generally, the segments operate at acceptable LOS A to C in the peak hours; however, on Ocean Boulevard between Pier S Avenue and the Terminal Island Freeway (Segment 2), failing LOS F conditions occur in both directions during the peak hours, except for the EB direction during the midday peak hour when there are LOS E conditions. Additionally, WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway (Segment 3) has LOS E conditions during all three peak periods.

The results of the ramp junction LOS analyses for existing year 2005 conditions are shown in Table 2.1.5-5. All of the ramp junction areas analyzed operate at acceptable LOS B during the peak hours.

The results of the study intersections LOS analyses under existing year 2005 conditions are shown in Table 2.1.5-6. All of the study intersections operate at acceptable LOS D or better during peak hours under the existing year 2005 conditions, except the intersection of the Terminal Island Freeway and Ocean Boulevard, which operates at LOS E conditions in the PM peak hour.

### 2.1.5.3 Environmental Consequences

#### Evaluation Criteria

Criteria for the determination of an adverse effect to traffic were identified by the Port and are consistent with criteria used in other recent projects within the Port. The criteria are those required by the jurisdiction in which the study roadway or intersection is situated, unless that jurisdiction has no appropriate criteria, in which case criteria identified by the Port were used.

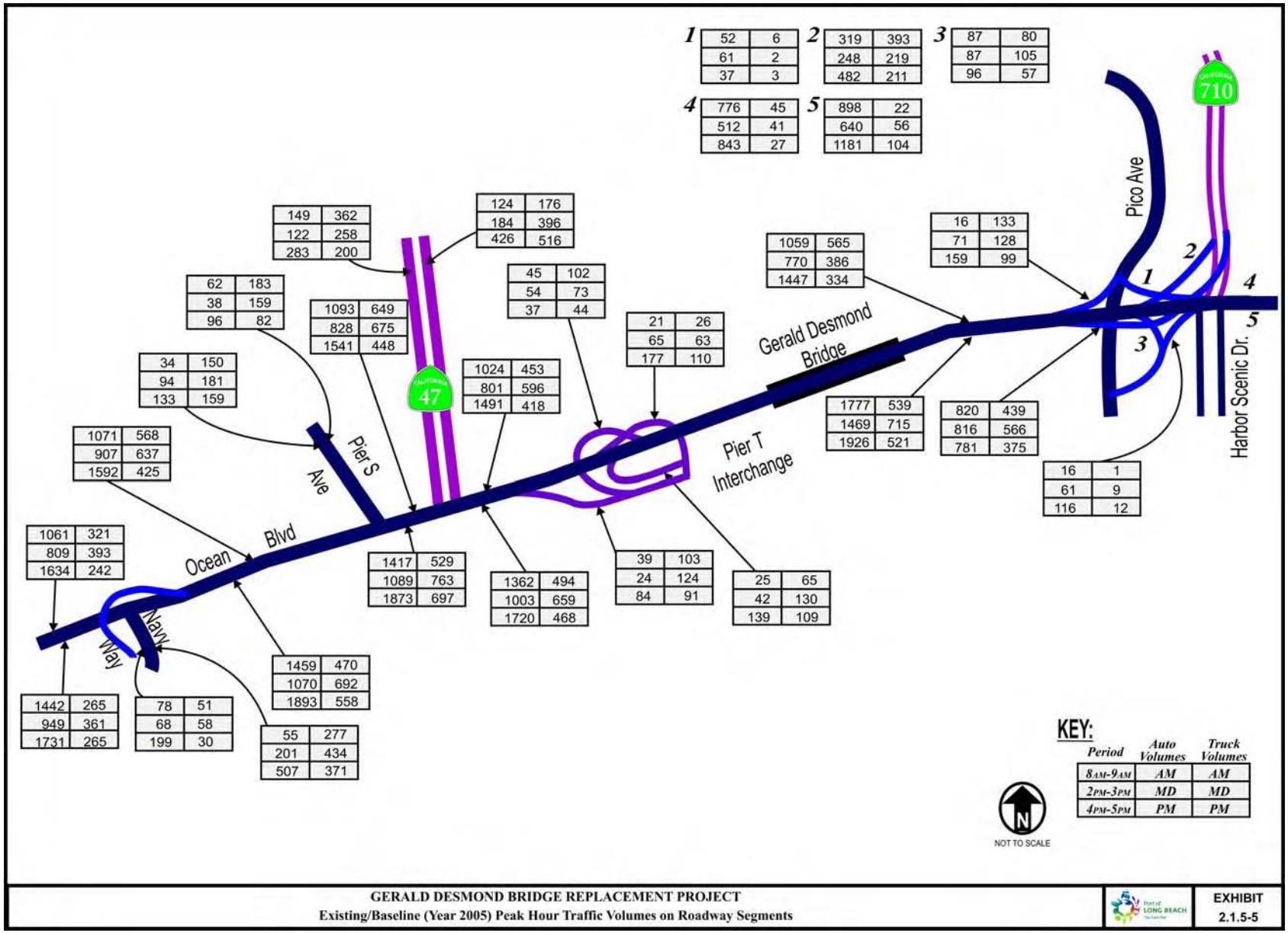
For signalized intersections, the proposed project would result in an adverse effect if the following thresholds established by the cities of Long Beach and Los Angeles are exceeded:

- City of Long Beach: Build condition LOS is E or F and the intersection volume-to-capacity ratio (V/C) increases by more than 0.020 from the no build to the build condition;
- City of Los Angeles:
  - Build condition LOS is C (defined as V/C greater than 0.700 to 0.800) and the V/C increases by more than 0.040;
  - Build condition LOS is D (defined as V/C greater than 0.800 to 0.900 and the V/C increases by more than 0.020; or
  - Build condition LOS is E or F (defined as V/C greater than 0.900) and the V/C increases by more than 0.010.

All of the unsignalized study area intersections are located in Long Beach. The City of Long Beach has no established criteria for determination of adverse effects at unsignalized intersections. The criteria used in this analysis are:

> If the Build condition has an LOS E or F at an unsignalized intersection, then the intersection is to be reanalyzed using the signalized intersection method and criteria to identify any adverse effects.

Similarly, the City of Long Beach has no criteria for the determination of adverse effects for intersections at which signal installation is part of the proposed project. For comparisons of intersections that are unsignalized with the no action/rehabilitation alternatives and signalized with the Bridge Replacement Alternatives, this analysis assumes that there would be an adverse effect if the Bridge Replacement Alternatives would result in LOS E or F at the future signalized intersection.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Harbor Scenic Dr.
Gerald Desmond Bridge
Pier T Interchange
Pier S Ave
Ocean Blvd
Navy Way
47
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38 159
96 82
1093 649
828 675
1541 448
45 102
54 73
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133 159
1024 453
801 596
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201 434
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KEY:
Period
Auto Volumes
Truck Volumes
8AM-9AM
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NOT TO SCALE
GERALD DESMOND BRIDGE REPLACEMENT PROJECT
Existing/Baseline (Year 2005) Peak Hour Traffic Volumes on Roadway Segments
EXHIBIT
2.1.5-5

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**Table 2.1.5-4**
**Existing (Year 2005) Peak-Hour LOS**
**for Arterial and Highway Segments**

| | Segment | From | To | Speed* or Vehicle Density | LOS |
|---|---|---|---|---|---|
| **AM Peak Hour** | | | | | |
| 1 | EB Ocean Boulevard | Navy Way | Pier S Avenue | 38.0* | A |
| | WB Ocean Boulevard | Pier S Avenue | Navy Way | 30.4* | B |
| 2 | EB Ocean Boulevard | Pier S Avenue | Terminal Island Freeway | 10.6* | F |
| | WB Ocean Boulevard | Terminal Island Freeway | Pier S Avenue | 9.4* | F |
| 3 | EB Ocean Boulevard | Terminal Island Freeway | Horseshoe Ramps | 29.6* | B |
| | WB Ocean Boulevard | Horseshoe Ramps | Terminal Island Freeway | 14.4* | E |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 17.0 | B |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 21.8 | C |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 20.2 | C |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 20.1 | C |
| 6 | NB Connector | EB Ocean Boulevard | NB SR 710 | 13.8 | B |
| | SB Connector | SB SR 710 | WB Ocean Boulevard | 17.4 | B |
| 7 | SR 710 NB | NB Connector | NB SR 710 Mainline | 14.2 | B |
| | SR 710 SB | SB SR 710 Mainline | SB Connector | 9.2 | A |
| 8 | EB Ocean Boulevard | NB Connector | Downtown | 4.6 | A |
| | WB Ocean Boulevard | Downtown | SB Connector | 6.6 | A |
| **MD Peak Hour** | | | | | |
| 1 | EB Ocean Boulevard | Navy Way | Pier S Avenue | 37.6* | A |
| | WB Ocean Boulevard | Pier S Avenue | Navy Way | 31.8* | B |
| 2 | EB Ocean Boulevard | Pier S Avenue | Terminal Island Freeway | 14.0* | E |
| | WB Ocean Boulevard | Terminal Island Freeway | Pier S Avenue | 9.2* | F |
| 3 | EB Ocean Boulevard | Terminal Island Freeway | Horseshoe Ramps | 29.5* | B |
| | WB Ocean Boulevard | Horseshoe Ramps | Terminal Island Freeway | 13.7* | E |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 18.8 | C |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 23.1 | C |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 19.4 | C |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 19.0 | C |
| 6 | NB Connector | EB Ocean Boulevard | NB SR 710 | 16.0 | B |
| | SB Connector | SB SR 710 | WB Ocean Boulevard | 10.7 | A |
| 7 | SR 710 NB | NB Connector | NB SR 710 Mainline | 17.4 | B |
| | SR 710 SB | SB SR 710 Mainline | SB Connector | 6.5 | A |
| 8 | EB Ocean Boulevard | NB Connector | Downtown | 1.8 | A |
| | WB Ocean Boulevard | Downtown | SB Connector | 6.6 | A |

**Table 2.1.5-4**
**Existing (Year 2005) Peak-Hour LOS for Arterial and Highway Segments**

| | Segment | From | To | Speed* or Vehicle Density | LOS |
|---|---|---|---|---|---|
| **PM Peak Hour** | | | | | |
| 1 | EB Ocean Boulevard | Navy Way | Pier S Avenue | 36.1* | A |
| | WB Ocean Boulevard | Pier S Avenue | Navy Way | 33.8* | B |
| 2 | EB Ocean Boulevard | Pier S Avenue | Terminal Island Freeway | 9.7* | F |
| | WB Ocean Boulevard | Terminal Island Freeway | Pier S Avenue | 9.3* | F |
| 3 | EB Ocean Boulevard | Terminal Island Freeway | Horseshoe Ramps | 29.7* | B |
| | WB Ocean Boulevard | Horseshoe Ramps | Terminal Island Freeway | 12.7* | E |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 20.2 | C |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 25.7 | C |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 18.9 | C |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 19.5 | C |
| 6 | NB Connector | EB Ocean Boulevard | NB SR 710 | 13.2 | B |
| | SB Connector | SB SR 710 | WB Ocean Boulevard | 14.4 | B |
| 7 | SR 710 NB | NB Connector | NB SR 710 Mainline | 13.8 | B |
| | SR 710 SB | SB SR 710 Mainline | SB Connector | 8.3 | A |
| 8 | EB Ocean Boulevard | NB Connector | Downtown | 8.5 | A |
| | WB Ocean Boulevard | Downtown | SB Connector | 6.9 | A |

LOS – Level of Service; EB – eastbound; WB – westbound; NB – northbound; SB – southbound

* In the existing year 2005 condition, Segments 1 through 3 are analyzed as arterial segments because of the presence of traffic signals on Ocean Boulevard at the Terminal Island Freeway, Pier S Avenue, and Navy Way. The LOS for arterials is determined by speed (in miles per hour). For Urban Street Class II arterials, the speed range for each LOS is LOS A >35 mph; LOS B >28-35 mph; LOS C >22-28 mph; LOS D >17-22 mph; LOS E >13-17 mph; and LOS F ≤ 13 mph. All other segments are analyzed as multi-lane highways where LOS is determined by vehicle density (vehicles per lane per mile).

Source: Iteris, 2009.

**Table 2.1.5-5**
**Existing (Year 2005) Peak-Hour LOS for Ramp Junctions**

| Ramp Location | AM Peak Hour | | MD Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | Density (pc/mi/ln) | LOS* | Density (pc/mi/ln) | LOS* | Density (pc/mi/ln) | LOS* |
| EB Ocean Boulevard to SR 710/ Downtown Diverge | 11.1 | B | 10.9 | B | 15.5 | B |
| SB SR 710 Connector Ramp and WB Ocean Boulevard | 16.7 | B | 15.2 | B | 16.2 | B |

LOS – Level of Service; NB – northbound; pc/mi/ln – passenger cars equivalents per mile per lane; SB – southbound

* LOS criteria for ramp junction areas are in density (pc/mi/ln). Density ranges for different LOS types: LOS A: 0 - 10; LOS B: 10.1 - 20; LOS C: 20.1 - 28; LOS D: 28.1 - 35; LOS E: 35.1 - 43; LOS F: >43.

Source: Iteris, 2009.

**Table 2.1.5-6**
**Existing (Year 2005) Peak-Hour LOS for Intersections**

| | Intersection | LOS | V/C or Delay* |
|---|---|---|---|
| **AM Peak Hour** | | | |
| 1 | Terminal Island Freeway / Ocean Boulevard | C | 0.792 |
| 2 | Pier S Avenue / Ocean Boulevard | C | 0.709 |
| 3 | Pier S Avenue / New Dock Street | A | 0.327 |
| 4 | Navy Way / Seaside Avenue | A | 0.474 |
| 5 | Pico Avenue / Pier B Street and 9th Street | A | 0.428 |
| 6 | Pico Avenue / Pier C Street | A | 0.309 |
| 7 | Terminal Island Freeway SB Off-Ramp / New Dock | B | *10.8* |
| 8 | Terminal Island Freeway NB On-Ramp / New Dock | A | *7.4* |
| 9 | Pico Avenue / Pier D Street | B | *10.1* |
| 10 | Pico Avenue / Broadway | B | *10.6* |
| 11 | Pico Avenue / Pier E Street | A | *9.9* |
| 12 | Ocean Boulevard / Golden Shore Street | A | 0.570 |
| 13 | Ocean Boulevard / Magnolia Avenue | B | 0.693 |
| **MD Peak Hour** | | | |
| 1 | Terminal Island Freeway / Ocean Boulevard | D | 0.833 |
| 2 | Pier S Avenue / Ocean Boulevard | C | 0.700 |
| 3 | Pier S Avenue / New Dock Street | A | 0.350 |
| 4 | Navy Way / Seaside Avenue | A | 0.414 |
| 5 | Pico Avenue / Pier B Street and 9th Street | A | 0.455 |
| 6 | Pico Avenue / Pier C Street | A | 0.340 |
| 7 | Terminal Island Freeway SB Off-Ramp / New Dock | A | *9.1* |
| 8 | Terminal Island Freeway NB On-Ramp / New Dock | A | *7.6* |
| 9 | Pico Avenue / Pier D Street | B | *11.3* |
| 10 | Pico Avenue / Broadway | B | *11.2* |
| 11 | Pico Avenue / Pier E Street | B | *11.8* |
| 12 | Ocean Boulevard / Golden Shore Street | A | 0.569 |
| 13 | Ocean Boulevard / Magnolia Avenue | A | 0.575 |
| **PM Peak Hour** | | | |
| 1 | Terminal Island Freeway / Ocean Boulevard | E | 0.912 |
| 2 | Pier S Avenue / Ocean Boulevard | D | 0.824 |
| 3 | Pier S Avenue / New Dock Street | A | 0.356 |
| 4 | Navy Way / Seaside Avenue | A | 0.581 |
| 5 | Pico Avenue / Pier B Street and 9th Street | A | 0.494 |
| 6 | Pico Avenue / Pier C Street | A | 0.343 |
| 7 | Terminal Island Freeway SB Off-Ramp / New Dock | A | *9.3* |
| 8 | Terminal Island Freeway NB On-Ramp / New Dock | A | *7.9* |
| 9 | Pico Avenue / Pier D Street | B | *10.7* |
| 10 | Pico Avenue / Broadway | B | *10.5* |
| 11 | Pico Avenue / Pier E Street | B | *11.3* |
| 12 | Ocean Boulevard / Golden Shore Street | A | 0.593 |
| 13 | Ocean Boulevard / Magnolia Avenue | B | 0.601 |

LOS – Level of Service; NB – northbound; SB – southbound

* V/C (volume-to-capacity ratio) is reported for signalized intersections, and average stopped delay in seconds is reported for unsignalized intersections in italics.

Source: Iteris, 2009.

The determination of potential adverse effects on roadway study segments is based on whether a segment is forecast to operate at LOS F with the bridge replacement alternatives, and if LOS F were forecast, whether the vehicle density (vehicles per mile per lane) during the peak hours with the Bridge Replacement Alternatives would be worse (higher) than with the No Action/ Rehabilitation Alternatives. A higher density is an indicator of a worse LOS F condition.

## Construction Impacts

Rehabilitation Alternative

The work associated with the Rehabilitation Alternative would be limited to nighttime closures of one lane at a time on the Gerald Desmond Bridge and its approaches. The existing concrete median barrier would be removed for the construction period, and four lanes (two in each direction) would be maintained during the nighttime construction period. During the daytime, the existing lane configuration would be maintained. Rehabilitation of single-lane ramps may require some ramp closures during the nighttime hours. A TMP would be prepared for the Rehabilitation Alternative to address signing for the temporary lane closures, hours of closure, placement of traffic cones and other temporary channelizing devices, and other elements of traffic management during the construction period. The construction activity associated with the Rehabilitation Alternative is not expected to have adverse traffic effects, and construction detour routes would not be required under this alternative. Traffic volumes at night are light and not sufficient to warrant detours.

Bridge Replacement Alternatives

This section summarizes the plan for staged construction of the proposed Bridge Replacement Alternatives, including an identification of the detours necessary during their construction. The construction stages of the two Bridge Replacement Alternatives (the North-side Alignment and the South-side Alignment) would be the same in terms of their potential impacts on traffic. A traffic analysis is presented of the detour routes included in the stages of construction of the Bridge Replacement Alternatives. The discussion includes an identification of the construction-related traffic effects that are anticipated under the proposed Bridge Replacement Alternatives.

Each construction stage is anticipated to last approximately 1-year; however, it is expected that the latter part of each stage would overlap the beginning of the next stage. Demolition of the existing bridge would take place in the fifth stage of the project following the four construction stages. As part of the required TMP for the Bridge Replacement Alternatives, coordination with the construction activities associated with the Schuyler Heim Bridge replacement project and proposed SR 47 improvements would occur, as necessary, to minimize traffic effects during the potentially overlapping construction phases of the projects.

**First Stage.** The first stage would include construction of temporary pavement widening along Pico Avenue and widening of ramps and intersections as required.

**Second Stage.** During the second stage, the SB-to-WB SR 710 connector would be closed. SB traffic would be directed to Pico Avenue from SB SR 710 at the existing Pico Avenue off-ramp. Vehicles would then travel south on Pico Avenue to the existing WB Ocean Boulevard on-ramp. Widening is proposed at both ramps to accommodate the detoured traffic. During this stage of construction, Pico Avenue would be modified to provide three SB lanes and two NB lanes. Other changes along the corridor are also proposed, as will be discussed later.

During both the second and third stages of construction, traffic entering Pier T from WB Ocean Boulevard would have to use the Terminal Island Freeway interchange to make a U-turn and access the EB Pier T off-ramp because the WB Pier T off-ramp ramp would be removed from service during those stages of construction.

**Third and Fourth Stages.** During the third and fourth stages, the new WB portion of the bridge and connector roadways would be open, and traffic would be directed to the new facility. EB traffic crossing the bridge to travel north on SR 710 would be directed to the Pico Avenue off-ramp to travel NB on Pico Avenue. Vehicles would access SR 710 using the existing Pico Avenue on-ramp located north of C Street. During these final stages, Pico Avenue would be restriped to provide three NB lanes and two SB lanes.

Traffic Analysis of Detours

An analysis was conducted for the entire project area, especially the Terminal Island Freeway interchange and Pico Avenue, to determine if the proposed construction phasing plan would be feasible and to identify what modifications would be required to accommodate projected traffic volumes on detour routes. The analysis was conducted for only the AM and PM peak hours because they represent the higher and more critical peaks. Stage

1 requires no analysis because the existing travel lane configuration would be maintained.

Table 2.1.5-7 shows that the additional traffic diverted to the detour routes in construction Stage 2 is expected to result in poor LOS (E or F) during either the AM or PM peak hour at four intersections along the detour routes:

- Ocean Boulevard and SR 47 (North Intersection);
- Ocean Boulevard and SR 47 (South Intersection);
- Pico Avenue and Pier B Street/9th Street; and
- Pico Avenue and Pier D Street.

Table 2.1.5-8 shows that the additional traffic diverted to the detour routes in construction Stages 3 and 4 is expected to result in poor LOS (E or F) during either the AM or PM peak hour at five intersections along the detour routes:

- Ocean Boulevard and SR 47 (North Intersection);
- Ocean Boulevard and SR 47 (South Intersection);
- Pico Avenue and Pier B Street/9th Street;
- Pico Avenue and Pier D Street; and
- Pico Avenue and Pier E Street.

**Table 2.1.5-7**
**Bridge Replacement Alternatives: Detour Route Level of Service – Construction Stage 2**

| Intersection | Without Mitigation | | | |
|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | |
| | LOS | Delay[1] | LOS | Delay[1] |
| 1a. Ocean Boulevard and SR -47 (North Intersection) | D | 50.2 | E | 64.6 |
| 1b. Ocean Boulevard and SR -47 (South Intersection) | D | 38.6 | F | 131.3 |
| 2a. Ocean Boulevard and Pier S Avenue (North Intersection) | C | 27.9 | C | 26.3 |
| 2b. Ocean Boulevard and Pier S Avenue (South Intersection) | C | 26.8 | C | 23.8 |
| 5. Pico Avenue and Pier B Street / 9th Street | F | 206.0 | E | 59.2 |
| 6. Pico Avenue and Pier C Street | A | 7.7 | A | 6.4 |
| 9. Pico Avenue and Pier D Street[2] | F | 428.9 | F | 227.8 |
| 11. Pico Avenue and Pier E Street[2] | B | 11.9 | C | 18.2 |

[1] Delay is in seconds per vehicle.
[2] Existing 4-way stop intersection.
Source: Iteris, 2009.

**Table 2.1.5-8**
**Bridge Replacement Alternatives: Detour Route Level of Service – Construction Stages 3 and 4**

| Intersection | Without Mitigation | | | |
|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | |
| | LOS | Delay[1] | LOS | Delay[1] |
| 1a. Ocean Boulevard and SR 47 (North Intersection) | D | 50.2 | E | 64.6 |
| 1b. Ocean Boulevard and SR 47 (South Intersection) | D | 38.6 | F | 131.3 |
| 2a. Ocean Boulevard and Pier S Avenue (North Intersection) | C | 27.9 | C | 26.3 |
| 2b. Ocean Boulevard and Pier S Avenue (South Intersection) | C | 26.8 | C | 23.8 |
| 5. Pico Avenue and Pier B Street/9th Street | F | 389.9 | F | 383.5 |
| 6. Pico Avenue and Pier C Street | A | 3.2 | A | 3.8 |
| 9. Pico Avenue and Pier D Street[2] | F | 450.9 | F | 418.3 |
| 11. Pico Avenue and Pier E Street[2] | F | OVRFL[3] | F | OVRFL[3] |

[1] Delay is in seconds per vehicle.
[2] Existing 4-way stop intersection.
[3] V/C ratio too high to calculate delay. Delay would be excessive.
Source: Iteris, 2009.

Adverse Traffic Effects during Construction of the Bridge Replacement Alternatives

LOS E or F at an intersection on a detour route is considered an adverse traffic effect of construction. This is a more stringent criterion than stated above, but it provides a conservative estimate of potential adverse effects of construction on detour routes. Five intersections on detour routes would have adverse traffic effects during construction. The affected intersections are discussed below.

- Ocean Boulevard and SR 47 North Intersection would operate at LOS E during the PM peak hour during construction Stages 2, 3, and 4.

The LOS E during the PM peak hour at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Additional lanes at the intersection were investigated as mitigation. Due to ROW constraints and lack of available land for additional lanes, it was determined that there is no feasible mitigation to address this temporary adverse effect of the Bridge Replacement Alternatives upon the operating condition at the Terminal Island Freeway interchange. The effect attributed to the Bridge Replacement Alternatives is considered a temporary, adverse, and unavoidable effect. This temporary condition would occur during a portion of the construction period, amounting to approximately 18 months of the planned 4-year construction period.

- Ocean Boulevard and SR 47 South Intersection would operate at LOS F during the PM peak hour during construction Stages 2, 3, and 4.

The LOS F during the PM peak hour at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Additional lanes at the intersection were investigated as mitigation. Due to ROW constraints and lack of available land for additional lanes, it was determined that there is no feasible mitigation to address this temporary adverse effect of the Bridge Replacement Alternatives upon the operating condition at the Terminal Island Freeway interchange. The effect attributed to the Bridge Replacement Alternatives is considered a temporary, adverse, and unavoidable effect. This temporary condition would occur during a portion of the construction period, amounting to approximately 18 months of the planned 4-year construction period.

- Pico Avenue and Pier B Street/9th Street intersection would operate at LOS E or F during both the AM and PM peak hours during construction Stages 2, 3, and 4.

The LOS E and F during the AM and PM peak hours at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Two sets of mitigations are proposed at this intersection for the different construction stages of a Bridge Replacement Alternative. One set would be implemented during construction Stage 2 and another set during construction Stages 3 and 4. The mitigations proposed for Stage 2 and for Stages 3 and 4 of a Bridge Replacement Alternative are shown in Tables 2.1.5-9 and 2.1.5-10, respectively.

The proposed mitigation measures listed in Tables 2.1.5-9 and 2.1.5-10 would be implemented as part of the TMP required for the project. Prior to construction, the TMP will be submitted to the Port and Caltrans for approval. The TMP, at a minimum, will include detour routes, flagmen, traffic controls, signing, and traffic lane closure scheduling to minimize impacts. The TMP will be implemented after approval.

The mitigations proposed for Stage 2 would mitigate the temporary adverse effect and provide an acceptable LOS B during peak hours.

During Stages 3 and 4, the diverted traffic on NB Pico Avenue must turn left onto the ramp to access NB SR 710. To improve the projected operating conditions at this intersection, the conflicting traffic movements (SB through volumes from Pier B Street and WB-to-SB left turns from 9th Street) must be rerouted to eliminate the conflict with the NB left-turning traffic from Pico Avenue accessing the ramp. All feasible mitigation measures have been proposed for Stages 3 and 4. The mitigation measures would reduce delay, but LOS F and E would remain during the AM and PM peak hours, respectively. This is considered a temporary and unavoidable adverse effect during Stages 3 and 4 of a Bridge Replacement Alternative. This temporary condition would occur during a portion of the construction period, amounting to approximately 22 months of the planned 4-year construction period.

- Pico Avenue and Pier D Street intersection would operate at LOS F during both the AM and PM peak hours during construction Stages 2, 3, and 4.

**Table 2.1.5-9**
**Bridge Replacement Alternatives: Detour Route Level of Service with Mitigation – Construction Stage 2**

| Intersection | With Mitigation | | | | Mitigation Notes |
|---|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | | |
| | LOS | Delay[1] | LOS | Delay[1] | |
| 5. Pico Avenue and Pier B Street/9th Street | B | 19.4 | B | 11.4 | **TC-1**<br>- Add dual NB right-turn lanes<br>- Restripe EBTR to EBR. Provide one (1) EBT<br>- Continue two (2) SR 710 SB off-ramp lanes to Pico Avenue |
| 9. Pico Avenue/Pier D Street[2] | D | 47.7 | C | 26.2 | **TC-3**<br>- Signalize |

LOS – level of service; NB – northbound; SB – southbound; EBT – eastbound through; EBTR – eastbound through/right; EBR – eastbound right
[1] Delay is in seconds per vehicle.
[2] Existing 4-way stop intersection.

Source: Iteris, 2009.

**Table 2.1.5-10**
**Bridge Replacement Alternatives: Detour Route Level of Service with Mitigation – Construction Stages 3 and 4**

| Intersection | With Mitigation | | | | Mitigation Notes |
|---|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | | |
| | LOS | Delay[1] | LOS | Delay[1] | |
| 5. Pico Avenue and Pier B Street/9th Street | F | 91.9 | E | 78.7 | **TC-2**<br>- Remove NB-SB split signal phasing<br>- Restripe NBTL to NBL<br>- Widen SB approach Provide two (2) LT lanes and one (1) TR lane<br>- Continue two (2) on-ramp lanes to NB SR 710 |
| 9. Pico Avenue/Pier D Street[2] | E | 58.6 | D | 41.7 | **TC-3**<br>-Signalize |
| 11. Pico Avenue/Pier E Street[2] | B | 16.5 | B | 14.7 | **TC-4**<br>- Signalize<br>- Restripe NBTR to NBR to provide one (1) NBT<br>- Add dual free-flow WB right-turn lanes<br>- Continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue |

LOS – level of service; EB – eastbound;; NB – northbound; SB – southbound; WB – westbound; NBTL – northbound through/left; NBL – northbound left; LT – left through; TR – through right; NBTR – northbound through/right; NBR – northbound right; NBT – northbound through
[1] Delay is in seconds per vehicle.
[2] Existing 4-way stop intersection.

Source: Iteris, 2009.

The LOS F during the AM and PM peak hours at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. Two sets of mitigations are proposed at the intersection of Pico Avenue and Pier D Street for the different construction stages of a Bridge Replacement Alternative. One set would be implemented during construction Stage 2 and another set during construction Stages 3 and 4. The mitigations proposed for Stage 2 and for Stages 3 and 4 of a Bridge Replacement Alternative are shown in Tables 2.1.5-9 and 2.1.5-10, respectively.

The proposed mitigation measures listed in Tables 2.1.5-9 and 2.1.5-10 would be implemented as part of the TMP referenced above.

The mitigations proposed for Stage 2 would mitigate the adverse effect and provide acceptable LOS C or D during peak hours.

The Pier D Street intersection with Pico Avenue provides egress for all trucks from Piers D and E. The exiting volumes, combined with the large through volumes on NB Pico Avenue, result in the poor operating conditions at this intersection. All feasible mitigation measures have been proposed for Stages 3 and 4. The mitigation measures would reduce delay, but LOS E would remain during the AM peak hour. This is considered a temporary and unavoidable adverse effect during Stages 3 and 4 of a Bridge Replacement Alternative. This temporary condition would occur during a portion of the construction period, amounting to approximately 22 months of the planned 4-year construction period.

- Pico Avenue and Pier E Street would operate at LOS F during both the AM and PM peak hours during construction Stages 3 and 4.

The LOS F during the AM and PM peak hours at this intersection is an adverse temporary effect attributed to construction detour traffic associated with the Bridge Replacement Alternatives. A set of mitigations is proposed at this intersection to be implemented under the Bridge Replacement Alternatives. The proposed mitigations are shown in Table 2.1.5-10. The proposed mitigations would mitigate the adverse effect under the Bridge Replacement Alternative condition and provide an acceptable LOS B during peak hours.

The proposed mitigation measures listed in Table 2.1.5-10 would be implemented as part of the TMP referenced above.

## Operational Impacts

For this analysis, the future traffic conditions are assumed the same for both the No Action Alternative and the Rehabilitation Alternative. This is because the Rehabilitation Alternative would have the same number of traffic lanes on the bridge and ramps/connectors as the No Action Alternative, and the design of roadways and intersections in the project area would be the same as with the No Action Alternative.

It is assumed in this analysis that for the Bridge Replacement Alternatives future traffic conditions would be the same for both the North-side Alignment Alternative and the South-side Alignment Alternative. This is because both the North-side and South-side Alignment Alternatives would have the same number of traffic lanes on the bridge and ramps/connectors. Because these two new bridge alignment options are spaced so close to each other, it is anticipated that the design and traffic operations on roadways and intersections in the project area would be the same with both alignment alternatives.

Year 2015 is the year in which the proposed project is scheduled to be open to traffic if one of the build options is implemented. Year 2030 is the design horizon year for the proposed project build alternatives; therefore, traffic analyses were conducted for the following four future conditions:

- Year 2015 without the proposed new bridge or with rehabilitation of the existing bridge, referred to as the "Year 2015 No Action/ Rehabilitation Alternatives;"
- Year 2015 with the proposed new bridge alternatives, referred to as the "Year 2015 Bridge Replacement Alternatives" (which includes both the North-side and South-side Alignment Alternatives);
- Year 2030 without the proposed new bridge or with rehabilitation of the existing bridge, referred to as the "Year 2030 No Action/ Rehabilitation Alternatives;" and
- Year 2030 with the proposed new bridge alternatives, referred to as the "Year 2030 Bridge Replacement Alternatives" (which includes both the North-side and South-side Alignment Alternatives).

All roadway study segments in the future conditions were analyzed as multi-lane highway segments because signals were removed from Ocean Boulevard (at Pier S Avenue and the Terminal

Island Freeway) with the recent construction of the Terminal Island Freeway interchange.

### Traffic Forecasting Model

In addition to the existing (year 2005) traffic conditions, the traffic LOS analysis was conducted for the years 2015 and 2030 for the Bridge Replacement Alternatives (which includes both the North-side Alignment and South-side Alignment Alternatives for the proposed new bridge) and the No Action/Rehabilitation Alternatives (which represents the traffic conditions that would occur with the existing bridge configuration if no action is taken or if the existing bridge is rehabilitated and not replaced with a new bridge). A traffic forecasting model was used as part of the study to forecast future traffic volumes with and without the proposed new bridge in the years 2015 and 2030. The project is expected to be opened to traffic in year 2015, and year 2030 is the project horizon (design) year.

Appendix G provides details about the traffic model development methodology and model validation.

### Year 2015 and 2030 Traffic Volume Forecasts

Year 2015 No Action/Rehabilitation Alternatives – Traffic Volumes

The ADT volumes forecast for the Gerald Desmond Bridge in year 2015 with the No Action/ Rehabilitation Alternatives is 77,000 vpd, which includes approximately 30 percent trucks. The increase in truck percentage over the existing condition of 25 percent is principally attributable to growth in TEU throughput at the Ports. Exhibit 2.1.5-6 shows the forecast 2015 peak-hour traffic volumes on study roadway segments in the traffic study area with the No Action/Rehabilitation Alternatives.

Year 2015 Bridge Replacement Alternatives – Traffic Volumes

The ADT volumes forecast for the bridge in year 2015 with the Bridge Replacement Alternatives is 87,000 vpd, which includes approximately 30 percent trucks. Exhibit 2.1.5-7 shows the forecast 2015 peak-hour traffic volumes on study roadway segments in the traffic study area with the Bridge Replacement Alternatives.

Year 2030 No Action/Rehabilitation Alternatives – Traffic Volumes

The ADT volumes forecast for the Gerald Desmond Bridge in year 2030 with the No Action/Rehabilitation Alternatives is 125,000 vpd, which includes approximately 44 percent trucks. Exhibit 2.1.5-8 shows the forecast 2030 peak-hour traffic volumes on study roadway segments in the traffic study area with the No Action/Rehabilitation Alternatives.

Year 2030 Bridge Replacement Alternatives – Traffic Volumes

The ADT volumes forecast for the bridge in year 2030 with the Bridge Replacement Alternatives is 136,000 vpd, which includes approximately 44 percent trucks. Exhibit 2.1.5-9 shows the forecast 2030 peak-hour traffic volumes on study roadway segments in the traffic study area with the Bridge Replacement Alternatives.

### Future Traffic Operations

The proposed Bridge Replacement Alternatives provide a new bridge with grades of approximately 5 percent (compared to existing grades of 5.5 to 6.0 percent) carrying three lanes in each direction across the bridge and on the roadways approaching and leaving the bridge in both directions. The Bridge Replacement Alternatives also include reconstruction of direct connectors between Ocean Boulevard and SR 710 in both directions and other improvements more fully shown in Exhibit 1-6 (North-side Alignment) and Exhibit 1-7 (South-side Alignment). The Bridge Replacement Alternatives would construct the new bridge either just north or just south of the existing bridge and require some modifications to nearby circulation and access. The proposed new bridge would include left and right shoulders in both directions.

Nearby Circulation

As a result of implementation of the Bridge Replacement Alternatives, some modifications to the area's circulation system and access would also be implemented. The Bridge Replacement Alternatives would not change traffic circulation patterns in the vicinity of the Horseshoe Ramps interchange because this interchange would provide the same connections to Pier T Avenue as the existing interchange. The following circulation system modifications would be similar for both the North-side Alignment and the South-side Alignment options with the Bridge Replacement Alternatives:

- Access to the LBGS would require modification of the existing access road from Pier T Avenue to allow bridge construction, but the general location and length of the route would not change.
- Construction of approach roadways to the proposed new bridge with the Bridge Replacement Alternatives would require a realignment of a section of West Broadway west of the Tidelands Warehouse. This realigned section of West Broadway, which is not a public through route, would link with Pico Avenue approximately 300 ft (91 m) south of its existing location.

- Circulation would be modified at the WB Ocean Boulevard ramps from Pico Avenue. The location of the WB off-ramp to Pico Avenue would remain unchanged; however, the WB Ocean Boulevard on-ramp from Pico Avenue would be reconfigured by locating the ramp intersection with Pico Avenue approximately 460 ft (140 m) north of its existing location. The reconfigured on-ramp would loop to the north and east over Pico Avenue and continue looping to the south and west to join the ramp from SB SR 710 before entering WB Ocean Boulevard. The effect of this ramp redesign would be to slightly increase the distance for trips using the ramps compared to the existing "diamond" configuration of the WB ramps.

Daily Traffic Comparisons

Total ADT is useful in determining overall vehicle movement on the area roadway network and in assessing the redistribution of traffic among various origins and destinations; however, peak-hour traffic is used to analyze operations and determine the expected performance of project improvements and their potential effects. Operational analysis is presented below.

Table 2.1.5-11 shows the existing and forecast ADT volumes on the segments of Ocean Boulevard between the Horseshoe Ramps and SR 710. The following observations are based on averaging the volumes for all of the study conditions in years 2005, 2015, and 2030.

Total daily traffic is expected to grow by approximately 29 percent from 59,700 vpd to 77,070 vpd between years 2005 and 2015 with the No Action/Rehabilitation Alternatives.

The improvements provided by the Bridge Replacement Alternatives would potentially draw an estimated 13 percent more vehicles (86,730 vpd) to the new bridge in year 2015 than the vehicle volume projected under the No Action/ Rehabilitation Alternatives (77,070 vpd). Because this project does not add any vehicle trips, the additional traffic on the new bridge, approximately 9,660 vpd, would be redistributed to the new bridge from other roadways and would not constitute an increase in the number of trips within the region.

Total daily traffic is expected to increase by approximately 62 percent, from 77,070 vpd to 124,670 vpd, between years 2015 and 2030 with the No Action/Rehabilitation Alternatives.

The improvements provided by the proposed Bridge Replacement Alternatives would potentially draw an estimated nine percent more vehicles (135,930 vpd) to the new bridge in year 2030 than the vehicle volume projected under the No Action/ Rehabilitation Alternatives (124,670 vpd). Because this project does not add any vehicle trips, the additional traffic on the new bridge, approximately 11,260 vpd, would be redistributed to the new bridge from other roadways and would not constitute an increase in trips within the region.

Analysis of Future Traffic Operations

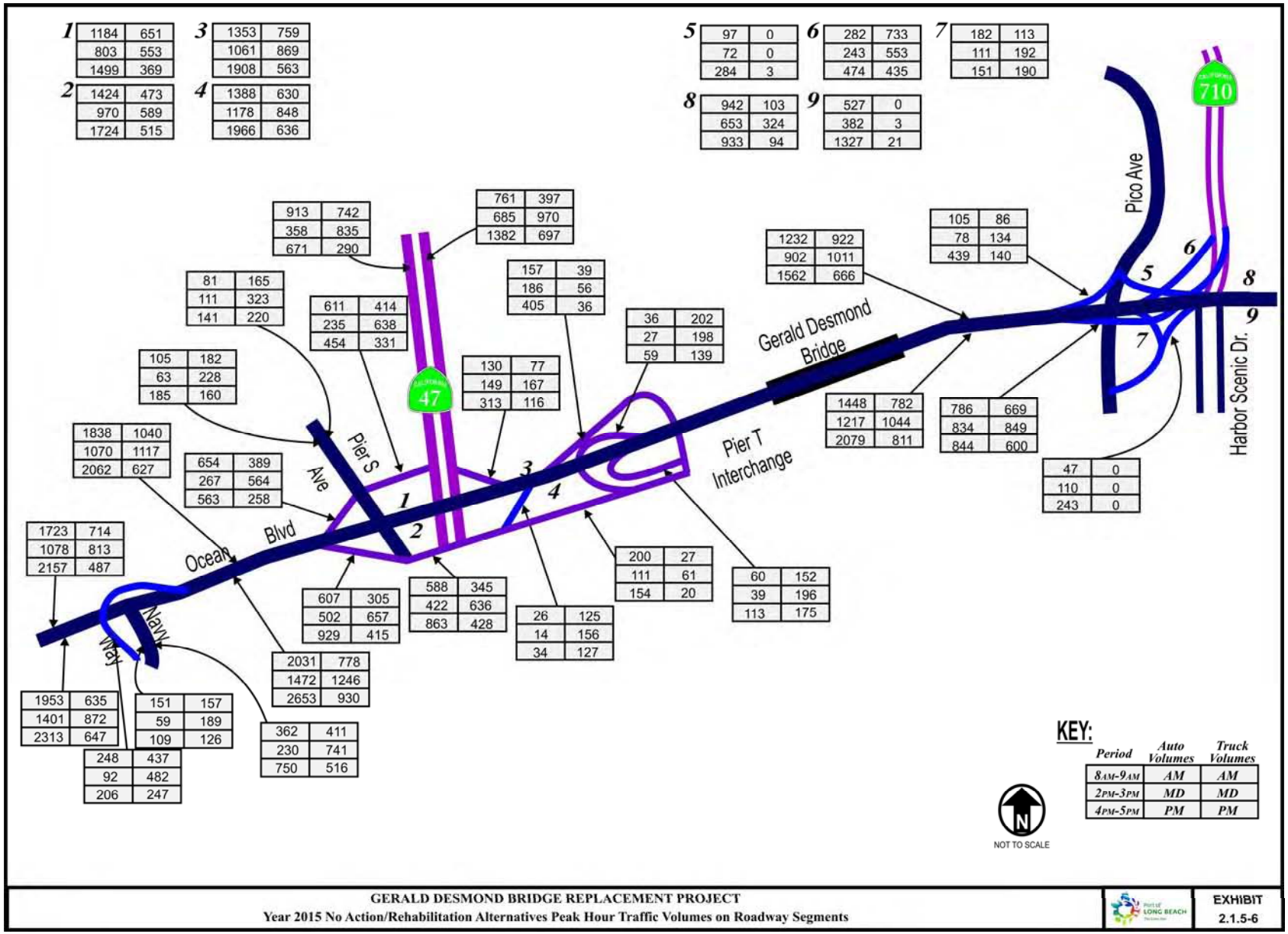
Future traffic operations for the four conditions identified above were analyzed. Table 2.1.5-12 presents the results of the years 2015 and 2030 peak-hour LOS analysis of the eight roadway study segments, along with the existing (year 2005) LOS for comparison purposes. Table 2.1.5-13 presents the results of the years 2015 and 2030 peak-hour LOS analysis at the ramp junctions. Table 2.1.5-14 presents the results of the years 2015 and 2030 peak-hour LOS analysis at the study intersections, along with the existing (year 2005) LOS for comparison purposes.

**Table 2.1.5-11**
**Daily Traffic Volumes on Ocean Boulevard between Terminal Island Interchange and SR 710**

| Segment of Ocean Boulevard | Existing | 2015 No Action/ Rehabilitation Alternatives | 2015 Bridge Replacement Alternatives | 2030 No Action/ Rehabilitation Alternatives | 2030 Bridge Replacement Alternatives |
|---|---|---|---|---|---|
| EB from Horseshoe Ramps to SR 710 | 34,100 | 40,870 | 46,070 | 62,170 | 68,850 |
| WB from SR 710 to Horseshoe Ramps | 25,600 | 36,200 | 40,660 | 62,500 | 67,080 |
| **TOTAL – SR 710 to Horseshoe Ramps – Bridge** | **59,700** | **77,070** | **86,730** | **124,670** | **135,930** |

EB – eastbound; WB – westbound

Source: Iteris, 2009.




**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**
**Year 2015 No Action/Rehabilitation Alternatives Peak Hour Traffic Volumes on Roadway Segments**

**EXHIBIT 2.1.5-6**

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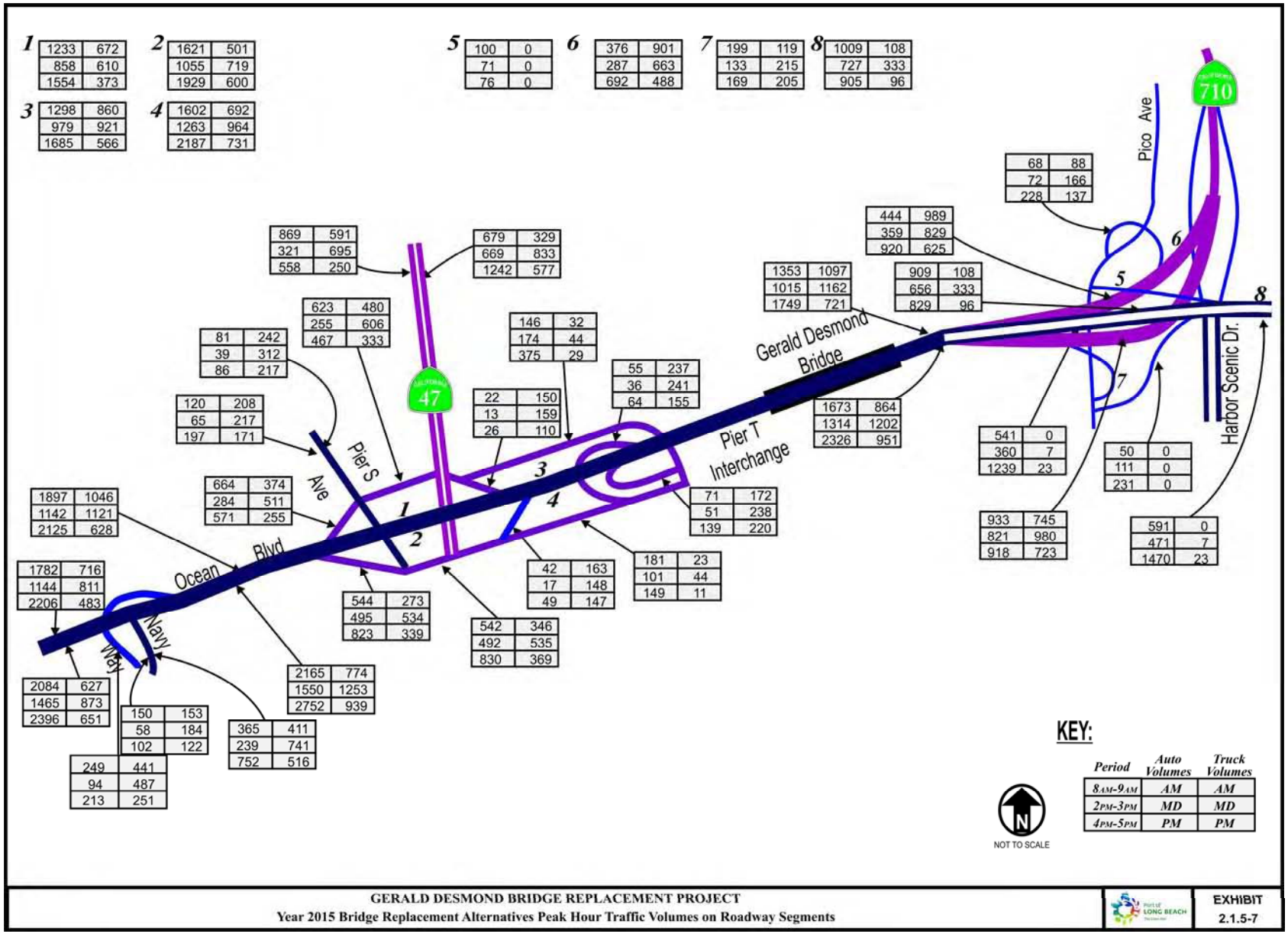


**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**
**Year 2015 Bridge Replacement Alternatives Peak Hour Traffic Volumes on Roadway Segments**

EXHIBIT 2.1.5-7

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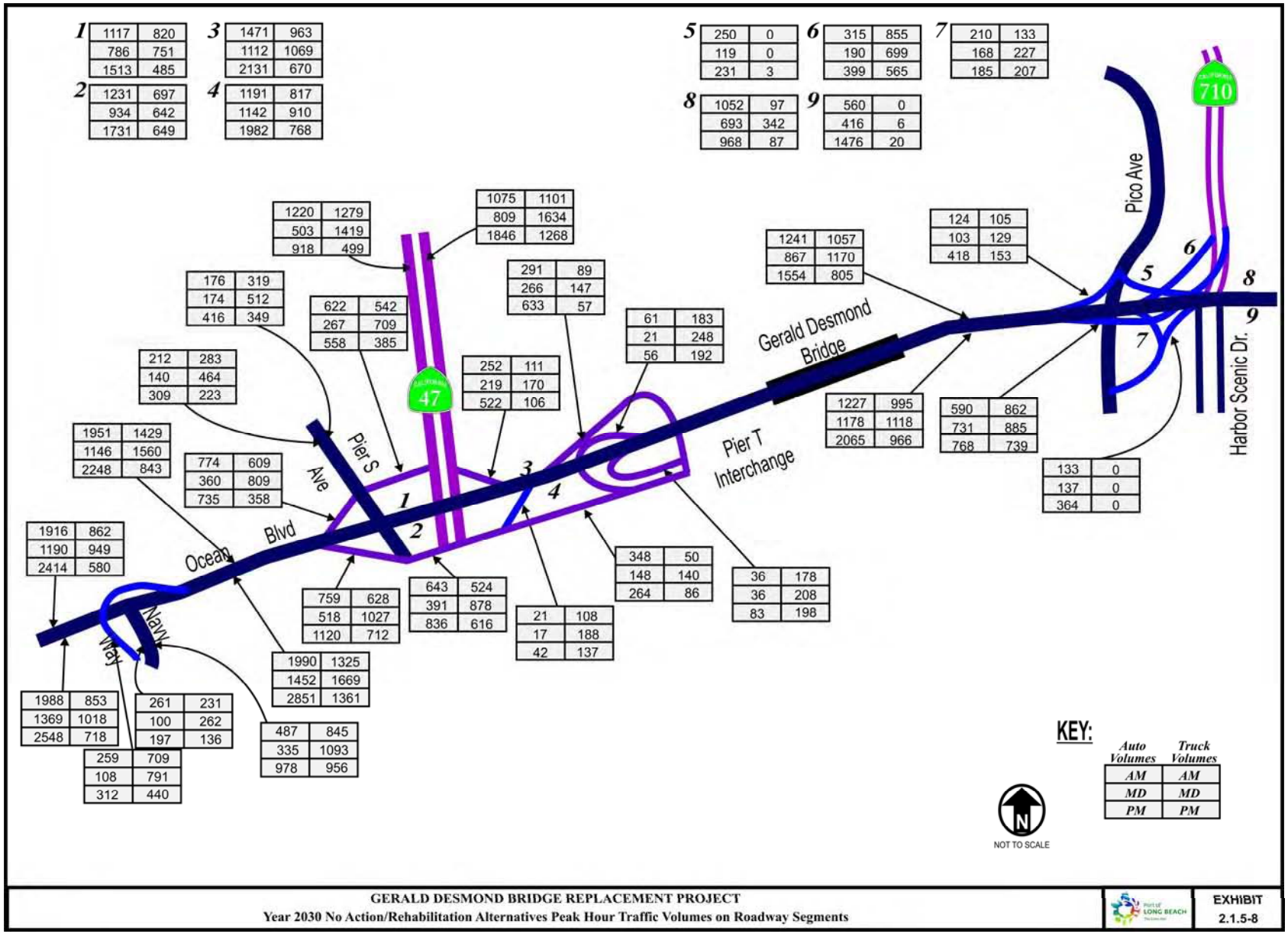
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5 250 0 / 119 0 / 231 3
6 315 855 / 190 699 / 399 565
7 210 133 / 168 227 / 185 207
8 1052 97 / 693 342 / 968 87
9 560 0 / 416 6 / 1476 20
1220 1279 / 503 1419 / 918 499
1075 1101 / 809 1634 / 1846 1268
176 319 / 174 512 / 416 349
622 542 / 267 709 / 558 385
291 89 / 266 147 / 633 57
61 183 / 21 248 / 56 192
1241 1057 / 867 1170 / 1554 805
124 105 / 103 129 / 418 153
212 283 / 140 464 / 309 223
252 111 / 219 170 / 522 106
1227 995 / 1178 1118 / 2065 966
590 862 / 731 885 / 768 739
133 0 / 137 0 / 364 0
1951 1429 / 1146 1560 / 2248 843
774 609 / 360 809 / 735 358
1916 862 / 1190 949 / 2414 580
348 50 / 148 140 / 264 86
36 178 / 36 208 / 83 198
759 628 / 518 1027 / 1120 712
643 524 / 391 878 / 836 616
21 108 / 17 188 / 42 137
1990 1325 / 1452 1669 / 2851 1361
1988 853 / 1369 1018 / 2548 718
261 231 / 100 262 / 197 136
487 845 / 335 1093 / 978 956
259 709 / 108 791 / 312 440
Pico Ave
710
47
Gerald Desmond Bridge
Harbor Scenic Dr.
Pier S Ave
Pier T Interchange
Ocean Blvd
Navy Way
KEY:
Auto Volumes
Truck Volumes
AM AM
MD MD
PM PM
NOT TO SCALE
GERALD DESMOND BRIDGE REPLACEMENT PROJECT
Year 2030 No Action/Rehabilitation Alternatives Peak Hour Traffic Volumes on Roadway Segments
EXHIBIT 2.1.5-8

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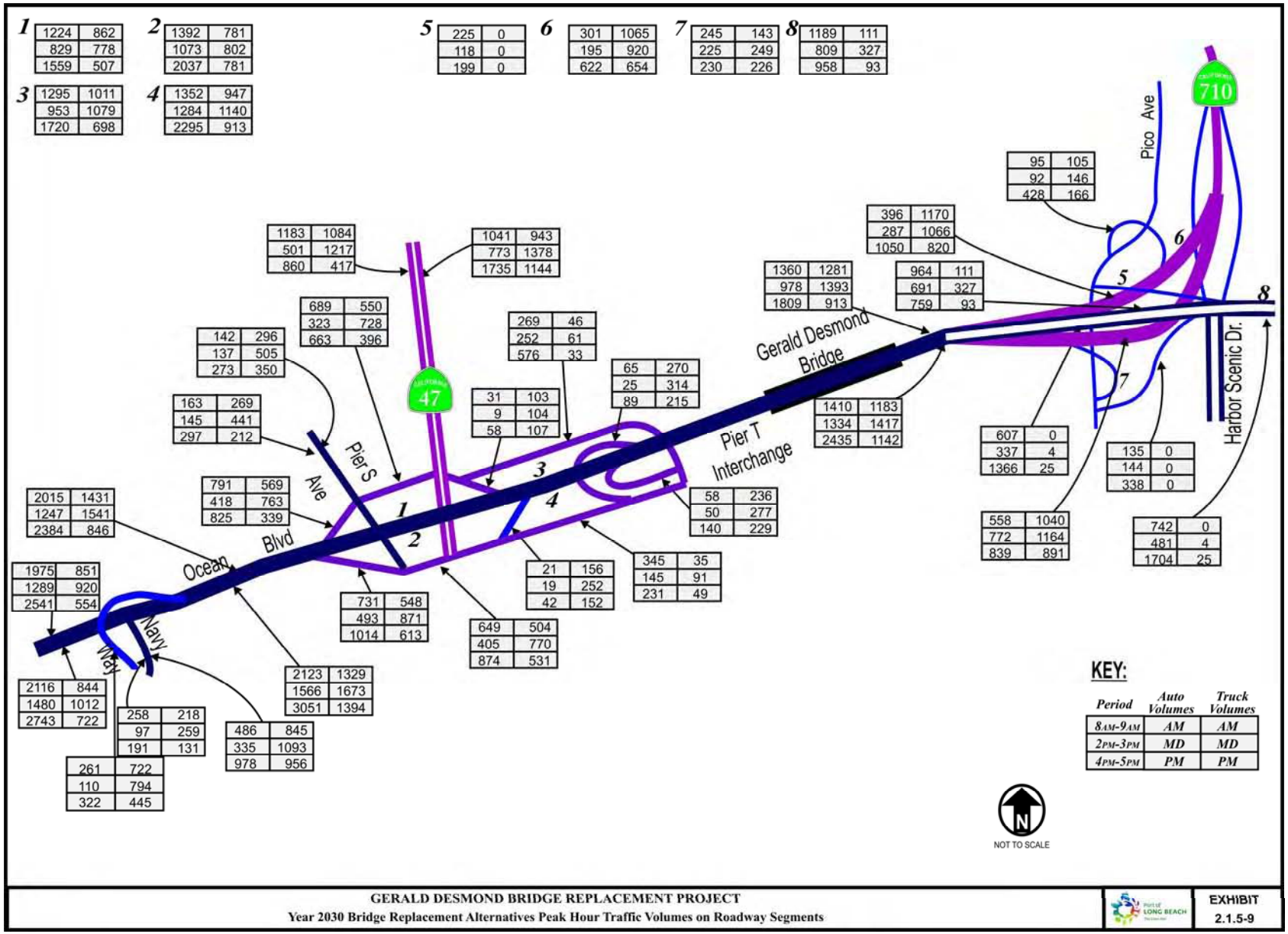
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829 778
1559 507
2
1392 781
1073 802
2037 781
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1295 1011
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4
1352 947
1284 1140
2295 913
5
225 0
118 0
199 0
6
301 1065
195 920
622 654
7
245 143
225 249
230 226
8
1189 111
809 327
958 93
710
Pico Ave
95 105
92 146
428 166
396 1170
287 1066
1050 820
964 111
691 327
759 93
1360 1281
978 1393
1809 913
Gerald Desmond Bridge
Harbor Scenic Dr.
607 0
337 4
1366 25
135 0
144 0
338 0
742 0
481 4
1704 25
1410 1183
1334 1417
2435 1142
1183 1084
501 1217
860 417
1041 943
773 1378
1735 1144
689 550
323 728
663 396
269 46
252 61
576 33
65 270
25 314
89 215
142 296
137 505
273 350
163 269
145 441
297 212
31 103
9 104
58 107
47
Pier S Ave
Pier T Interchange
791 569
418 763
825 339
2015 1431
1247 1541
2384 846
58 236
50 277
140 229
1975 851
1289 920
2541 554
Ocean Blvd
731 548
493 871
1014 613
649 504
405 770
874 531
21 156
19 252
42 152
345 35
145 91
231 49
558 1040
772 1164
839 891
2116 844
1480 1012
2743 722
Navy Way
258 218
97 259
191 131
261 722
110 794
322 445
2123 1329
1566 1673
3051 1394
486 845
335 1093
978 956
KEY:
Period
Auto Volumes
Truck Volumes
8AM-9AM
AM
AM
2PM-3PM
MD
MD
4PM-5PM
PM
PM
N
NOT TO SCALE
GERALD DESMOND BRIDGE REPLACEMENT PROJECT
Year 2030 Bridge Replacement Alternatives Peak Hour Traffic Volumes on Roadway Segments
EXHIBIT
2.1.5-9

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## Table 2.1.5-12
## Years 2015 and 2030 Forecast Peak-Hour LOS on Roadway Segments

| | Segment | From | To | Year 2005 | | Year 2015 | | | | Year 2030 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Existing | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | |
| | | | | Speed* or Vehicle Density | LOS | Density | LOS | Density | LOS | Density | LOS | Density | LOS |
| **AM Peak Hour** | | | | | | | | | | | | | |
| 1 | EB Ocean Blvd | Navy Way | Pier S Avenue | 38* | A | 19.3 | C | 20.2 | C | 115.1 | F | 25.6 | C |
| | WB Ocean Blvd | Pier S Avenue | Navy Way | 30.4* | B | 19.8 | C | 23.7 | C | 24.6 | C | 25.4 | C |
| 2 | EB Ocean Blvd | Pier S Avenue | Terminal Island Freeway | 10.6* | F | 17.4 | B | 20.8 | C | 22.7 | C | 23.0 | C |
| | WB Ocean Blvd | Terminal Island Freeway | Pier S Avenue | 9.4* | F | 16.6 | B | 19.8 | C | 19.0 | C | 20.8 | C |
| 3 | EB Ocean Blvd | Terminal Island Freeway | Horseshoe Ramps | 29.6* | B | 17.8 | B | 21.4 | C | 18.1 | C | 23.7 | C |
| | WB Ocean Blvd | Horseshoe Ramps | Terminal Island Freeway | 14.4* | E | 12.7 | B | 41.3 | E | 15.8 | B | 34.0 | D |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 17.0 | B | 23.3 | C | 24.8 | C | 23.2 | C | 29.5 | D |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 21.8 | C | 28.6 | D | 21.3 | C | 27.7 | D | 24.3 | C |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 20.2 | C | 60.9 | F | 22.3 | C | 79.2 | F | 25.4 | C |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 20.1 | C | 27.0 | D | 19.9 | C | 30.5 | D | 22.2 | C |
| 6 | NB Connector | EB Ocean Blvd | NB SR 710 | 13.8 | B | 16.2 | B | 10.1 | A | 11.9 | B | 9.3 | A |
| | SB Connector | SB SR 710 | WB Ocean Blvd | 17.4 | B | 25.7 | C | 17.8 | B | 30.6 | D | 19.6 | C |
| 7 | SR 710 NB | NB Connector | NB SR 710 Mainline | 14.2 | B | 15.9 | B | 10.1 | A | 11.1 | B | 9.1 | A |
| | SR 710 SB | SB SR 710 Mainline | SB Connector | 9.2 | A | 13.8 | B | 17.4 | B | 16.3 | B | 19.1 | C |
| 8 | EB Ocean Blvd | NB Connector | Downtown | 4.6 | A | 5.3 | A | 13.4 | B | 7.8 | A | 15.0 | B |
| | WB Ocean Blvd | Downtown | SB Connector | 6.6 | A | 7.3 | A | 16.0 | B | 5.8 | A | 17.0 | B |

**Table 2.1.5-12**
**Years 2015 and 2030 Forecast Peak-Hour LOS on Roadway Segments**

| | Segment | From | To | Year 2005 | | Year 2015 | | | | Year 2030 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Existing | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | |
| | | | | Speed* or Vehicle Density | LOS | Density | LOS | Density | LOS | Density | LOS | Density | LOS |
| **MD Peak Hour** | | | | | | | | | | | | | |
| 1 | EB Ocean Blvd | Navy Way | Pier S Avenue | 37.6* | A | 22.0 | C | 23.0 | C | 175.3 | F | 165.8 | F |
| | WB Ocean Blvd | Pier S Avenue | Navy Way | 31.8* | B | 18.4 | C | 22.0 | C | 19.3 | C | 22.8 | C |
| 2 | EB Ocean Blvd | Pier S Avenue | Terminal Island Freeway | 14* | E | 16.5 | B | 21.0 | C | 17.3 | B | 19.2 | C |
| | WB Ocean Blvd | Terminal Island Freeway | Pier S Avenue | 9.2* | F | 14.6 | B | 18.0 | B | 17.7 | B | 19.7 | C |
| 3 | EB Ocean Blvd | Terminal Island Freeway | Horseshoe Ramps | 29.5* | B | 16.7 | B | 21.0 | C | 12.7 | B | 15.2 | B |
| | WB Ocean Blvd | Horseshoe Ramps | Terminal Island Freeway | 13.7* | E | 12.8 | B | 47.0 | F | 127.7 | F | 47.6 | F |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 18.8 | C | 28.2 | D | 28.0 | D | 19.3 | C | 21.9 | C |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 23.1 | C | 30.1 | D | 22.0 | C | 22.2 | C | 17.2 | B |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 19.4 | C | 52.0 | F | 21.0 | C | 70.8 | F | 24.5 | C |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 19.0 | C | 25.4 | C | 19.0 | C | 29.6 | D | 21.4 | C |
| 6 | NB Connector | EB Ocean Blvd | NB SR 710 | 16.0 | B | 18.0 | B | 13.0 | B | 11.8 | B | 8.8 | A |
| | SB Connector | SB SR 710 | WB Ocean Blvd | 10.7 | A | 26.2 | D | 17.0 | B | 31.1 | D | 20.0 | C |
| 7 | SR 710 NB | NB Connector | NB SR 710 Mainline | 17.4 | B | 18.1 | C | 13.0 | B | 11.3 | B | 9.0 | A |
| | SR 710 SB | SB SR 710 Mainline | SB Connector | 6.5 | A | 14.7 | B | 16.0 | B | 16.9 | B | 20.0 | C |
| 8 | EB Ocean Blvd | NB Connector | Downtown | 1.8 | A | 3.3 | A | 9.0 | A | 4.3 | A | 7.3 | A |
| | WB Ocean Blvd | Downtown | SB Connector | 6.6 | A | 5.0 | A | 12.0 | B | 4.4 | A | 12.2 | B |

**Table 2.1.5-12**
**Years 2015 and 2030 Forecast Peak-Hour LOS on Roadway Segments**

| Segment | | From | To | Year 2005 | | Year 2015 | | | | Year 2030 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Existing | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | |
| | | | | Speed* or Vehicle Density | LOS | Density | LOS | Density | LOS | Density | LOS | Density | LOS |
| **PM Peak Hour** | | | | | | | | | | | | | |
| 1 | EB Ocean Blvd | Navy Way | Pier S Avenue | 36.1* | A | 24.4 | C | 24.8 | C | 178.0 | F | 156.0 | F |
| | WB Ocean Blvd | Pier S Avenue | Navy Way | 33.8* | B | 20.3 | C | 24.0 | C | 26.0 | D | 29.0 | D |
| 2 | EB Ocean Blvd | Pier S Avenue | Terminal Island Freeway | 9.7* | F | 20.0 | C | 24.3 | C | 21.3 | C | 29.4 | D |
| | WB Ocean Blvd | Terminal Island Freeway | Pier S Avenue | 9.3* | F | 22.9 | C | 24.8 | C | 23.4 | C | 28.2 | D |
| 3 | EB Ocean Blvd | Terminal Island Freeway | Horseshoe Ramps | 29.7* | B | 20.4 | C | 24.6 | C | 16.4 | B | 25.2 | D |
| | WB Ocean Blvd | Horseshoe Ramps | Terminal Island Freeway | 12.7* | E | 18.6 | C | 17.9 | B | 20.9 | C | 20.4 | C |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 20.2 | C | 26.7 | D | 29.2 | D | 20.7 | C | 28.8 | D |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 25.7 | C | 32.9 | D | 24.7 | C | 26.1 | C | 24.3 | C |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 18.9 | C | 56.3 | F | 22.0 | C | 109.1 | F | 25.5 | C |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 19.5 | C | 28.9 | D | 20.2 | C | 32.6 | D | 23.2 | C |
| 6 | NB Connector | EB Ocean Blvd | NB SR 710 | 13.2 | B | 16.7 | B | 14.1 | B | 10.2 | A | 9.5 | A |
| | SB Connector | SB SR 710 | WB Ocean Blvd | 14.4 | B | 20.4 | C | 14.3 | B | 23.4 | C | 16.0 | B |
| 7 | SR 710 NB | NB Connector | NB SR 710 Mainline | 13.8 | B | 16.2 | B | 13.7 | B | 9.5 | A | 9.1 | A |
| | SR 710 SB | SB SR 710 Mainline | SB Connector | 8.3 | A | 10.6 | A | 13.7 | B | 11.8 | B | 15.6 | B |
| 8 | EB Ocean Blvd | NB Connector | Downtown | 8.5 | A | 7.3 | A | 13.6 | B | 8.8 | A | 16.0 | B |
| | WB Ocean Blvd | Downtown | SB Connector | 6.9 | A | 8.6 | A | 20.8 | C | 7.9 | A | 19.4 | C |

LOS - Level of Service ; NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound

* In the existing year 2005 condition, Segments 1-3 are analyzed as arterial segments because of the presence of traffic signals on Ocean Boulevard at the Terminal Island Freeway, Pier S Avenue, and Navy Way. The LOS for arterials is determined by speed (in mph). All other segments are analyzed as multi-lane highways whose LOS is determined by vehicle density (vehicles per lane per mile).

Source: Iteris, 2009.

**Table 2.1.5-13**
**Years 2015 and 2030 Forecast Peak-Hour LOS at Ramp Junctions**

| Ramp Location | AM Peak | | MD Peak | | PM Peak | |
|---|---|---|---|---|---|---|
| | Density (pc/mi/ln) | LOS[1] | Density (pc/mi/ln) | LOS[1] | Density (pc/mi/ln) | LOS[1] |
| **Year 2015 No Action/Rehabilitation Alternatives** | | | | | | |
| **WB Ocean Boulevard** | | | | | | |
| Pico Avenue On-Ramp Merge to Ocean Boulevard | 16.8 | B | 16.0 | B | 17.7 | B |
| Horseshoe Off-Ramp to Pier T Avenue | 24.9 | C | 23.3 | C | 24.5 | C |
| **EB Ocean Boulevard** | | | | | | |
| Horseshoe On-Ramp from Pier T Avenue | 16.9 | B | 17.8 | B | 20.2 | C |
| Ocean Boulevard to SR 710/Downtown Diverge | 14.2 | B | 15.6 | B | 20.0 | B |
| Ocean Boulevard to Pico Avenue Off-Ramp | 6.9 | A | 5.6 | A | 13.7 | B |
| **Year 2015 Bridge Replacement Alternatives** | | | | | | |
| **WB Ocean Boulevard** | | | | | | |
| Pico Avenue On-Ramp to Ocean Boulevard | 17.0 | B | 14.4 | B | 16.4 | B |
| Off-Ramp to Pier T Avenue | 21.5 | C | 20.3 | C | 20.4 | C |
| **EB Ocean Boulevard** | | | | | | |
| On-Ramp from Pier T Avenue | 18.9 | B | 19.8 | B | 22.9 | C |
| Ocean Boulevard / SR 710 Diverge | 22.5 | C | 24.6 | C | 25.8 | C |
| Ocean Boulevard to Pico Avenue | 17.6 | B | 20.3 | C | 18.0 | B |
| **Year 2030 No Action/Rehabilitation Alternatives** | | | | | | |
| **WB Ocean Boulevard** | | | | | | |
| Pico Avenue On-Ramp Merge to Ocean Boulevard | 17.9 | B | 17.0 | B | 18.6 | B |
| Horseshoe Off-Ramp to Pier T Avenue | 26.8 | C | 25.0 | C | 26.2 | C |
| **EB Ocean Boulevard** | | | | | | |
| Horseshoe On-Ramp from Pier T Avenue | 17.4 | B | 18.2 | B | 21.3 | C |
| Ocean Boulevard to SR 710/Downtown Diverge | 15.0 | B | 16.2 | B | 21.9 | C |
| Ocean Boulevard to Pico Avenue Off-Ramp | 6.9 | A | 6.6 | A | 13.8 | B |
| **Year 2030 Bridge Replacement Alternatives** | | | | | | |
| **WB Ocean Boulevard** | | | | | | |
| Pico Avenue On-Ramp to Ocean Boulevard | 18.8 | B | 16.7 | B | 19.6 | B |
| Off-Ramp to Pier T Avenue | 23.1 | C | 22.0 | C | 22.5 | C |
| **EB Ocean Boulevard** | | | | | | |
| On-Ramp from Pier T Avenue | 20.1 | C | 21.5 | C | 24.7 | C |
| Ocean Boulevard / SR 710 Diverge | 24.0 | C | 27.6 | C | 28.6 | D |
| Ocean Boulevard to Pico Avenue | 18.9 | B | 23.5 | C | 20.3 | C |

EB – eastbound; LOS – level of service; pc/mi/ln – passenger cars per mile per lane; WB – westbound

[1] LOS criteria for freeway weaving areas are in density (pc/mi/ln). Density ranges for different LOS types: LOS A, 0 – 10; LOS B, 10.1 – 20; LOS C, 20.1 – 28; LOS D, 28.1 – 35; LOS E, 35.1 – 43; LOS F, > 43.

Source: Iteris, 2009.

## Table 2.1.5-14
## Years 2015 and 2030 Forecast Peak-Hour LOS at Intersections

| Intersection | | Year 2005 | | | Year 2015 | | | | | | Year 2030 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | |
| | | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* |
| **AM Peak Hour** | | | | | | | | | | | | | | | | |
| 1 | Terminal Island Freeway/ Ocean Blvd | C | | 0.792 | B | | 0.661 | B | | 0.648 | F | | 1.255 | F | | 1.130 |
| 2 | Pier S Ave/Ocean Blvd | C | | 0.709 | B | | 0.681 | B | | 0.679 | F | | 1.110 | F | | 1.008 |
| 3 | Pier S Ave/New Dock St | A | | 0.327 | A | | 0.328 | A | | 0.352 | B | | 0.678 | A | | 0.591 |
| 4 | Navy Way/Seaside Ave | A | | 0.474 | C | | 0.735 | C | | 0.776 | E | | 0.904 | E | | 0.931 |
| 5 | Pico Avenue/ Pier B Street & 9th Street | A | | 0.428 | B | | 0.606 | A | | 0.594 | C | | 0.766 | C | | 0.708 |
| 6 | Pico Avenue/Pier C Street | A | | 0.309 | A | | 0.376 | A | | 0.378 | A | | 0.442 | A | | 0.446 |
| 7 | Terminal Island Freeway SB Off-Ramp/New Dock St | B | *10.8* | | B | *12.2* | | B | *10.8* | | F | *95.1* | | E | *48.2* | |
| | Analyzed as signalized | A | | 0.217 | A | | 0.441 | A | | 0.339 | E | | 0.913 | C | | 0.793 |
| 8 | Terminal Island Freeway NB On-Ramp/New Dock St | A | *7.4* | | A | *9.1* | | A | *8.9* | | C | *15.9* | | B | *13.9* | |
| 9 | Pico Avenue/Pier D Street[a] | B | *10.1* | | C | *23.3* | | A | | 0.492 | F | *55.1* | | B | | 0.630 |
| 10 | Pico Avenue/Broadway | B | *10.6* | | B | *10.6* | | B | *10.3* | | B | *11.9* | | B | *11.9* | |
| 11 | Pico Avenue/Pier E Street[a] | A | *9.9* | | B | *12.4* | | A | | 0.331 | C | *18.7* | | A | | 0.465 |
| 12 | Ocean Blvd/Golden Shore Street | A | | 0.570 | B | | 0.628 | B | | 0.637 | B | | 0.658 | B | | 0.670 |
| 13 | Ocean Blvd/Magnolia Ave | B | | 0.693 | E | | 0.907 | E | | 0.929 | E | | 0.982 | F | | 1.099 |

**Table 2.1.5-14**
**Years 2015 and 2030 Forecast Peak-Hour LOS at Intersections**

| Intersection | | Year 2005 | | | Year 2015 | | | | | | Year 2030 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | |
| | | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* |
| **MD Peak Hour** | | | | | | | | | | | | | | | | |
| 1 | Terminal Island Freeway/ Ocean Blvd | D | | 0.833 | E | | 0.966 | D | | 0.899 | F | | 1.471 | F | | 1.304 |
| 2 | Pier S Ave/Ocean Blvd | C | | 0.700 | C | | 0.761 | B | | 0.656 | F | | 1.274 | F | | 1.202 |
| 3 | Pier S Ave/New Dock St | A | | 0.350 | A | | 0.420 | A | | 0.432 | D | | 0.843 | C | | 0.739 |
| 4 | Navy Way/Seaside Ave | A | | 0.414 | C | | 0.753 | C | | 0.768 | D | | 0.854 | D | | 0.875 |
| 5 | Pico Avenue/ Pier B Street & 9th Street | A | | 0.455 | A | | 0.594 | B | | 0.613 | D | | 0.897 | B | | 0.640 |
| 6 | Pico Avenue/Pier C Street | A | | 0.340 | A | | 0.309 | A | | 0.306 | A | | 0.385 | A | | 0.381 |
| 7 | Terminal Island Freeway SB Off-Ramp/New Dock St | A | *9.1* | | B | *13.3* | | B | *12.1* | | E | *47.3* | | D | *29.6* | |
| | Analyzed as signalized | A | | 0.215 | A | | 0.448 | A | | 0.396 | D | | 0.895 | C | | 0.794 |
| 8 | Terminal Island Freeway NB On-Ramp/New Dock St | A | *7.6* | | B | *11.9* | | B | *11.1* | | D | *30.6* | | C | *22.5* | |
| 9 | Pico Avenue/Pier D Street[a] | B | *11.3* | | C | *19.2* | | A | | 0.432 | E | *42.0* | | A | | 0.529 |
| 10 | Pico Avenue/Broadway | B | *11.2* | | A | *9.8* | | A | *9.9* | | B | *10.7* | | B | *11.3* | |
| 11 | Pico Avenue/Pier E Street[a] | B | *11.8* | | B | *14.0* | | A | | 0.410 | C | 23.9 | | A | | 0.559 |
| 12 | Ocean Blvd/Golden Shore Street | A | | 0.569 | B | | 0.691 | C | | 0.708 | C | | 0.733 | C | | 0.735 |
| 13 | Ocean Blvd/Magnolia Ave | A | | 0.575 | C | | 0.741 | C | | 0.785 | D | | 0.869 | E | | 0.912 |

## Table 2.1.5-14
## Years 2015 and 2030 Forecast Peak-Hour LOS at Intersections

| | Intersection | Year 2005 | | | Year 2015 | | | | | | Year 2030 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | |
| | | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* | LOS | *Del/ Veh** | V/C Ratio* |
| **PM Peak Hour** | | | | | | | | | | | | | | | | |
| 1 | Terminal Island Freeway/ Ocean Blvd | E | | 0.912 | D | | 0.865 | D | | 0.813 | F | | 1.181 | F | | 1.170 |
| 2 | Pier S Ave/Ocean Blvd | D | | 0.824 | B | | 0.650 | A | | 0.597 | F | | 1.114 | F | | 1.011 |
| 3 | Pier S Ave/New Dock St | A | | 0.356 | A | | 0.337 | A | | 0.337 | B | | 0.684 | A | | 0.588 |
| 4 | Navy Way/Seaside Ave | A | | 0.581 | E | | 0.914 | E | | 0.935 | F | | 1.091 | F | | 1.125 |
| 5 | Pico Avenue/ Pier B Street & 9th Street | A | | 0.494 | A | | 0.575 | A | | 0.588 | B | | 0.688 | B | | 0.625 |
| 6 | Pico Avenue/Pier C Street | A | | 0.343 | A | | 0.306 | A | | 0.308 | A | | 0.402 | A | | 0.402 |
| 7 | Terminal Island Freeway SB Off-Ramp/New Dock St | A | *9.3* | | B | *10.5* | | B | *10.3* | | C | *15.4* | | C | *15.3* | |
| | Analyzed as signalized | A | | 0.253 | A | | 0.385 | A | | 0.356 | B | | 0.626 | A | | 0.554 |
| 8 | Terminal Island Freeway NB On-Ramp/New Dock St | A | *7.9* | | B | *10.8* | | B | *10.1* | | D | *32.7* | | C | *21.7* | |
| 9 | Pico Avenue/Pier D Street[a] | B | *10.7* | | C | *15.5* | | A | | 0.399 | E | *36.8* | | A | | 0.543 |
| 10 | Pico Avenue/Broadway | B | *10.5* | | A | *9.3* | | A | *10.0* | | B | *10.3* | | B | *11.4* | |
| 11 | Pico Avenue/Pier E Street[a] | B | *11.3* | | C | *18.9* | | A | | 0.582 | E | *47.6* | | C | | 0.782 |
| 12 | Ocean Blvd/Golden Shore Street | A | | 0.593 | B | | 0.693 | C | | 0.719 | C | | 0.739 | D | | 0.801 |
| 13 | Ocean Blvd/Magnolia Ave | B | | 0.601 | C | | 0.771 | C | | 0.765 | D | | 0.865 | E | | 0.930 |

Notes:

LOS - Level of Service ; NB - Northbound; SB - Southbound; N/A - Not Applicable

* Volume-to-capacity (V/C) ratio is reported for signalized intersections and average stopped delay per vehicle (Del/Veh) in seconds is reported for unsignalized intersections *in italics*.

[a] This intersection is currently stop-sign controlled, and a traffic signal would be added at this intersection to accommodate construction detour routing required under the Bridge Replacement Alternatives (signal would be in place by year 2015); therefore, this intersection has been analyzed as a signalized intersection in the 2015 and 2030 future years under the Bridge Rehabilitation Alternatives. There would be no signal installed at this intersection under the No Action/Rehabilitation Alternatives, so this intersection has been analyzed as an unsignalized (stop-sign controlled) intersection in the 2015 and 2030 future years under the No Action/Rehabilitation Alternatives.

Source: Iteris, 2009.

*Year 2015 No Action/Rehabilitation Alternatives – Traffic Operations.* With the No Action/ Rehabilitation Alternatives, the existing Gerald Desmond Bridge structure and interchanges within the project limits would remain in place; however, the future traffic conditions with the No Action/Rehabilitation Alternatives would be affected by other planned improvements in the traffic study area, which would affect traffic patterns at the project site. One recently completed transportation network improvement is the replacement of the existing at-grade intersections along Ocean Boulevard at SR 47 and Pier S Avenue. This project implemented grade-separated split-diamond interchanges and resulted in Ocean Boulevard becoming a restricted-access facility east of Navy Way. Other planned improvements, including transportation and land development projects that would affect traffic patterns in the traffic study area, are included among the cumulative projects identified in Section 2.4 (Cumulative Impacts) of this document. The additional vehicular trips generated by planned transportation and land development projects are included in the traffic forecasting model used for this study (refer to Appendix G for details on the development of the traffic forecasting model).

Two potential transportation improvement projects are not included among the improvements included in the traffic forecasting model. These projects were not defined at the time that the traffic forecasting model was specified. These projects are truck lanes on SR 710 and I-710 and the SR 47 Expressway improvements, including the direct "flyover" connector ramp serving traffic from EB Ocean Boulevard to NB SR 47. These projects are included in a sensitivity traffic analysis presented in Section 2.4.4.3, which explicitly addresses the traffic effects of these two projects, as well as the effects of all other cumulative projects.

In general, in year 2015 with the No Action/ Rehabilitation Alternatives, peak-hour operating conditions are forecast to be acceptable LOS D or better in the traffic study area except that:

- LOS F would occur during all peak hours on the WB upgrade of the Gerald Desmond Bridge (Segment 5) where three lanes transition to two at the crest of the bridge;
- LOS E conditions would occur at the Terminal Island Freeway signalized intersection with the Ocean Boulevard ramps (Intersection 1) during the MD peak hour;
- LOS E is forecast for the PM peak hour at the intersection of Navy Way and Seaside Avenue (Intersection 4); and
- LOS E would occur during the AM peak hour at the signalized intersection of Ocean Boulevard and Magnolia Avenue (Intersection 13).

*Year 2015 Bridge Replacement Alternatives – Traffic Operations.* Both the North-side and South-side Alignment Alternatives would provide a new bridge with grades of approximately 5 percent carrying three lanes in each direction across the bridge and on the roadways approaching and leaving the bridge in both directions. Outside the limits of the proposed project site, the roadway network with the Year 2015 Bridge Replacement Alternatives would be the same as described under the Year 2015 No Action/Rehabilitation Alternatives.

In general, in year 2015 with the Bridge Replacement Alternatives, peak-hour operating conditions are forecast to be acceptable LOS A to D in the traffic study area, except that:

- WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway (Segment 3) during the AM and MD peak hours is forecast to operate at LOS E and F, respectively;
- LOS E is forecast for the PM peak hour at the intersection of Navy Way and Seaside Avenue (Intersection 4); and
- LOS E would occur during the AM peak hour at the signalized intersection of Ocean Boulevard and Magnolia Avenue (Intersection 13).

*Year 2030 No Action/Rehabilitation Alternatives – Traffic Operations.* The Year 2030 No Action/ Rehabilitation Alternatives roadway network would be the same as described under the Year 2015 No Action/Rehabilitation Alternatives. In general, in year 2030 with the No Action/Rehabilitation Alternatives, peak-hour operating conditions are forecast to be acceptable LOS D or better in the traffic study area, except that:

- LOS F would occur on EB Ocean Boulevard between Navy Way and Pier S Avenue (Segment 1) during all peak hours;
- LOS F would occur on WB Ocean Boulevard between the Horseshoe Ramps and the Terminal Island Freeway (Segment 3) during the MD peak hour;
- LOS F would occur during all peak hours on the WB upgrade of the Gerald Desmond Bridge (Segment 5) where three lanes transition to two at the crest of the bridge; and
- Intersection LOS is forecast to be LOS E or LOS F during one or more of the three peak hours analyzed at the following locations:

- Terminal Island Freeway and Ocean Boulevard (Intersection 1);
- Pier S Avenue and Ocean Boulevard (Intersection 2);
- Navy Way and Seaside Avenue (Intersection 4);
- Terminal Island Freeway SB Off-Ramp and New Dock (Intersection 7);
- Pico Avenue and Pier D Street (Intersection 9);
- Pico Avenue and Pier E Street (Intersection 11); and
- Ocean Boulevard and Magnolia Avenue (Intersection 13).

*Year 2030 Bridge Replacement Alternatives – Traffic Operations.* The roadway network with the Bridge Replacement Alternatives would be the same in year 2030 as in year 2015. In general, in year 2030 with the Bridge Replacement Alternatives, peak-hour operating conditions are forecast to be acceptable LOS A to D, except that:

- EB Ocean Boulevard from Navy Way to Pier S Avenue (Segment 1) is forecast to operate at LOS F in the MD and PM peak hours;
- WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway (Segment 3) is forecast to operate at LOS F during the MD peak hour;
- Intersection LOS is forecast to be LOS E or LOS F during one or more of the three peak hours analyzed at the following locations:
  - Terminal Island Freeway and Ocean Boulevard (Intersection 1);
  - Pier S Avenue and Ocean Boulevard (Intersection 2);
  - Navy Way and Seaside Avenue (Intersection 4);
  - Terminal Island Freeway SB Off-Ramp and New Dock (Intersection 7); and
  - Ocean Boulevard and Magnolia Avenue (Intersection 13).
- The unsignalized intersection of the Terminal Island Freeway SB Off-Ramp with New Dock Street (intersection 7) is forecast to operate at LOS E in the AM peak hour. Because of the forecast LOS E condition, this intersection was reanalyzed for the AM peak hour as a signalized intersection as stated in the Evaluation Criteria section above. With a future signal in place, this intersection would operate at an acceptable LOS C during the AM peak hour.

### Adverse Effects to Traffic during Operation of the Bridge Replacement Alternatives

The process used to determine potential direct adverse traffic effects of the Bridge Replacement Alternatives involves comparisons of the future No Action/Rehabilitation Alternatives in years 2015 and 2030 to the future Bridge Replacement Alternatives in years 2015 and 2030. The traffic volumes and traffic operations analysis presented for the future No Action/Rehabilitation Alternatives and the future Bridge Replacement Alternatives include cumulative projects (i.e., those projects presented in Table 2.4-1 and other transportation and land development projects used in the travel demand forecasting model to emulate year 2015 and 2030 land use forecasts for the southern California region). (See Appendix G for more information on the travel demand forecasting model.)

The direct project effects were determined by comparing the future No Action/Rehabilitation Alternatives with the future Bridge Replacement Alternatives. The comparison quantifies the difference in traffic operations at study intersections and on study roadway segments between the future without the project (No Action/ Rehabilitation Alternatives) and the future with the project (Bridge Replacement Alternatives). If the amount of change expected in traffic operations exceeds the criteria identified in Section 2.1.5.3 above, then mitigation for the direct project effect was proposed. The comparison was made independently for the two future years (2015 and 2030), and direct project effects were identified separately for each year. (See Section 2.4.4.3 regarding cumulative effects on traffic.)

There are no criteria for determining adverse effects in ramp junction (i.e., merge and diverge) areas. A review of LOS conditions for ramp merge and diverge locations indicates that in years 2015 and 2030 these locations would operate at acceptable LOS A to D with both the No Action/ Rehabilitation Alternatives and Bridge Replacement Alternatives (refer to Table 2.1.5-13); therefore, no direct adverse effects of the proposed Bridge Replacement Alternatives to traffic are anticipated in the ramp junction areas.

***Intersection Analysis:***

As shown in Table 2.1.5-15, the comparison of the No Action/Rehabilitation Alternatives to the Bridge Replacement Alternatives for the 13 study intersections shows adverse effects attributed to operation of the Bridge Replacement Alternatives in 2015 and 2030 at Navy Way/Seaside Avenue (Intersection 4) and Ocean Boulevard/Magnolia Avenue (Intersection 13).

***Navy Way/Seaside Avenue.*** The intersection of Navy Way and Seaside Avenue exceeds the City of Los Angeles criteria for adverse effects at an intersection in years 2015 and 2030. LOS C is expected at this intersection during the **AM peak hour in year 2015** under the Bridge Replacement Alternative conditions. The V/C ratio is 0.041 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.040 in the V/C ratio for a build condition LOS C. LOS E is expected at this intersection during the **PM peak hour in year 2015** under the Bridge Replacement Alternative conditions. The V/C ratio is 0.021 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS E or F.

During the **AM peak hour in year 2030**, LOS E is expected under the Bridge Replacement Alternative conditions at the intersection of Navy Way and Seaside Avenue. The V/C ratio is 0.027 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS E. During the **MD peak hour in year 2030,** LOS D is expected under the Bridge Replacement Alternative conditions. The V/C ratio is 0.021 higher under the Bridge Replacement Alternative conditions than under the No Action/ Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.020 in the V/C ratio for a build condition LOS D. During the **PM peak hour in year 2030**, LOS F is expected under the Bridge Replacement Alternative conditions. The V/C ratio is 0.034 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS F.

An additional left-turn lane from NB Navy Way to WB Seaside Avenue is proposed to mitigate the adverse effect at this intersection. Table 2.1.5-16 shows that the proposed mitigation would result in V/C ratios under the Bridge Replacement Alternative that are less than the V/C ratios under the No Action/Rehabilitation Alternatives; therefore, the proposed mitigation removes the adverse effect under the Bridge Replacement Alternatives.

***Ocean Boulevard/Magnolia Avenue.*** The intersection of Ocean Boulevard and Magnolia Avenue in downtown Long Beach exceeds the City of Long Beach criteria for adverse effects at an intersection in years 2015 and 2030. LOS E is expected at this intersection during the **AM peak hour in year 2015** under the Bridge Replacement Alternative conditions. The V/C ratio is 0.022 higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives, which exceeds the threshold criterion of an increase of 0.020 in the V/C ratio for a build condition LOS E. During **all three peak hours in year 2030**, LOS E or F is expected at this intersection under the Bridge Replacement Alternative conditions. The V/C ratio is higher under the Bridge Replacement Alternative conditions than under the No Action/Rehabilitation Alternatives by 0.117, 0.043, and 0.065 during the AM, MD, and PM peak hours, respectively. All of these increases in the V/C ratio exceed the threshold criterion of an increase of 0.010 in the V/C ratio for a build condition LOS E or F.

The expected intersection LOS and changes in V/C ratio are presented in Table 2.1.5-13. One cause of the increase in the V/C ratio is the increased volume traveling through the intersection because the congestion-relief benefits of the Bridge Replacement Alternatives are expected to redistribute traffic to the bridge and approach roadways to avoid other more-congested roadways.

Conversion of the #2 SB through lane on the Magnolia Avenue approach to Ocean Boulevard to a shared through/right-turn lane, along with associated signalization improvements, has been identified as one potential way to mitigate the adverse effect at this intersection. Table 2.1.5-17 shows that the identified restriping and signalization improvements would result in V/C ratios under the Bridge Replacement Alternative condition that are lower than under the No Action/Rehabilitation Alternatives; therefore, restriping and signalization improvements remove the adverse effect under the Bridge Replacement Alternatives. The Port will coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the effect of a Bridge Replacement Alternative at the intersection.

## Table 2.1.5-15 Project Effects at Study Intersections

| | Intersection | Year 2015 | | | | | | | | Year 2030 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | | No Action/Rehab Alts. vs. 2015 Bridge Replace Alts. | | No Action/ Rehabilitation Alternatives | | | Bridge Replacement Alternatives | | | No Action/Rehab Alts. vs. 2030 Bridge Replace Alts. | |
| | | LOS | *Del/Veh** | V/C Ratio* | LOS | *Del/Veh** | V/C Ratio* | Difference | Adverse Effect[b] | LOS | *Del/Veh** | V/C Ratio* | LOS | *Del/Veh** | V/C Ratio* | Difference | Adverse Effect[b] |
| **AM Peak Hour** | | | | | | | | | | | | | | | | | |
| 1 | Terminal Island Freeway/Ocean Boulevard | B | | 0.661 | B | | 0.648 | -0.013 | No | F | | 1.255 | F | | 1.130 | -0.125 | No |
| 2 | Pier S Avenue/Ocean Boulevard | B | | 0.681 | B | | 0.679 | -0.002 | No | F | | 1.110 | F | | 1.008 | -0.102 | No |
| 3 | Pier S Avenue/New Dock Street | A | | 0.328 | A | | 0.352 | 0.024 | No | B | | 0.678 | A | | 0.591 | -0.087 | No |
| 4 | Navy Way/Seaside Avenue | C | | 0.735 | C | | 0.776 | 0.041 | Yes | E | | 0.904 | E | | 0.931 | 0.027 | Yes |
| 5 | Pico Avenue/Pier B Street & 9th Street | B | | 0.606 | A | | 0.594 | -0.012 | No | C | | 0.766 | C | | 0.708 | -0.058 | No |
| 6 | Pico Avenue/Pier C Street | A | | 0.376 | A | | 0.378 | 0.002 | No | A | | 0.442 | A | | 0.446 | 0.004 | No |
| 7 | Terminal Island Freeway SB Off-Ramp/New Dock St | B | *12.2* | | B | *10.8* | | | | F | *95.1* | | E | *48.2* | | | |
| | analyzed as a signal (see Note B, City of Long Beach) | A | | 0.441 | A | | 0.339 | -0.102 | No | E | | 0.913 | C | | 0.793 | -0.120 | No |
| 8 | Terminal Island Freeway NB On-Ramp/New Dock St | A | *9.1* | | A | *8.9* | | *-0.2* | No | C | *15.9* | | B | *13.9* | | *-2.0* | No |
| 9 | Pico Avenue/Pier D Street[a] | C | *23.3* | | A | | 0.492 | *N/A* | No | F | *55.1* | | B | | 0.630 | *N/A* | No |
| 10 | Pico Avenue/Broadway | B | *10.6* | | B | *10.3* | | *-0.3* | No | B | *11.9* | | B | *11.9* | | *0.0* | No |
| 11 | Pico Avenue/Pier E Street[a] | B | *12.4* | | A | | 0.331 | *N/A* | No | C | *18.7* | | A | | 0.465 | *N/A* | No |
| 12 | Ocean Boulevard/Golden Shore Street | B | | 0.628 | B | | 0.637 | 0.009 | No | B | | 0.658 | B | | 0.670 | 0.012 | No |
| 13 | Ocean Boulevard/Magnolia Avenue | E | | 0.907 | E | | 0.929 | 0.022 | Yes | E | | 0.982 | F | | 1.099 | 0.117 | Yes |
| **MD Peak Hour** | | | | | | | | | | | | | | | | | |
| 1 | Terminal Island Freeway/Ocean Boulevard | E | | 0.966 | D | | 0.899 | -0.067 | No | F | | 1.471 | F | | 1.304 | -0.167 | No |
| 2 | Pier S Avenue/Ocean Boulevard | C | | 0.761 | B | | 0.656 | -0.105 | No | F | | 1.274 | F | | 1.202 | -0.072 | No |
| 3 | Pier S Avenue/New Dock Street | A | | 0.420 | A | | 0.432 | 0.012 | No | D | | 0.843 | C | | 0.739 | -0.104 | No |
| 4 | Navy Way/Seaside Avenue | C | | 0.753 | C | | 0.768 | 0.015 | No | D | | 0.854 | D | | 0.875 | 0.021 | Yes |
| 5 | Pico Avenue/Pier B Street & 9th Street | A | | 0.594 | B | | 0.613 | 0.019 | No | D | | 0.897 | B | | 0.640 | -0.257 | No |
| 6 | Pico Avenue/Pier C Street | A | | 0.309 | A | | 0.306 | -0.003 | No | A | | 0.385 | A | | 0.381 | -0.004 | No |
| 7 | Terminal Island Freeway SB Off-Ramp/New Dock St | B | *13.3* | | B | *12.1* | | *-1.2* | No | E | *47.3* | | D | *29.6* | | *-17.7* | No |
| | analyzed as a signal (see Note B, City of Long Beach) | A | | 0.448 | A | | 0.396 | -0.052 | No | D | | 0.895 | C | | 0.794 | -0.101 | No |
| 8 | Terminal Island Freeway NB On-Ramp/New Dock St | B | *11.9* | | B | *11.1* | | *-0.8* | No | D | *30.6* | | C | *22.5* | | *-8.1* | No |
| 9 | Pico Avenue/Pier D Street[a] | C | *19.2* | | A | | 0.432 | *N/A* | No | E | *42.0* | | A | | 0.529 | *N/A* | No |
| 10 | Pico Avenue/Broadway | A | *9.8* | | A | *9.9* | | *0.1* | No | B | *10.7* | | B | *11.3* | | *0.6* | No |
| 11 | Pico Avenue/Pier E Street[a] | B | *14.0* | | A | | 0.410 | *N/A* | No | C | *23.9* | | A | | 0.559 | *N/A* | No |
| 12 | Ocean Boulevard/Golden Shore Street | B | | 0.691 | C | | 0.708 | 0.017 | No | C | | 0.733 | C | | 0.735 | 0.002 | No |
| 13 | Ocean Boulevard/Magnolia Avenue | C | | 0.741 | C | | 0.785 | 0.044 | No | D | | 0.869 | E | | 0.912 | 0.043 | Yes |
| **PM Peak Hour** | | | | | | | | | | | | | | | | | |
| 1 | Terminal Island Freeway/Ocean Boulevard | D | | 0.865 | D | | 0.813 | -0.052 | No | F | | 1.181 | F | | 1.170 | -0.011 | No |
| 2 | Pier S Avenue/Ocean Boulevard | B | | 0.650 | A | | 0.597 | -0.053 | No | F | | 1.114 | F | | 1.011 | -0.103 | No |
| 3 | Pier S Avenue/New Dock Street | A | | 0.337 | A | | 0.337 | 0.000 | No | B | | 0.684 | A | | 0.588 | -0.096 | No |
| 4 | Navy Way/Seaside Avenue | E | | 0.914 | E | | 0.935 | 0.021 | Yes | F | | 1.091 | F | | 1.125 | 0.034 | Yes |
| 5 | Pico Avenue/Pier B Street & 9th Street | A | | 0.575 | A | | 0.588 | 0.013 | No | B | | 0.688 | B | | 0.625 | -0.063 | No |
| 6 | Pico Avenue/Pier C Street | A | | 0.306 | A | | 0.308 | 0.002 | No | A | | 0.402 | A | | 0.402 | 0.000 | No |
| 7 | Terminal Island Freeway SB Off-Ramp/New Dock St | B | *10.5* | | B | *10.3* | | *-0.2* | No | C | *15.4* | | C | *15.3* | | *-0.1* | No |
| | analyzed as a signal (see Note B, City of Long Beach) | A | | 0.385 | A | | 0.356 | -0.029 | No | B | | 0.626 | A | | 0.554 | -0.072 | No |
| 8 | Terminal Island Freeway NB On-Ramp/New Dock St | B | *10.8* | | B | *10.1* | | *-0.7* | No | D | *32.7* | | C | *21.7* | | *-11.0* | No |
| 9 | Pico Avenue/Pier D Street[a] | C | *15.5* | | A | | 0.399 | *N/A* | No | E | *36.8* | | A | | 0.543 | *N/A* | No |
| 10 | Pico Avenue/Broadway | A | *9.3* | | A | *10.0* | | *0.7* | No | B | *10.3* | | B | *11.4* | | *1.1* | No |
| 11 | Pico Avenue/Pier E Street[a] | C | *18.9* | | A | | 0.582 | *N/A* | No | E | *47.6* | | C | | 0.782 | *N/A* | No |
| 12 | Ocean Boulevard/Golden Shore Street | B | | 0.693 | C | | 0.719 | 0.026 | No | C | | 0.739 | D | | 0.801 | 0.062 | No |
| 13 | Ocean Boulevard/Magnolia Avenue | C | | 0.771 | C | | 0.765 | -0.006 | No | D | | 0.865 | E | | 0.930 | 0.065 | Yes |

Notes: LOS - Level of Service ; NB - Northbound; SB - Southbound; N/A - Not Applicable

* Volume-to-capacity (V/C) ratio is reported for signalized intersections and average stopped delay per vehicle (Del/Veh) in seconds is reported for unsignalized intersections *in italics*. "Difference" is the change in the applicable V/C ratio or Del/Veh.

a This intersection is currently stop-sign controlled and a traffic signal would be added at this intersection to accommodate construction detour routing required under the Bridge Replacement Alternatives (signal would be in place by year 2015). Therefore, this intersection has been analyzed as a signalized intersection in the 2015 and 2030 future years under the Bridge Rehabilitation Alternatives. There would be no signal installed at this intersection under the No Action/Rehabilitation Alternatives, so this intersection has been analyzed as an unsignalized (stop sign controlled) intersection in the 2015 and 2030 future years under the No Action/Rehabilitation Alternatives.

b **Criteria and Thresholds Used to Determine Adverse Effect:**

- City of Long Beach, signalized intersections (applies to intersections #1-3, #5-6, and #12-13): Adverse effect would occur where the Build condition (Bridge Replacement Alternatives) would result in LOS E or F and the intersection V/C ratio increases by more than 0.020 over the No Build (No Action/Rehabilitation Alternatives) condition or the existing condition.
- City of Long Beach, unsignalized intersections (applies to intersections #7-11): The City has no established criteria for determination of adverse effects at unsignalized intersections. If the Build condition has an LOS E or F at an unsignalized intersection, then the intersection must be reanalyzed using the signalized intersection method and criteria to identify any adverse effects. This analysis assumes that there would be an adverse effect under the No Action/Rehabilitation Alternatives if LOS E or F is forecast for an unsignalized intersection in year 2015 or 2030. For comparisons of intersections which are unsignalized under the No Action/Rehabilitation Alternatives and signalized under the Bridge Replacement Alternatives, this analysis assumes that there would be an adverse effect if the Bridge Replacement Alternatives would result in LOS E or F at the future signalized intersection.
- City of Los Angeles (applies to signalized intersection #4): Adverse effect would occur where the final (future) LOS is E or F and an increase in V/C of 0.01 or greater would occur as a result of the project; for LOS D, an increase of 0.02 or greater; or for LOS C, an increase of 0.04 or greater.

Yes Highlight indicates locations with adverse effect where threshold criteria for an adverse effect have been exceeded and the effect is directly attributable to the proposed Bridge Replacement Alternatives.

Source: Iteris, 2009.

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**Table 2.1.5-16**
**Intersection Effects With and Without Mitigation at Navy Way/Seaside Avenue**

| Peak Hour | | Year 2005 | | Year 2015 | | | | Year 2030 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | |
| | | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C |
| AM | Navy Way/ Seaside Avenue | A | 0.474 | C | 0.735 | C | 0.776 | E | 0.904 | E | 0.931 |
| | with Additional NB Left-Turn Lane | | | | | C | 0.734 | | | D | 0.863 |
| MD | Navy Way/ Seaside Avenue | A | 0.414 | C | 0.753 | C | 0.768 | D | 0.854 | D | 0.875 |
| | with Additional NB Left-Turn Lane | | | | | C | 0.716 | | | D | 0.807 |
| PM | Navy Way/ Seaside Avenue | A | 0.581 | E | 0.914 | E | 0.935 | F | 1.091 | F | 1.125 |
| | with Additional NB Left-Turn Lane | | | | | D | 0.874 | | | F | 1.029 |

LOS – level of service; NB – northbound; V/C – volume-to-capacity ratio
Source: Iteris, 2009.

**Table 2.1.5-17**
**Intersection Effects With and Without Mitigation at Ocean Boulevard/Magnolia Avenue**

| Peak Hour | | Year 2005 | | Year 2015 | | | | Year 2030 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | | No Action/ Rehabilitation Alternatives | | Bridge Replacement Alternatives | |
| | | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C |
| AM | Ocean Blvd/ Magnolia Avenue | B | 0.693 | E | 0.907 | E | 0.929 | E | 0.982 | F | 1.099 |
| | with proposed restriping and signalization | | | | | C | 0.769 | | | E | 0.931 |
| MD | Ocean Blvd/ Magnolia Avenue | A | 0.575 | C | 0.741 | C | 0.785 | D | 0.869 | E | 0.912 |
| | with proposed restriping and signalization | | | | | B | 0.657 | | | D | 0.812 |
| PM | Ocean Blvd/ Magnolia Avenue | B | 0.601 | C | 0.771 | C | 0.765 | D | 0.865 | E | 0.930 |
| | with proposed restriping and signalization | | | | | B | 0.649 | | | C | 0.791 |

LOS – level of service; V/C – volume-to-capacity ratio
Source: Iteris, 2009.

***Roadway Segment Analysis:***

As shown in Table 2.1.5-18, the comparison of the study roadway segments in 2015 and 2030 for the Bridge Replacement Alternatives to the No Action/Rehabilitation Alternatives shows an adverse effect at WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange (Segment 3) during the MD peak hour in 2015 and no adverse effect on any roadway segment in 2030.

***WB Segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway Interchange.*** This segment of Ocean Boulevard is forecast to operate at LOS F during the **MD peak hour in year 2015** under the Bridge Replacement Alternative condition with a density of 47.0 vehicles per lane per mile, as shown in Table 2.1.5-18. In year 2015 under the No Action/ Rehabilitation Alternatives, this segment is forecast to operate at LOS B, with a density of 12.8; therefore, an adverse effect is found under the Bridge Replacement Alternative condition in year 2015 due to the forecast LOS F and increased vehicle density that would occur along this WB segment of Ocean Boulevard.

The better LOS and lower density predicted along this WB segment of Ocean Boulevard under the No Action/Rehabilitation Alternatives than under the Bridge Replacement Alternatives is a result of the existing lane configuration that is reduced from three lanes to two at the crest of the Gerald Desmond Bridge. The existing lane configuration causes an increase in traffic congestion on WB Ocean Boulevard, which limits the volume of vehicles that can flow into the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange, thereby providing a relatively low density and better LOS than would be experienced under the Bridge Replacement Alternative condition. The proposed Bridge Replacement Alternatives include three through lanes in each direction on the bridge, thus eliminating the existing transition from three to two lanes at the crest of the bridge, and thereby allowing a higher volume and density of traffic to flow into the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange. It is predicted that this increase in traffic flow under the Bridge Replacement Alternative condition would strain the Terminal Island Freeway interchange, resulting in an increased traffic queue (traffic backup). The queue would cause traffic on WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange to operate poorly at LOS F.

During the **MD peak hour in year 2030,** the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange is forecast to operate at LOS F under both the No Action/Rehabilitation Alternatives and the Bridge Replacement Alternative conditions, with vehicle densities of 127.0 and 47.6, respectively. Because the density is lower under the Bridge Replacement Alternative condition, traffic operations are forecast to be better under the Bridge Replacement Alternative condition; therefore, no adverse effect under the Bridge Replacement Alternative condition would occur in year 2030. The finding of an adverse effect in year 2015 and no adverse effect in year 2030 under the Bridge Replacement Alternative condition results from a deterioration of operating conditions under the No Action/ Rehabilitation Alternatives attributable to local and regional traffic growth between years 2015 and 2030. Operating conditions under the No Action/ Rehabilitation Alternatives deteriorate on this segment because traffic from Pier T destined for Ocean Boulevard west of the Terminal Island Freeway and for the Terminal Island Freeway itself uses this segment of the Ocean Boulevard mainline. Under the Bridge Replacement Alternatives, traffic operations do not deteriorate substantially because traffic from Pier T does not use the Ocean Boulevard mainline between the Horseshoe Ramps and the Terminal Island Freeway; traffic from Pier T uses the parallel Ocean Boulevard service road and enters the Ocean Boulevard mainline west of Pier S Street.

Because the adverse effect is expected in year 2015 but not in year 2030, the adverse effect is considered temporary. A grade-separated "flyover" ramp serving traffic from EB Ocean Boulevard to NB SR 47 is proposed as a component of the Schuyler Heim Bridge Replacement and SR 47 Expressway project. The proposed construction schedule shows completion of the flyover in 2015 (Caltrans, 2007a). Operation of the flyover in conjunction with either of the Bridge Replacement Alternatives would relieve the strain on the Terminal Island Freeway interchange and result in improved LOS on WB Ocean Boulevard, and there would be no adverse effect of the Bridge Replacement Alternatives on WB Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange. The effect of the proposed Bridge Replacement Alternatives in conjunction with the reasonable foreseeable construction of the SR 47 Flyover under Schuyler Heim Bridge Replacement and SR 47 Expressway project would be a cumulative benefit to traffic operations on the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange, as discussed in Section 2.4.4.3.

## Table 2.1.5-18 Project-Related Effects on Roadway Segments

| | Segment | From | To | Year 2015 | | | | | | Year 2030 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No Action/ Rehab. Alts. | | Bridge Replace Alternatives | | No Action/Rehab. Alternatives vs. 2015 Bridge Replace Alts. | | No Action/ Rehab. Alts. | | Bridge Replace Alternatives | | No Action/Rehab. Alternatives vs. 2030 Bridge Replace Alternatives | |
| | | | | Density | LOS | Density | LOS | Density Difference | Adverse Effect[a] | Density | LOS | Density | LOS | Density Difference | Adverse Effect[a] |
| **AM Peak Hour** | | | | | | | | | | | | | | | |
| 1 | EB Ocean Boulevard | Navy Way | Pier S Avenue | 19.3 | C | 20.2 | C | 1.0 | No | 115.1 | F | 25.6 | C | -89.5 | No |
| | WB Ocean Boulevard | Pier S Avenue | Navy Way | 19.8 | C | 23.7 | C | 3.9 | No | 24.6 | C | 25.4 | C | 0.8 | No |
| 2 | EB Ocean Boulevard | Pier S Avenue | Terminal Island Freeway | 17.4 | B | 20.8 | C | 3.3 | No | 22.7 | C | 23.0 | C | 0.3 | No |
| | WB Ocean Boulevard | Terminal Island Freeway | Pier S Avenue | 16.6 | B | 19.8 | C | 3.1 | No | 19.0 | C | 20.8 | C | 1.8 | No |
| 3 | EB Ocean Boulevard | Terminal Island Freeway | Horseshoe Ramps | 17.8 | B | 21.4 | C | 3.6 | No | 18.1 | C | 23.7 | C | 5.6 | No |
| | WB Ocean Boulevard | Horseshoe Ramps | Terminal Island Freeway | 12.7 | B | 41.3 | E | 28.6 | No | 15.8 | B | 34.0 | D | 18.2 | No |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 23.3 | C | 24.8 | C | 1.5 | No | 23.2 | C | 29.5 | D | 6.2 | No |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 28.6 | D | 21.3 | C | -7.3 | No | 27.7 | D | 24.3 | C | -3.5 | No |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 60.9 | F | 22.3 | C | -38.6 | No | 79.2 | F | 25.4 | C | -53.8 | No |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 27.0 | D | 19.9 | C | -7.1 | No | 30.5 | D | 22.2 | C | -8.3 | No |
| 6 | NB Connector | EB Ocean Boulevard | NB I-710 | 16.2 | B | 10.1 | A | -6.1 | No | 11.9 | B | 9.3 | A | -2.6 | No |
| | SB Connector | SB I-710 | WB Ocean Boulevard | 25.7 | C | 17.8 | B | -7.9 | No | 30.6 | D | 19.6 | C | -11.0 | No |
| 7 | I-710 NB | NB Connector | NB I-710 Mainline | 15.9 | B | 10.1 | A | -5.8 | No | 11.1 | B | 9.1 | A | -2.0 | No |
| | I-710 SB | SB I-710 Mainline | SB Connector | 13.8 | B | 17.4 | B | 3.6 | No | 16.3 | B | 19.1 | C | 2.8 | No |
| 8 | EB Ocean Boulevard | NB Connector | Downtown | 5.3 | A | 13.4 | B | 8.1 | No | 7.8 | A | 15.0 | B | 7.2 | No |
| | WB Ocean Boulevard | Downtown | SB Connector | 7.3 | A | 16.0 | B | 8.7 | No | 5.8 | A | 17.0 | B | 11.2 | No |
| **MD Peak Hour** | | | | | | | | | | | | | | | |
| 1 | EB Ocean Boulevard | Navy Way | Pier S Avenue | 22.0 | C | 23.0 | C | 1.0 | No | 175.3 | F | 165.8 | F | -9.5 | No |
| | WB Ocean Boulevard | Pier S Avenue | Navy Way | 18.4 | C | 22.0 | C | 3.6 | No | 19.3 | C | 22.8 | C | 3.6 | No |
| 2 | EB Ocean Boulevard | Pier S Avenue | Terminal Island Freeway | 16.5 | B | 21.0 | C | 4.5 | No | 17.3 | B | 19.2 | C | 1.8 | No |
| | WB Ocean Boulevard | Terminal Island Freeway | Pier S Avenue | 14.6 | B | 18.0 | B | 3.4 | No | 17.7 | B | 19.7 | C | 2.0 | No |
| 3 | EB Ocean Boulevard | Terminal Island Freeway | Horseshoe Ramps | 16.7 | B | 21.0 | C | 4.3 | No | 12.7 | B | 15.2 | B | 2.5 | No |
| | WB Ocean Boulevard | Horseshoe Ramps | Terminal Island Freeway | 12.8 | B | 47.0 | F | 34.2 | **Yes** | 127.7 | F | 47.6 | F | -80.1 | No |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 28.2 | D | 28.0 | D | -0.2 | No | 19.3 | C | 21.9 | C | 2.6 | No |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 30.1 | D | 22.0 | C | -8.1 | No | 22.2 | C | 17.2 | B | -5.0 | No |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 52.0 | F | 21.0 | C | -31.0 | No | 70.8 | F | 24.5 | C | -46.3 | No |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 25.4 | C | 19.0 | C | -6.4 | No | 29.6 | D | 21.4 | C | -8.2 | No |
| 6 | NB Connector | EB Ocean Boulevard | NB I-710 | 18.0 | B | 13.0 | B | -5.0 | No | 11.8 | B | 8.8 | A | -3.0 | No |
| | SB Connector | SB I-710 | WB Ocean Boulevard | 26.2 | D | 17.0 | B | -9.2 | No | 31.1 | D | 20.0 | C | -11.1 | No |
| 7 | I-710 NB | NB Connector | NB I-710 Mainline | 18.1 | C | 13.0 | B | -5.1 | No | 11.3 | B | 9.0 | A | -2.3 | No |
| | I-710 SB | SB I-710 Mainline | SB Connector | 14.7 | B | 16.0 | B | 1.3 | No | 16.9 | B | 20.0 | C | 3.1 | No |
| 8 | EB Ocean Boulevard | NB Connector | Downtown | 3.3 | A | 9.0 | A | 5.7 | No | 4.3 | A | 7.3 | A | 3.0 | No |
| | WB Ocean Boulevard | Downtown | SB Connector | 5.0 | A | 12.0 | B | 7.0 | No | 4.4 | A | 12.2 | B | 7.8 | No |
| **PM Peak Hour** | | | | | | | | | | | | | | | |
| 1 | EB Ocean Boulevard | Navy Way | Pier S Avenue | 24.4 | C | 24.8 | C | 0.4 | No | 178.0 | F | 156.0 | F | -21.9 | No |
| | WB Ocean Boulevard | Pier S Avenue | Navy Way | 20.3 | C | 24.0 | C | 3.8 | No | 26.0 | D | 29.0 | D | 3.0 | No |
| 2 | EB Ocean Boulevard | Pier S Avenue | Terminal Island Freeway | 20.0 | C | 24.3 | C | 4.3 | No | 21.3 | C | 29.4 | D | 8.1 | No |
| | WB Ocean Boulevard | Terminal Island Freeway | Pier S Avenue | 22.9 | C | 24.8 | C | 2.0 | No | 23.4 | C | 28.2 | D | 4.8 | No |
| 3 | EB Ocean Boulevard | Terminal Island Freeway | Horseshoe Ramps | 20.4 | C | 24.6 | C | 4.2 | No | 16.4 | B | 25.2 | C | 8.8 | No |
| | WB Ocean Boulevard | Horseshoe Ramps | Terminal Island Freeway | 18.6 | C | 17.9 | B | -0.8 | No | 20.9 | C | 20.4 | C | -0.5 | No |
| 4 | EB Gerald Desmond Bridge | Upgrade | Crest | 26.7 | D | 29.2 | D | 2.4 | No | 20.7 | C | 28.8 | D | 8.1 | No |
| | EB Gerald Desmond Bridge | Crest | Downgrade | 32.9 | D | 24.7 | C | -8.2 | No | 26.1 | D | 24.3 | C | -1.8 | No |
| 5 | WB Gerald Desmond Bridge | Upgrade | Crest | 56.3 | F | 22.0 | C | -34.3 | No | 109.1 | F | 25.5 | C | -83.6 | No |
| | WB Gerald Desmond Bridge | Crest | Downgrade | 28.9 | D | 20.2 | C | -8.7 | No | 32.6 | D | 23.2 | C | -9.5 | No |
| 6 | NB Connector | EB Ocean Boulevard | NB I-710 | 16.7 | B | 14.1 | B | -2.6 | No | 10.2 | A | 9.5 | A | -0.7 | No |
| | SB Connector | SB I-710 | WB Ocean Boulevard | 20.4 | C | 14.3 | B | -6.1 | No | 23.4 | C | 16.0 | B | -7.4 | No |
| 7 | I-710 NB | NB Connector | NB I-710 Mainline | 16.2 | B | 13.7 | B | -2.5 | No | 9.5 | A | 9.1 | A | -0.4 | No |
| | I-710 SB | SB I-710 Mainline | SB Connector | 10.6 | A | 13.7 | B | 3.2 | No | 11.8 | B | 15.6 | B | 3.8 | No |
| 8 | EB Ocean Boulevard | NB Connector | Downtown | 7.3 | A | 13.6 | B | 6.3 | No | 8.8 | A | 16.0 | B | 7.2 | No |
| | WB Ocean Boulevard | Downtown | SB Connector | 8.6 | A | 20.8 | C | 12.2 | No | 7.9 | A | 19.4 | C | 11.5 | No |

Notes: LOS - Level of Service ; NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound
* In the existing year 2005 condition, segments 1-3 are analyzed as arterial segments because of presence of traffic signals on Ocean Boulevard at the TI Freeway, Pier S Avenue, & Navy Way. The LOS for arterials is determined by speed (in miles-per-hour). All other segments are analyzed as multi-lane highways whose LOS is determined by vehicle density (vehicles per lane per mile).
a Criteria and Thresholds Used to Determine Adverse Effect:
- Adverse effect would occur where the Build condition (Bridge Replacement Alternatives) would result in LOS F and the vehicle density is greater in the No Build (No Action/Rehabilitation Alternatives) condition or the existing condition.
Yes(1) - Density comparison not available, but increased density assumed based on deterioration of LOS.

**Yes** Highlight indicates locations with adverse effect where threshold criteria for an adverse effect have been exceeded and the effect is directly attributable to the proposed Bridge Replacement Alternatives.
Source: Iteris, 2009.

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If the flyover is not implemented prior to opening one of the Bridge Replacement Alternatives, then there would be a temporary unavoidable adverse effect of the Bridge Replacement Alternatives on the WB segment of Ocean Boulevard from the Horseshoe Ramps to the Terminal Island Freeway interchange that would exist until the flyover is constructed or until 2030, as discussed above.

## Nonrecurring Congestion

The Bridge Replacement Alternatives of the proposed project would have the benefit of reducing nonrecurring congestion in the project area caused by automobile crashes, disabled vehicles, work zones, adverse weather events, and planned special events. The addition of standard-width left- and right-side shoulders on the bridge and its approaches would provide adequate room for emergency response vehicles, roadway maintenance vehicles, and disabled automobiles without causing major congestion or requiring roadway closures.

To better understand the potential effects caused by a nonrecurring incident, a computer simulation of a nonrecurring incident on the existing Gerald Desmond Bridge was conducted for the Bridge Replacement Alternatives and the No Action/ Rehabilitation Alternatives conditions in year 2030. The CORSIM program was used to conduct the simulation. The analysis compares the duration of restricted traffic operations resulting from an accident or other nonrecurring incident.

One difference between the Bridge Replacement Alternatives and the No Action/Rehabilitation Alternatives conditions is the inclusion of a third lane on the downhill side of the bridge with the Bridge Replacement Alternatives. For this reason, the simulation included an incident on that portion of the bridge to comparatively estimate the amount of time that would elapse before traffic operations would return to pre-incident levels. The incident was assumed to block the EB right lane on the downhill side of the bridge. The incident itself was assumed to last 1-hour during the PM peak travel period. With the No Action/ Rehabilitation Alternatives condition, the incident was assumed to block the right lane for the full hour and then be cleared from the area. With the Bridge Replacement Alternatives condition, the incident was assumed to block the right lane for 10 minutes and then moved to the shoulder for the next 50 minutes, at which time it would be cleared from the area.

Exhibit 2.1.5-10 shows summary graphs of travel speed in each lane approaching the incident for 1-hour before the incident occurred, 1-hour during the incident, and 1-hour after the incident was cleared from the bridge for the No Action/ Rehabilitation Alternatives and the Bridge Replacement Alternatives conditions. Each graph shows the plotted mean speed for each 5-minute increment during the 3-hour period and a smoothed speed curve. A nearly horizontal line links pre- and post-incident speed and illustrates likely speeds with no incident.

The No Action/Rehabilitation Alternatives condition results show that the average vehicle travel speed would decrease from approximately 45 to 50 miles per hour (mph) before the incident in both lanes to 20 to 25 mph after the incident occurs. Speeds would remain slow for the whole hour of the incident plus an additional 25 to 30 minutes after the incident is cleared from the area, or a total duration of 85 to 90 minutes after the incident occurred. The Bridge Replacement Alternatives condition results show that the average vehicle travel speed would return to pre-incident levels approximately 20 minutes after the incident is moved to the shoulder, or a total duration of 30 minutes after the incident occurred; therefore, over 1-hour of incident-related delay could be saved as a result of implementing the Bridge Replacement Alternatives.

### Effects to Nonrecurring Congestion from the Long-Term Operation of the Bridge Replacement Alternatives

Nonrecurring congestion due to incidents such as crashes and disabled vehicles would not be worse under the Bridge Replacement Alternatives than under the No Action/Rehabilitation Alternatives. Rather, such nonrecurring congestion is likely to be reduced by the presence of shoulders on the new bridge that would be implemented under the Bridge Replacement Alternatives; therefore, it is concluded that the proposed Bridge Replacement Alternatives would have a beneficial effect upon nonrecurring congestion.

## Bridge Bicycle and Pedestrian Access

The Bridge Replacement alternatives of the proposed project would transform Ocean Boulevard, which is currently a city street, into a state highway that would be a limited-access extension of the SR 710 freeway as far west as the Terminal Island Freeway. Bicycle access to/ from downtown Long Beach across the new bridge via Ocean Boulevard would be permitted only at on- and off-ramps (see Exhibit 2.1.5-13).

Terminal Island is an industrial area within the Harbor District where there is currently no

residential, retail, or public recreational facilities. Since the closing of the Naval Shipyard and the opening of the Pier T container terminal, there has been low demand from nonmotorized traffic (e.g., pedestrians or bicycles) on Ocean Boulevard over the Gerald Desmond Bridge, despite a patchwork of sidewalks that exist along the roadway. In addition, Terminal Island does not include any designated bicycle route.

The finished roadway improvements of the Bridge Replacement Alternatives would include standard, full-width paved inside and outside shoulders for emergency vehicle breakdown and motorist safety. No designated bike routes or pedestrian sidewalks are included in the project plans. Both pedestrians and cyclists can utilize the regularly scheduled bus service equipped with bicycle racks provided by the Los Angeles Department of Transportation to travel between downtown Long Beach, Terminal Island, and San Pedro. A designated bike route exists to the north of the Port on Anaheim Street at the northern edge of the Harbor District.

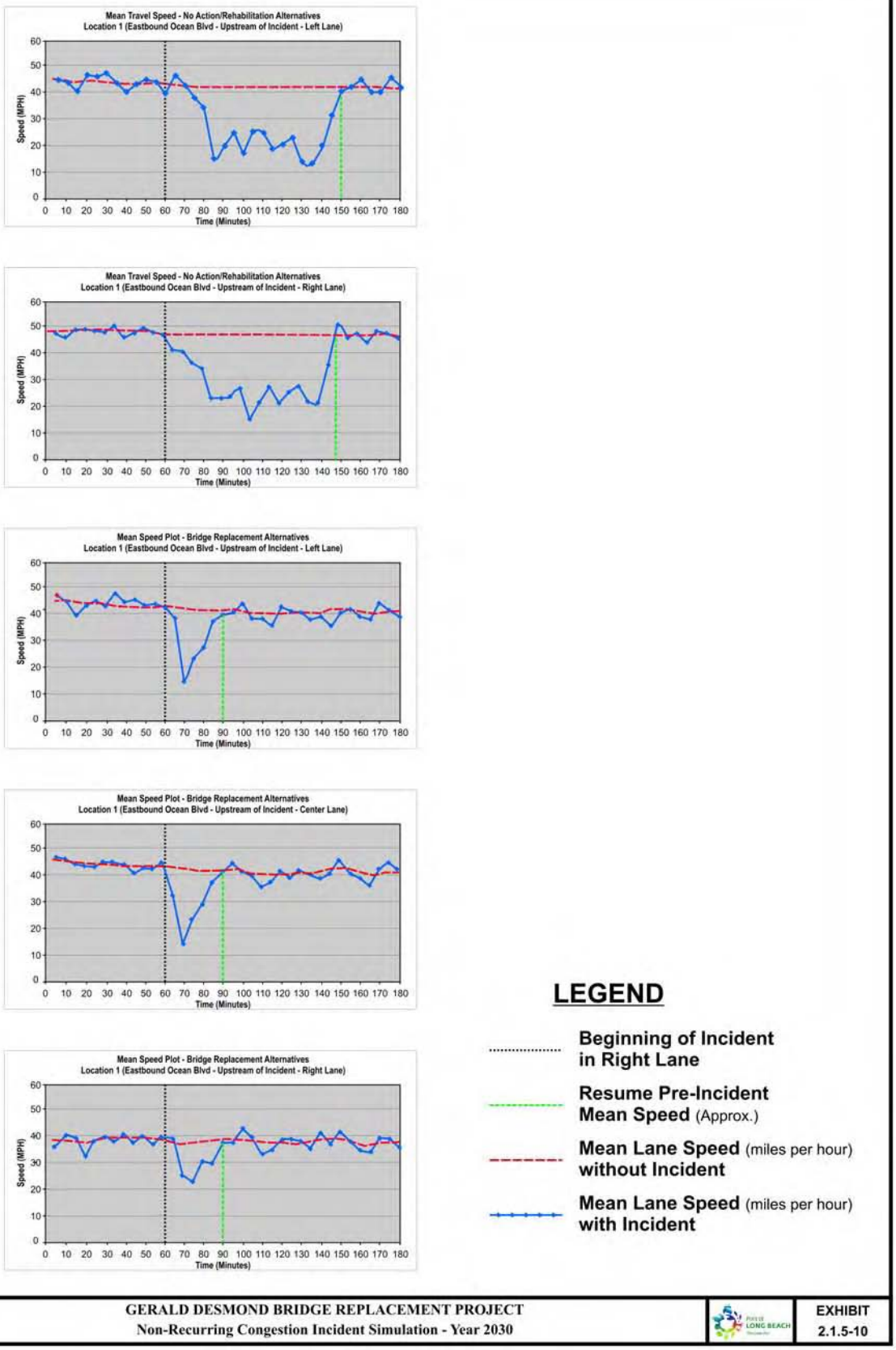
Of the other two bridges that provide access to Terminal Island, neither the Schuyler Heim Bridge nor the Vincent Thomas Bridge provides shoulders or walkways for nonmotorized traffic. The current bicycle master plans for the cities of Long Beach and Los Angeles do not include any designated bike routes in the Harbor Districts, including Terminal Island (refer to Exhibits 2.1.5-11 and 2.1.5-12 for the maps of the bicycle master plans for the cities of Long Beach and Los Angeles). In June 2006, the Los Angeles County Metropolitan Transportation Authority (MTA) adopted two bicycle planning documents: *Metro Bicycle Transportation Strategic Plan* (Strategic Plan) and *Bicycle Transportation Account Compliance* (BTA) document. These two plans replace the Countywide Bicycle Policy Document and six area bicycle plans. The Strategic Plan and BTA document are consistent with Metro's Long Range Transportation Plan. The BTA document fulfills a Caltrans requirement by consolidating information into one countywide document that each City and the County can adopt as their local bicycle plan. The Strategic Plan was designed for use by local agencies to plan bicycle facilities around transit and set priorities to improve regional mobility. One aspect of the Strategic Plan is to identify gaps in the inter-jurisdictional bike network. The Strategic Plan identifies an Ocean Boulevard Corridor connecting the Harbor bike lanes in San Pedro to the LA River Bike Trail terminus in the City of Long Beach, as recommended by "LA City/Stakeholders." As previously discussed, the proposed project is within the Cities of Long Beach and Los Angeles, and there are no proposed or designated bike routes in City plans within the Port of Long Beach.

Federal regulation requires the inclusion of nonmotorized routes in roadway improvement projects only if the facility already includes an existing major nonmotorized route. The existing Gerald Desmond Bridge has a pedestrian walkway, but it is not considered a "major nonmotorized route." The Port addressed this issue in January 2004 in consideration of federal statute Title 23, section 217, as amended by the Transportation Equity Act for the 21st Century (TEA-21) and SAFETEA-LU, which states, "The Secretary shall not approve any project or take any regulatory action that will sever an existing major nonmotorized route or adversely affect the safety of nonmotorized traffic and light motorcycles, unless a reasonable alternate route exists or is established. [1202(c)]."

Based on a memorandum dated January 6, 2004, which discusses coordination with the MTA Bikeway Modal Lead and Gateway Cities Team Planner, the MTA staff determined that a bikeway or a pedestrian walkway is not required for this project. Additional considerations regarding bikeway and pedestrian access are presented below.

Designated Bicycle Routes

Though there is no designated bike route planned for the proposed new bridge, the California Vehicle Code (CVC) stipulates that nonmotorized vehicles (i.e., bicycles) be allowed to travel along roadways unless specifically prohibited by Caltrans or local authorities. Bicyclists would be prohibited from using the two ramps connecting Ocean Boulevard to downtown Long Beach for safety reasons, because they would be required to traverse the high-speed mainline SR 710 through lanes connected to the proposed bridge. Locations where bicyclists would be prohibited with the North-side Alignment Alternative are shown in Exhibit 2.1.5-13. Bicycle access would also be prohibited at the same ramp locations under the South-side Alignment Alternative. Under the Bridge Replacement Alternatives, bicyclists could use the Pico Avenue on- and off-ramps to Ocean Boulevard to travel to and from downtown Long Beach across the new bridge (see Exhibit 2.1.5-13)


Mean Travel Speed - No Action/Rehabilitation Alternatives
Location 1 (Eastbound Ocean Blvd - Upstream of Incident - Left Lane)
Speed (MPH)
Time (Minutes)
Mean Travel Speed - No Action/Rehabilitation Alternatives
Location 1 (Eastbound Ocean Blvd - Upstream of Incident - Right Lane)
Speed (MPH)
Time (Minutes)
Mean Speed Plot - Bridge Replacement Alternatives
Location 1 (Eastbound Ocean Blvd - Upstream of Incident - Left Lane)
Speed (MPH)
Time (Minutes)
Mean Speed Plot - Bridge Replacement Alternatives
Location 1 (Eastbound Ocean Blvd - Upstream of Incident - Center Lane)
Speed (MPH)
Time (Minutes)
Mean Speed Plot - Bridge Replacement Alternatives
Location 1 (Eastbound Ocean Blvd - Upstream of Incident - Right Lane)
Speed (MPH)
Time (Minutes)
LEGEND
Beginning of Incident in Right Lane
Resume Pre-Incident Mean Speed (Approx.)
Mean Lane Speed (miles per hour) without Incident
Mean Lane Speed (miles per hour) with Incident
GERALD DESMOND BRIDGE REPLACEMENT PROJECT
Non-Recurring Congestion Incident Simulation - Year 2030
EXHIBIT 2.1.5-10

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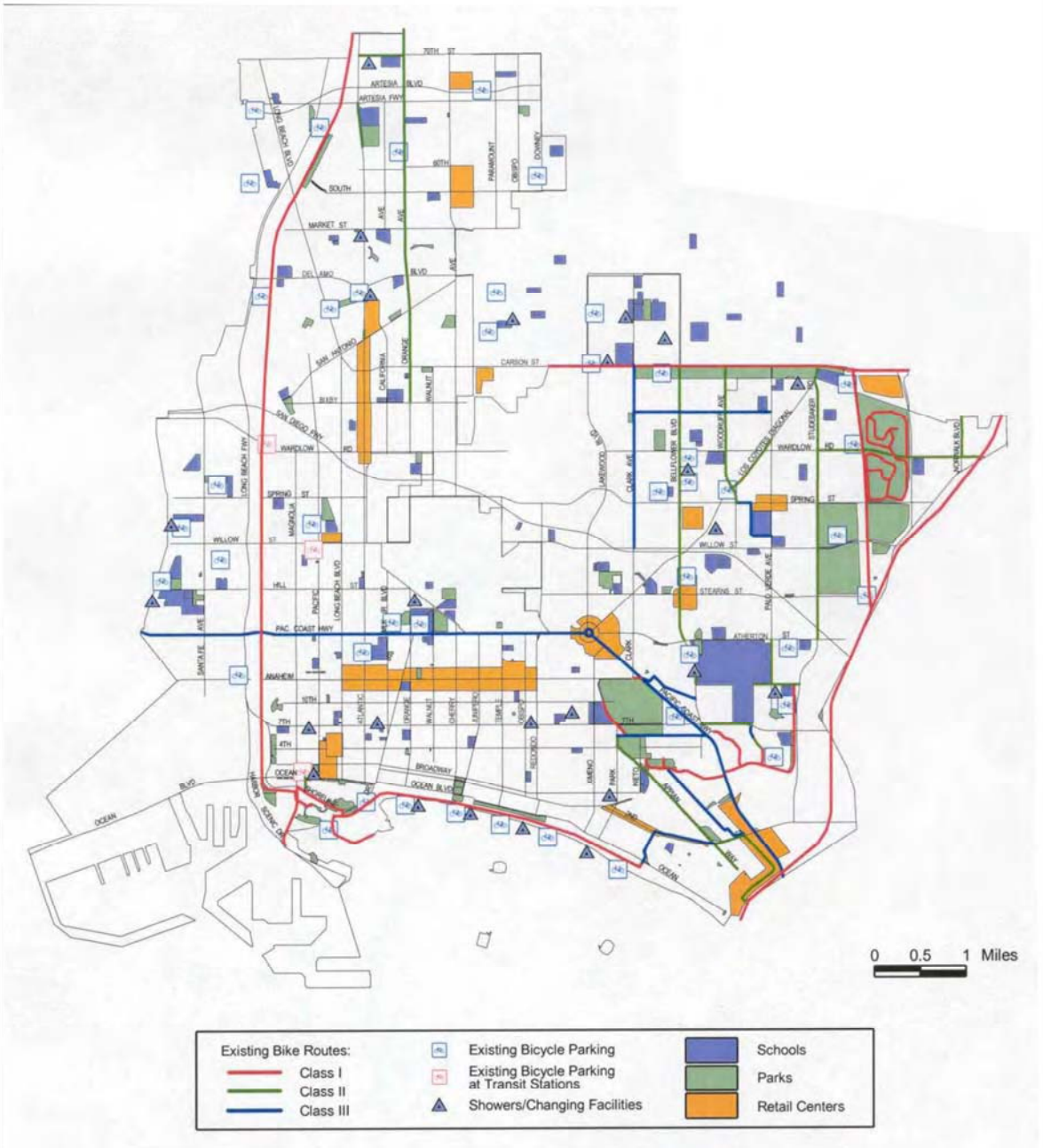


**GERALD DESMOND BRIDGE REPLACEMENT PROJECT**
**Long Beach Bicycle Master Plan - Existing Bikeway Facilities**

**EXHIBIT 2.1.5-11**

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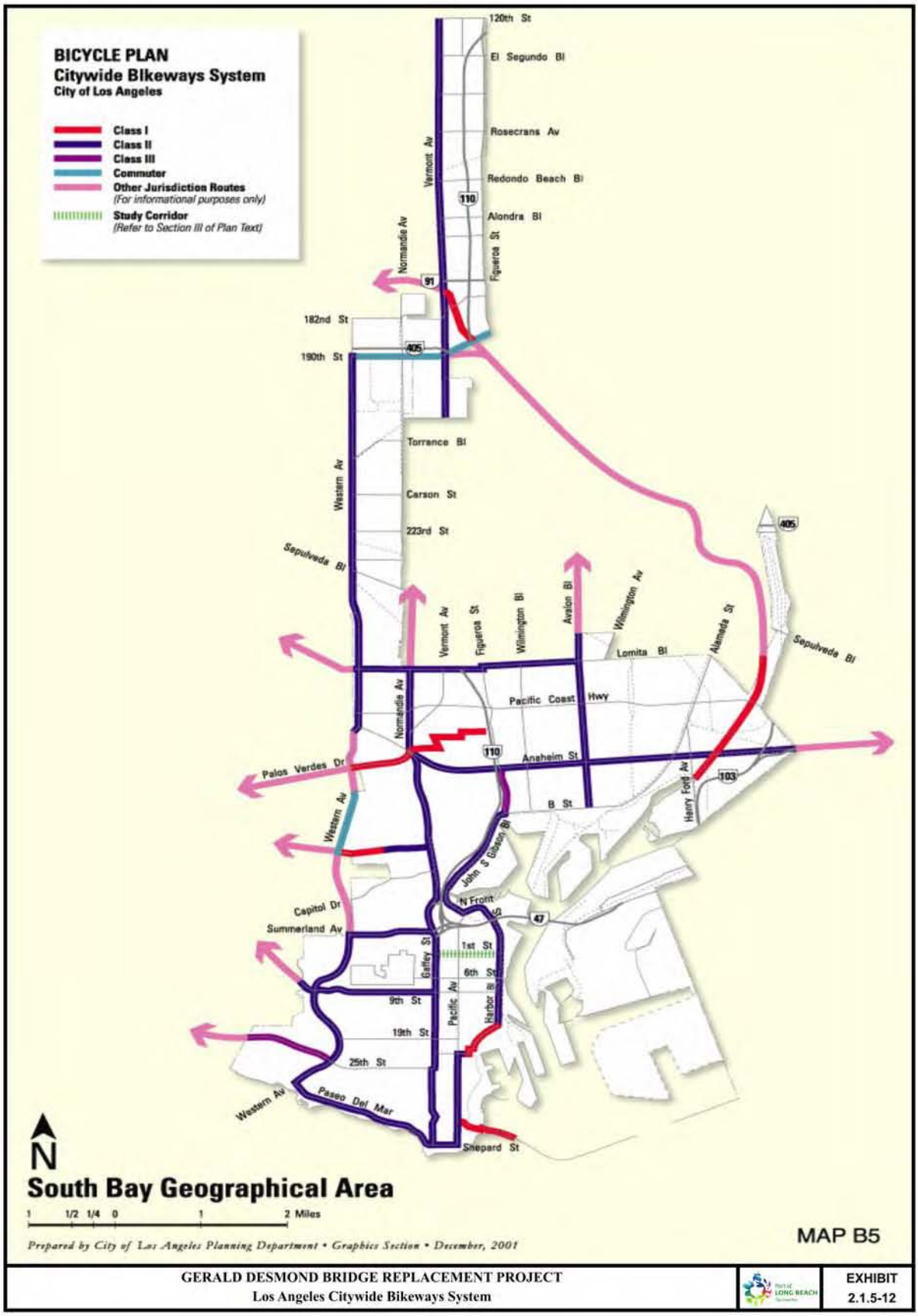
BICYCLE PLAN
Citywide Bikeways System
City of Los Angeles
Class I
Class II
Class III
Commuter
Other Jurisdiction Routes
(For informational purposes only)
Study Corridor
(Refer to Section III of Plan Text)
120th St
El Segundo Bl
Rosecrans Av
Redondo Beach Bl
Alondra Bl
Vermont Av
Figueroa St
Normandie Av
182nd St
190th St
Torrance Bl
Western Av
Carson St
223rd St
Sepulveda Bl
Wilmington Bl
Avalon Bl
Wilmington Av
Lomita Bl
Alameda St
Pacific Coast Hwy
Palos Verdes Dr
Anaheim St
Henry Ford Av
B St
John S Gibson Bl
N Front St
Capitol Dr
Summerland Av
Gaffey St
1st St
6th St
9th St
19th St
25th St
Pacific Av
Harbor Bl
Western Av
Paseo Del Mar
Shepard St
110
91
405
47
103
N
South Bay Geographical Area
1 1/2 1/4 0 1 2 Miles
Prepared by City of Los Angeles Planning Department • Graphics Section • December, 2001
MAP B5
GERALD DESMOND BRIDGE REPLACEMENT PROJECT
Los Angeles Citywide Bikeways System
EXHIBIT
2.1.5-12

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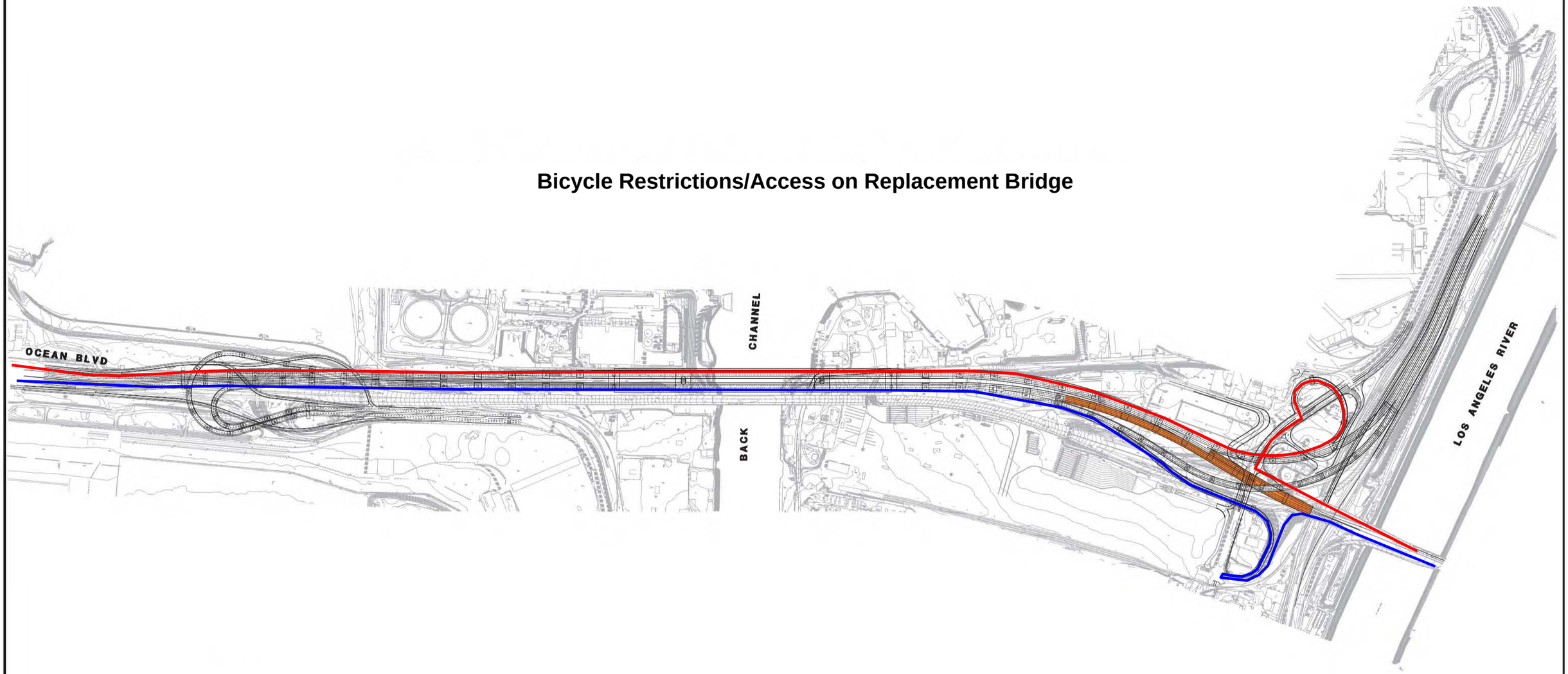
## Bicycle Restrictions/Access on Replacement Bridge




**Legend**

- Bicycles Prohibited
- East Bound Access
- West Bound Access

N
W
E
S

1:4000

**EXHIBIT 2.1.5-13**

| MARK | DATE | BY | REVISIONS |
|---|---|---|---|

DRAWN DWP DATE 03/28/08
DESIGNED _____ P.E. NO. _____
PROJ. MGR. _____ P.E. NO. _____
SECT. HEAD _____ P.E. NO. C-_____

ASS'T CHIEF HARBOR ENGR. P.E. NO. C-25677 DATE .....
CHIEF HARBOR ENGINEER P.E. NO. C-43065 DATE .....

Port of LONG BEACH
The Green Port

GERALD DESMOND BRIDGE REPLACEMENT PROJECT

North-Side Bridge Replacement Alternative Alignment

SCALE
SHEET _____ OF _____
SPECIFICATION NUMBER _____
DRAWING NUMBER _____

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The agency bicycle master plans previously discussed provide bicycle facilities on other roadways that avoid the heavy industrial traffic area of the Ports.

There are no existing or planned bike routes on Ocean Boulevard between downtown Long Beach and San Pedro.

Pedestrian Walkways

Additional considerations relative to pedestrian issues are as follows:

- The proposed new bridge with the Bridge Replacement Alternatives would become an extension of the SR 710 freeway, and pedestrian movements are typically not accommodated on freeway facilities. CVC 21960 allows Caltrans the discretion to prohibit or restrict the use of freeways to pedestrians, bicycles, and/or other nonmotorized traffic[5].
- Terminal Island is an industrial area and not a major pedestrian destination.
- There are no pedestrian facilities along Ocean Boulevard/Seaside Avenue on Terminal Island west of the Gerald Desmond Bridge. Pedestrian facilities have not been provided in recently completed projects along Ocean Boulevard between the Vincent Thomas Bridge and the Gerald Desmond Bridge.

Effects to Bicycle and Pedestrian Access from the Long-Term Operation of the Bridge Replacement Alternatives

With the Bridge Replacement Alternatives, there would be no adverse effects associated with the removal of pedestrian sidewalks or the change in bicycle access across the new bridge. Effects on pedestrians would be minimal because Terminal Island is an industrial area with no public recreational facilities and is not a pedestrian destination. Effects on cyclists would also be minimal because access is only modified, not eliminated, and a designated bike route is located on Anaheim Street parallel to Ocean Boulevard north of the Ports. In addition, Terminal Island is an industrial area with no other supporting bicycle infrastructure west of the bridge, and there are no planned or designated bike routes along Ocean Boulevard between downtown Long Beach and San Pedro. Future nonmotrized demand is anticipated to be low.

### 2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures

### Temporary Measures

North- and Southside Alignment Alternatives

All of the temporary mitigation measures to be implemented during construction of either of the Bridge Replacement Alternatives will be implemented in conjunction with a TMP to minimize traffic impacts during construction. The TMP will be submitted to and approved by the Port and Caltrans. The TMP, at a minimum, should include detour routes, flagmen, traffic controls, signing, traffic lane closure scheduling to minimize impacts, public notification, and coordination with emergency service providers. The TMP shall be implemented after approval.

**TC-1** Prior to the start of construction Stage 2, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stage 2:

- Add dual NB right-turn lanes;
- Restripe EB through/right lane to a right-turn lane;
- Provide one (1) EB through lane; and
- Continue two (2) SR 710 SB off-ramp lanes to Pico Avenue.

**TC-2** Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue, Pier B Street, and 9th Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4:

- Remove NB-SB split-signal phasing;

[5] CVC 21960(a): Caltrans and local authorities, by order, ordinance, or resolution, with respect to freeways, expressways, or designated portions thereof under their respective jurisdictions, to which vehicle access is completely or partially controlled, may prohibit or restrict the use of the freeways, expressways, or any portion thereof by pedestrians, bicycles, or other nonmotorized traffic or by any person operating a motor-driven cycle, motorized bicycle, or motorized scooter. A prohibition or restriction pertaining to bicycles, motor-driven cycles, or motorized scooters shall be deemed to include motorized bicycles; and no person may operate a motorized bicycle wherever that prohibition or restriction is in force. (Amended Sec. 6, Ch. 722, Stats. 1999. Effective January 1, 2000).

- Restripe NB through lane to a NB left-turn lane;
- Widen SB approach and provide two (2) left-turn lanes and one (1) through lane; and
- Continue two (2) on-ramp lanes to NB SR 710.

**TC-3** Prior to the start of construction Stage 2, a traffic signal will be installed at the intersection of Pico Avenue and Pier D Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 2, 3, and 4. The traffic signal will be permanent and will not be removed after completion of construction of a Bridge Replacement Alternative.

**TC-4** Prior to the start of construction Stages 3 and 4, the following improvements will be made to the intersection of Pico Avenue and Pier E Street to mitigate the project's temporary adverse effect during construction at that intersection during Stages 3 and 4:

- Permanently signalize the intersection (the signal will not be removed after completion of construction of a Bridge Replacement Alternative);
- Restripe NB through lane to a NB right-turn lane, providing a single NB through lane;
- Add dual free-flow WB right-turn lanes; and
- Continue two (2) EB Ocean Boulevard off-ramp lanes to Pico Avenue.

The *Middle Harbor Redevelopment Project Draft Environmental Impact Statement (DEIS)/Draft Environmental Impact Report (DEIR) and Application Summary Report (ASR)* prepared for the Port and USACE includes signalization of the Pico Avenue/Pier D Street and Pico Avenue/Pier E Street intersections. If these signals are implemented as part of that project prior to the start of construction Stage 2 for the Pico Avenue/ Pier D Street intersection and construction Stage 3 for the Pico Avenue/Pier E Street intersection, then that would remove the need for the signalization component of the proposed mitigations under TC-3 and TC-4, respectively.

## Permanent Measures

North- and Southside Alignment Alternatives

**TC-5** During the design phase of a Bridge Replacement Alternative, the Port shall add a third NB left-turn lane to mitigate the project effect at the Navy Way/ Seaside Avenue intersection.

POLA is currently considering two potential projects at the Navy Way/Seaside Avenue intersection. One project would provide grade separation of left turns and the other would implement a centerline barrier on Seaside Avenue that would eliminate left turns. Either project would remove the signal at the intersection, thereby eliminating the adverse effect of the proposed Bridge Replacement Alternatives at the intersection. If either of these projects or any other comparable project is implemented prior to construction of the Bridge Replacement Alternatives, then the adverse effect of the Bridge Replacement Alternatives at the intersection would be removed and the proposed mitigation measure would not be required.

**TC-6** The Port will coordinate with the Long Beach City Traffic Engineer and provide funding for restriping and/or signalization improvements at the intersection of Ocean Boulevard and Magnolia Avenue as mitigation for the effect of a Bridge Replacement Alternative at the intersection.

Restriping and signalization improvements have been identified as one way to mitigate the adverse effect at this intersection. The Port will coordinate with the City of Long Beach on implementation of improvements at this intersection.

# EXHIBIT 7

# SUPERIOR COURT OF CALIFORNIA, COUNTY OF RIVERSIDE

| TITLE: | DATE & DEPT: | MASTER NUMBER: |
|---|---|---|
| FRIENDS OF THE NORTHERN SAN JACINTO VALLEY, et al., v. COUNTY OF RIVERSIDE, et al. | 04/11/12 D10 | RIC10007572<br>RELATED CASES:<br>RIC10007574<br>RIC10007586 |
| COUNSEL: NONE | REPORTER: NONE | |
| PROCEEDING: PROPOSED STATEMENT OF DECISION | | |

This is a consolidated matter in which Friends of Northern San Jacinto Valley, Sierra Club, Center for Biological Diversity, San Bernardino Valley Audubon Society, and the City of Riverside all challenge the approval of a project proposed by real party in interest Nuevo Development Company. The Project is the Villages of Lakeview extending over 2,800 acres consisting of 11,350 dwellings, a mixed use town center including some 500,000 square feet of retail, office and commercial uses, public facilities including four schools and a library, and nearly 1,000 acres of open space/conservation areas. Respondent County of Riverside approved the Project and certified the Environmental Impact Report on March 23, 2010. Petitioners filed a joint opening and reply brief. Respondents and real party also filed a joint opposition and will be referred to collectively as "Respondents."

## DISCUSSION

I. The EIR failed to adequately evaluate GHG impacts and possible mitigation of these impacts.

Petitioners contend that the County failed to proceed in the manner required by CEQA in that the EIR improperly assessed the significance of the greenhouse gas (GHG) emissions by

comparing them to a potentially unrealistic, unreasonable hypothetical scenario rather than to existing conditions as required by *CBE vs. SCAQMD* (2010) 48 Cal. 4th 310, 322.

Respondents contend they first measured the Project's total GHG emissions against the baseline of existing conditions (zero emissions) to generate the Project's GHG inventory, quantified as 137,637 tons of CO2e annually and that this satisfied CEQA's mandate that project impacts be disclosed and compared to the existing physical environment which serves as a baseline for CEQA purposes. Next, the County exercised its discretion by utilizing compliance with AB 32 as the threshold against which to evaluate the impact on GHG, and compared the Project's GHG inventory against a business-as-usual (BAU) scenario to make its impact significance determination. This approach, according to respondents, provided an opportunity to evaluate the Project's emissions reduction strategy. According to respondents, the BAU hypothetical used represents the Project as proposed absent its voluntary design features, GHG reduction commitments and mitigation measures not require by existing mandates. Respondents contend that the analysis was reasonable and supported by substantial evidence in the record.[1]

It is true that agencies can exercise discretion in formulating and establishing thresholds of significance for each potentially adverse environmental effect (Guidelines §15064(b)), and may use performance standards or guidance documents adopted or issued by regulatory agencies as thresholds of significance (§15126.4(a)(1)(B)). It is also true that, at this time, no agency with particular expertise or jurisdiction over the Project's air quality and GHG emissions has established a quantitative or numeric threshold for determining when or to what extent emissions are significant for CEQA purposes in relation to GHG.

[1] In support of their contention that this BAU approach was proper, respondents ask the court to take judicial notice of a decision from a Kern County trial court proceeding and an appellant's opening brief. The request is denied.

Nevertheless, the hypothetical project proposed for the EIR does not accurately reflect business as usual because it uses an unrealistic scenario which ignores local planning and zoning laws, strips all vegetation from the project, and contemplates development on mountainous portions of the project site. In addition, the hypothetical scenario fails to account for the fact that project approval under CEQA contemplates a process whereby the adverse environmental effects of a project of this nature are identified and analyzed; alternatives are considered; and potential impacts are eliminated or mitigated. The hypothetical project, which ignores not only local planning and zoning laws as well as potential adverse impacts, is not one that could ever be expected to actually occur in the County let alone on the project site. It does not appear the EIR used a "business as usual" approach but instead adopted a "worst-case" scenario as it began its evaluation of the GHG emissions.

Respondents' reliance on *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal.App.4th 327 is misplaced. While the *Chula Vista* case did conclude that compliance with AB 32 was a proper threshold of significance and implicitly approved use of a "business as usual analysis" in assessing the significance of the impact, that case is factually distinguishable. In that case, business as usual was based on the existing store – not some hypothetical scenario like here.

*Chula Vista* simply does not support respondents' use of a hypothetical "BAU" that has no correlation to baseline conditions or to the project as proposed and is not even based on what could be realistically developed in this area in light of existing zoning and other land use regulations.

As the Supreme Court noted in *CBE v. SCAQMD, supra*, 48 Cal.4th 310 at p. 322: "An approach using hypothetical allowable conditions as the baseline results in 'illusory' comparisons that 'can only mislead the public as to the reality of the impacts and subvert full consideration of

the actual environmental impacts,' a result at direct odds with CEQA's intent. [Internal Citation Omitted.] The District's use of the prior permits' maximum operating levels as a baseline appears to have had that effect here, providing an illusory basis for a finding of no significant adverse effect despite an acknowledged increase in NOx emissions exceeding the District's published significance threshold."

Notwithstanding that the Supreme Court was addressing the issue of baseline conditions whereas here we are discussing a proper BAU model, the concerns expressed in *CBE* are the same. The use of this hypothetical "BAU" here which is tied neither to existing conditions or reasonably likely conditions serves only to mislead the public and the decision-makers in their understanding of the actual significance of the GHG emissions, and their effect on the environment. Further, because the EIR improperly assessed the significance of GHG emissions, the EIR could not and did not properly analyze and evaluate feasible mitigation for GHG impacts.

**II.** The County was required to recirculate the EIR.

The Court finds that new information was added after the close of the public comment period that revealed a substantial increase in the severity of environmental impacts.

In response to comments to the DEIR, a transportation analysis was conducted which indicated an increase of 100 million additional vehicle-miles traveled (VMT) per year (50% increase), and $PM_{2.5}$ concentrations 300% greater than previously disclosed and 95 times higher than Air District's threshold for determining the significance of impacts. Petitioners contend that an agency is required to recirculate an EIR when it adds significant new information after the public comment period has closed, citing §21092.1 and *American Canyon Community vs. City of American Canyon* (2006) 145 Cal.App.4th 1062, 1075-76).

Respondents argue that substantial evidence supports the County's determination that the new information merely clarified, amplified, or made insignificant modifications to the general assumptions that were presented in the draft EIR. According to respondents, the new information did not change the severity of the Project's impacts on global climate changes (GCC) or air quality. They contend that even with the new VMT estimates, the Project would still reduce emissions consistent with AB 32. They conclude that the County's decision not to recirculate was proper, citing *Silverado Modjeska Recreation and Parks vs. County of Orange* (2011) 197 Cal.App.4th 282.

The Court finds that the new information did constitute a substantial increase in the severity of GCC and air quality impacts which required recirculation. (Guidelines §15088.5; Pub. Res. §21092.1, §21166.) The new analysis which revealed the substantial increase in GHG and fine particulates was conducted after the comment period. This new information did not merely supply additional requested details or merely explain the DEIR's analysis. Instead, the methodology used in connection with the DEIR was discarded. A new, more accurate methodology disclosed air quality impacts more severe than previously disclosed.

In addition, the County's reliance on its BAU hypothetical and analysis fails. The County cannot rely on alleged consistency with AB 32 as discussed above.

Petitioners did not have an adequate opportunity to comment on the newly disclosed impacts. The determination that the increased impacts did not warrant recirculation is not supported by substantial evidence.

**III.** The EIR did not adequately analyze the project's impacts on air quality and the related health impacts.

The Court finds that there is inadequate analysis in the EIR as to the Project's impacts on air quality and related health effects. In discussing significant environmental impacts, direct and

indirect significant effects of the project should be clearly identified and described, giving due consideration to both the short-term and long-term effects on matters including health and safety problems caused by the physical changes. (*Guidelines §15126.2(a).)* Here, the EIR makes only general references to respiratory and pulmonary conditions and cancer health risks. However, it provides little information or analysis as to the specific impacts on the general population versus sensitive receptors, or as to the degree of impacts and the specific effects on the public's health. When the informational requirements of CEQA are not met, an agency has failed to proceed in a manner required by law. (*Bakersfield Citizens for Local Control vs. City of Bakersfield* (2004) 124 Cal. App. 4th 1184, 1220).

The County's reliance on the South Coast Air Basin region-wide Air Quality Management Plan does not relieve it of its obligation to provide a reasonable analysis of the Project's cumulative impacts. (*Guidelines §15130(b).)* Pursuant to *Berkeley Keep Jets Over the Bay Committee vs. Bd. of Port Commissioners of the City of Oakland* (2001) 91 Cal. App. 4th 1344, 1371, the County is required to use its best efforts to find out and disclose all that it reasonably can. Here, Petitioners provided the County with numerous studies addressing the health effects of particulate pollution, yet County's only response was to discredit one of the reports, and to continue to rely on the SCAQMD methodology. Absent any attempt to use its best efforts to find out and disclose all that it reasonably can, the County failed to meet its obligations.

**IV.** The EIR failed to conduct an adequate review of the project's impacts on regional traffic.

The Court finds that the EIR failed to conduct adequate environmental review of the Project's impacts on regional traffic. The record establishes that the Project will result in over 85,000 vehicle trips per day, and will add 17,000 new car trips to the I-215 each day. Many of the residents will be driving to Moreno Valley and Riverside via the I-215, and those commuting

to Orange and Los Angeles Counties will contribute to the existing problems at the I-15/SR91 interchange.

The EIR failed to analyze the impacts on any of these freeways, and instead restricted its analysis based upon the Riverside County Traffic Impact Analysis Preparation Guide (TIA) and a supplemental analysis. In accordance with the TIA, County studied the area within a five-mile radius of the Project site and conducted a supplemental analysis including 17 additional intersections and 10 additional street segments. An EIR must include a description of the environment in the vicinity of the Project from both a local and regional perspective. (*Bozung vs. Local Agency Formation Comm. (1975) 13 Cal. 3d 263, 283; Guidelines §15125.*) By failing to analyze the Project impacts on the surrounding freeways, County failed to proceed as required by CEQA.

County also argues that it specifically noted there would be a need for subsequent environmental review related to potential traffic impacts and that significant changes with respect to development of regional transportation systems are expected to occur. CEQA, however, requires that the impacts of a proposed project are to be compared to the actual environmental conditions existing at the time of the analysis. (*Sunnyvale West Neighborhood Assn. vs. City of Sunnyvale* (2010) 190 Cal. App. 4th 1351, 1380-1384.*)* The EIR fails to provide any specific analysis as to the impacts of the Project on the existing freeways.

**V.** The EIR project description was adequate.

The question concerning which acts constitute the "whole of an action" for purposes of Guidelines §15738 is a question of law. (*Tuolumne County Citizens for Responsible Growth, Inc. vs. City of Rancho Cordova* (2007) 155 Cal. App. 4th 1214, 1224.) As such, it is to be determined by the trial court's independent judgment. In this case, the Court finds that the

construction of the electrical substation and transmission lines, as well as the training dike, are not part of the Project.

The EIR does acknowledge that the new electric substation is necessary to the Project: the existing Nuevo substation only has the capacity to meet projected demands through 2012, after which additional substation capacity (and the extension of transmission lines) will be necessary to provide power to support the current and future growth. The construction of the off-site training dike is necessary to significantly reduce flooding within the Project. However, neither the substation nor the dike, are component parts of the Project and there has been no improper segmentation.

There are general principles used to determine whether a particular act is part of the activity that constitutes a CEQA project. One way is to evaluate how closely the related acts are to the overall objective of the project (the relationship being sufficiently close when the proposed act is among the "various steps which taken together obtain an objective"). (*Tuolumne, supra, p. 1226.)* Another is to consider how closely the act and project are related in time and physical location, and the entity undertaking the action. (*Id.*, at p. 1227.)

In this case, both the substation and dike were planned independently of the Project, and will serve development in addition to the Project. The substation will be built by a separate entity, Southern California Edison to accommodate regional development growth beyond 2012. The dike is part of a previously approved County infrastructure plan to serve regional needs. As such, neither the substation and transmission lines nor the dike are component parts of the Project. (See *Anderson First Coalition vs. City of Anderson* (2005) 130 Cal. App. 4th 1173.)

**VI.** The EIR adequately addressed the project's noise impacts.

Petitioners contend that the EIR does not properly account for the already existing noise environment attributable to some of the roadways which will serve the Project. They argue that

the EIR improperly uses thresholds of significance to avoid having to confront the possibility that any additional amount of noise might well be significant given the already existing problems. Petitioners contend that the EIR also fails to consider that the Project's incremental noise impacts might be cumulatively considerable. Petitioners conclude that the EIR avoids having to adopt feasible measures to mitigate the Project's contributions to noise.

On the contrary, the EIR acknowledges that because the cumulative noise without the Project is significant, any additional noise contributed by the Project would be significant. The EIR admits that the effect of the Project together with other cumulative impacts will result in significant area-wide cumulative noise impacts. Instead of refusing to examine mitigation for the noise impacts, the EIR considered the use of sound walls to mitigate the significant noise impacts. This mitigation was found not to be feasible, and the EIR concluded that the noise impacts were therefore significant and unavoidable. Petitioners do not dispute the finding that sound walls were not feasible. Nor do they suggest that there were other mitigation measures that could have been considered.

Petitioners also contend that the EIR fails to analyze specific noise impacts resulting from construction of the Project. However, the County was not required to speculate regarding construction activity for project buildup expected to take place over a 20-year period. (See *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 912, 932-933.) Instead, given the conceptual level of the Project, the County properly considered construction impacts to the extent possible and identified mitigation measures.

**VII.** EIR did not adequately address concerns raised with respect to the Habitat Conservation Plan.

CEQA requires the lead agency to respond to each significant environmental issue that is raised by commenters. (Pub. Res. C. §21091(d)(2).) Major environmental issues raised when

the lead agency's position is at variance with recommendations and objections should be addressed in detail with reasons why specific comments and suggestions were not accepted. (Guidelines §15088(c).) Responses to comments should at least demonstrate a good faith reasoned analysis. (*Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357, 378.)

Commenters pointed out that the Project's plan to construct "JJ Street" interferes with so-called "Constrained Linkage 20," a habitat block identified in the MSHCP. The Constrained Linkage allows space for migration, plant propagation, and increased mating opportunities between other habitat blocks. JJ Street will be constructed across the Constrained Linkage and will create another barrier to wildlife attempting to travel between the Wildlife Area and the Lakeview Mountains.

The County's responses to comments first maintained that JJ Street does not actually cross the wildlife corridor. But JJ Street is in fact perpendicular to the linkage and will be constructed directly across it.

The County also took the position that JJ Street should be considered part of the planned Mid-County Parkway, which includes the existing Ramona Expressway. This roadway also crosses the linkage and was already anticipated and contemplated by the MSHCP. Comment responses contend that the culvert/wildlife corridor under the Mid-County Parkway will be extended and will run under JJ Street. Petitioners point out that the MSHCP indicates that small mammals are not known to use culverts longer than 64 meters. With the addition of JJ Street, even if parallel to the Mid-County Parkway, the culvert will be at least 87 meters in length. The MSCHP anticipated a 67-meter wildlife crossing, and extending it an additional 20 meters for JJ Street may make the undercrossing unusable for the species and may compromise the integrity

of the Constrained Linkage. The County's analysis failed to address the additional length of the culvert which will be required in order to extend the undercrossing under JJ Street.

**VIII.** The EIR failed to adequately address the project's growth-inducing impacts.

Petitioners argue that EIR's brief analysis of growth-inducing impacts fails to meet the requirements of Guidelines §15126.2(d). The Project includes improvements to roads, the extension of energy services, and the extension of water lines and sewer services to serve future projects and urbanization. Petitioners further argue that pursuant to *Napa Citizens for Honest Government vs. Bd. of Supervisors* (2001) 91 Cal. App. 4th 342, 370, the EIR should have disclosed information about the housing units the infrastructure will accommodate, and the effect of the additional growth on public services.

The Court agrees that additional information about the Project's growth-inducing impacts should have been provided and analyzed. Although the County submits that such would be speculative, the record indicates that existing information is available which makes such discussion viable. The County references the expansion of the Ramona Expressway and incremental roadway improvements; the construction of new roads; and water and sewer improvements and infrastructure sized to serve future urbanization within the area. It also references "developing communities," and states how the infrastructure improvements and expansions could eliminate potential constraints for future development in the area. Given the extent of vacant and unimproved land surrounding the Project, the County should have been able to provide additional information and analysis about growth-inducing impacts.

**IX.** The EIR's Discussion of Project Alternatives was adequate.

Petitioners first argue that the Project's objectives are so narrow that they preclude consideration of a reasonable range of alternatives, citing *National Parks & Conservation Assn. vs. Bureau of Land Management* (9th Cir. 2010) 606 F.3d 1058, 1072. The Court finds that

argument unavailing. While certain Project objectives may be possible due to the existing circumstances (e.g., single ownership and location), the objectives overall reflect the County's goals as evidenced in Chapter 2 of the County's General Plan. This is distinguishable from *National Parks*, where only one of the four project objectives served the needs of the BLM. (*National Parks*, supra, at pp.1071-72.)

Petitioners then argue that the EIR improperly failed to analyze an off-site alternative, which is necessary given the significant amendments and zoning changes and the inconsistencies with the General Plan. *(Citizens of Goleta Valley vs. Bd. of Supervisors ("Goleta I")* (1988) 197 Cal. App. 3d 1167, 1179-80; Guidelines §15126.6.) Again, the Court disagrees and finds that the EIR properly considered and then rejected an alternate site. Guidelines §15126.6 requires the EIR identify alternatives that were considered and rejected as infeasible during the scoping process, and briefly explain the reasons underlying the determination. The factors that may be used to eliminate alternatives from detailed consideration in an EIR are failure to meet most of the project objectives, infeasibility, or inability to avoid significant environmental impacts. (§15126.6(c).) Here, the County included such discussion at AR 3403-04. The Court finds that discussion sufficient and distinguishable from that in *Goleta I, supra*.

**X.** The Project is inconsistent with the General Plan Circulation Element.

Petitioners argue that the Project is inconsistent with various General Plan policies: Land Use (L.U.) Policy 2.1(e) (to concentrate growth near or within existing urban and suburban areas to maintain the rural and open space character to the greatest extent possible); L.U. Policy 17.3 (to ensure development does not adversely impact the open space & rural character of the surrounding area); L.U. Policy 10.1 (to provide sufficient opportunities to increase local employment levels and minimize long-distance commuting); L.U. Police 7.12 (to improve the

relationship and ratio between jobs and housing); L.U. Policy 2.1(a) (to provide a land use mix at the countywide and area plan levels based on projected need); and Air Quality Policy 8.2 (to emphasize job creation and reductions in VMTs in job poor areas to improve air quality. Petitioners also contend the project is inconsistent with General Plan Circulation Element 2.1 which requires the County to maintain target Levels of Service: LOS "C" along all County-maintained roads and conventional state highways.

The question is whether the Project is compatible with and will not frustrate the General Plan's goals and policies. *(Napa Citizens for Honest Government vs. Napa County Board of Supervisors* (2001) 91 Cal. App. 4th 342, 379.) If the Project will frustrate the General Plan's goals and policies, it is inconsistent with the General Plan unless it also includes definite affirmative commitments to mitigate the adverse effect or effects. (*Id.*)

Here, the record establishes that the Project will frustrate the General Plan's policy of maintaining the County's Level of Service standards as described in the General Plan Circulation Element. The EIR admits that at full build-out of both the current General Plan roadway system and the Project, some roadway segments and intersections will not meet the required standards. The General Plan Circulation Element establishes definite standards regarding traffic congestion, not mere guidelines or flexible goals. The County cannot establish specific traffic requirements and at the same time approve a project that will cause unacceptable congestion without taking affirmative steps to handle that increased congestion. (*Napa Citizens, supra*, 91 Cal.App.4$^{th}$, at p. 380; *Endangered Habitats League v. County of Orange* (2005) 131 Cal.App.4th 777, 782-783.) No such affirmative steps or mitigation measures have been developed. This is particularly unacceptable given the improper/inadequate analysis concerning traffic impacts from the Project discussed previously.

Otherwise, the Court accepts the Board's findings of consistency as being supported by substantial evidence despite some inconsistency with a handful of land use policies articulated in the General Plan. A given project need not be in conformity with each and every land use policy. It need only be compatible with the objectives, general land uses and programs set forth in the General Plan. (*Families Unafraid To Uphold Rural El Dorado County v. Board of Supervisors* (1988) 62 Cal.App.4th 1332, 1336.) The County's determination of consistency with its own General Plan is entitled to great deference. It has the unique competence to balance the plan's policies when applying them and has the broad discretion to construe its policies in light of the plan's purposes. (See *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357, 373-374.)

**XI.** One of the County's findings in support of the extraordinary amendment to the general plan is inadequate.

The County's General Plan discourages amendments to the foundational elements of the Plan outside of the County's regular five-year amendment cycle. Foundational elements may not be amended outside of the five-year cycle unless specific findings are made that the amendment is justified as a result of extraordinary events. This "Extraordinary Amendment" procedure requires three particular findings to justify an Extraordinary Amendment. (General Plan, Ch. 10 at A-12; Riv. Co. Code §17.08.060(F)). These findings were necessary here because the Project included General Plan Amendment 720 which raised development densities in connections with existing foundational elements. As discussed below, the Court finds the second and third required findings were sufficient and are supported by substantial evidence.

The second required finding to support an extraordinary amendment is that a condition exists or an event has occurred that is "unusually compelling." The County's finding regarding the unusually compelling event cites "an opportunity that is presented by having 2,786 acres

under the control of one entity...to pursue a comprehensive master plan." This finding is sufficient and is supported by substantial evidence.

The third required finding is that a component change is necessary to facilitate implementation of open space or transportation corridor designations arising from MSHCP and CETAP programs that could not be accomplished by a lesser change in the General Plan. The County supports this finding with the real party's commitment to widen the Ramona Expressway, the fact that real party has much of the land necessary for the expansion without the County having to condemn it, and the fact that the Project's circulation system is designed to align with planned access points for the Expressway obviating the need for a frontage road. This third finding is sufficient and is supported by substantial evidence.

The first required finding is that new conditions or circumstances justify modifying the General plan, that the modifications do not conflict with the overall County Vision, and that the modifications would not create an internal inconsistency among the elements of the General plan. Unlike the second and third findings discussed above, when the board made this required finding it did so merely by quoting the language in the extraordinary amendment procedure. The "new conditions or circumstances" are not defined and there is no indication as to what evidence the board relied on to support this finding.

To be adequate, a finding must apprise the reviewing court of the basis for the board's actions. In other words, the finding must "bridge the analytic gap between the raw evidence and the ultimate decision or order." (*Topanga Assn. for a Scenic Community vs. County of Los Angeles* (1974) 11 Cal. 3d 506, 514.) It is not the responsibility of the reviewing court to comb the record to find some evidence that might have supported the board's finding. (*Id.*, at p. 516.) Here, because the board merely quoted the language of the required finding, this Court does

not know and cannot determine the basis for the county's decision. This first finding is not sufficient.

## CONCLUSION

Pursuant to California Rules of Court rule 3.1590(c), this tentative decision is the Court's proposed statement of decision with respect to the petitions for writ of mandate filed in RIC10007572, RIC10007574 and RIC10007586 subject to any party's objection under rule 3.1590(g). If timely objections are not filed and served within 15 days of service of this statement of decision, petitioners in RIC10007572 and RIC10007574 are hereby ordered to prepare, serve and submit proposed judgments and peremptory writs of mandate. In RIC10007586, this proposed statement of decision addressed only the first and second causes of action. Unless the City wishes to dismiss its third and fourth causes of action for declaratory relief and injunctive relief, respectively, a final judgment cannot be entered in that case at this time.

A hearing for receipt of proposed judgment in RIC10007572 and RIC10007574 and for status conference on the City's remaining causes of action in RIC10007586 is hereby set for April 30, 2012, at 8:30 a.m., in Dept. 10.

# SUPERIOR COURT OF CALIFORNIA, COUNTY OF RIVERSIDE

| TITLE: | DATE & DEPT: | MASTER NUMBER: |
|---|---|---|
| FRIENDS OF THE NORTHERN SAN JACINTO VALLEY, et al., v. COUNTY OF RIVERSIDE, et al. | 05/16/12 D10 | RIC10007572 |
| | | RELATED CASES: RIC10007574 RIC10007586 |
| COUNSEL: NONE | REPORTER: NONE | |
| PROCEEDING: MINUTE ORDER | | |

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE
MAY 16 2012

The Court has read and considered respondent and real parties' Objections to the Proposed Statement of Decision as well as their Request for Judicial Notice. The request for judicial notice is denied and the objections are overruled. The proposed statement of decision shall be the Court's Statement of Decision in these three related cases.

Petitioners, in all three cases, have already, albeit prematurely, submitted proposed judgments. Respondent and real parties shall have fifteen days from the date of this order within which to submit objections to the proposed judgments.

SHARON J. WATERS
Judge of the Superior Court

Sharon Waters, Judge
L. Hall (cmg), Clerk
Page 1 of 1 Page(s)

SUPERIOR COURT OF CALIFORNIA, COUNTY OF RIVERSIDE
4050 Main Street - 2nd Floor
Riverside, CA 92501
www.riverside.courts.ca.gov

# CERTIFICATE OF MAILING

CITY OF RIVERSIDE

vs. CASE NO. RIC10007586

COUNTY OF RIVERSIDE

TO: CITY OF RIVERSIDE
CITY HALL 3900 MAIN STREET
RIVERSIDE CA 92522

I certify that I am currently employed by the Superior Court of California, County of Riverside and I am not a party to this action or proceeding. In my capacity, I am familiar with the practices and procedures used in connection with the mailing of correspondence. Such correspondence is deposited in the outgoing mail of the Superior Court. Outgoing mail is delivered to and mailed by the United States Postal Service, postage prepaid, the same day in the ordinary course of business. I certify that I served a copy of the attached minute order on this date, by depositing said copy as stated above.

Court Executive Officer/Clerk

Dated: 05/16/12 by: _____
LETICIA HALL, Deputy Clerk

# EXHIBIT 8







# Climate Change Scoping Plan

*a framework for change*

## DECEMBER 2008

*Pursuant to AB 32*
*The California Global Warming Solutions Act of 2006*

*Prepared by*
the California Air Resources Board
for the State of California

Arnold Schwarzenegger
*Governor*

Linda S. Adams
*Secretary, California Environmental Protection Agency*

Mary D. Nichols
*Chairman, Air Resources Board*

James N. Goldstene
*Executive Officer, Air Resources Board*

# EXECUTIVE SUMMARY

On September 27, 2006, Governor Schwarzenegger signed Assembly Bill 32, the Global Warming Solutions Act of 2006 (Núñez, Chapter 488, Statutes of 2006). The event marked a watershed moment in California's history. By requiring in law a reduction of greenhouse gas (GHG) emissions to 1990 levels by 2020, California set the stage for its transition to a sustainable, clean energy future. This historic step also helped put climate change on the national agenda, and has spurred action by many other states.

The California Air Resources Board (ARB or Board) is the lead agency for implementing AB 32, which set the major milestones for establishing the program. ARB met the first milestones in 2007: developing a list of discrete early actions to begin reducing greenhouse gas emissions, assembling an inventory of historic emissions, establishing greenhouse gas emission reporting requirements, and setting the 2020 emissions limit.

ARB must develop a Scoping Plan outlining the State's strategy to achieve the 2020 greenhouse gas emissions limit. This Scoping Plan, developed by ARB in coordination with the Climate Action Team (CAT), proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health.

This "Approved Scoping Plan" was adopted by the Board at its December 11, 2008 meeting. The measures in this Scoping Plan will be developed over the next two years and be in place by 2012.

## Reduction Goals

This plan calls for an ambitious but achievable reduction in California's carbon footprint. Reducing greenhouse gas emissions to 1990 levels means cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 15 percent from today's levels. On a per-capita basis, that means reducing our annual emissions of 14 tons of carbon dioxide equivalent for every man, woman and child in California down to about 10 tons per person by 2020. This challenge also presents a magnificent opportunity to transform California's economy into one that runs on clean and sustainable technologies, so that all Californians are able to enjoy their rights in the future to clean air, clean water, and a healthy and safe environment.

Significant progress can be made toward the 2020 goal relying on existing technologies and improving the efficiency of energy use. A number of solutions are "off the shelf," and many – especially investments in energy conservation and efficiency – have proven economic benefits. Other solutions involve improving our state's infrastructure, transitioning

# II. RECOMMENDED ACTIONS

Achieving the goals of AB 32 in a cost-effective manner will require a wide range of approaches. Every part of California's economy needs to play a role in reducing greenhouse gas emissions. ARB's comprehensive greenhouse gas emissions inventory lists emission sources ranging from the largest refineries and power plants to small industrial processes and farm livestock. The recommended measures were developed to reduce greenhouse gas emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures also put the state on a path to meet the long-term 2050 goal of reducing California's greenhouse gas emissions to 80 percent below 1990 levels. This trajectory is consistent with the reductions that are needed globally to help stabilize the climate. While the scale of this effort is considerable, our experience with cultural and technological changes makes California well-equipped to handle this challenge.

ARB evaluated a comprehensive array of approaches and tools to achieve these emission reductions. Reducing greenhouse gas emissions from the wide variety of sources can best be accomplished though a cap-and-trade program along with a mix of complementary strategies that combine market-based regulatory approaches, other regulations, voluntary measures, fees, policies, and programs. ARB will monitor implementation of these measures to ensure that the State meets the 2020 limit on greenhouse gas emissions.

An overall limit on greenhouse gas emissions from most of the California economy – the "capped sectors" – will be established by the cap-and-trade program. (The basic elements of the cap-and-trade program are described later in this chapter.) Within the capped sectors, some of the reductions will be accomplished through direct regulations such as improved building efficiency standards and vehicle efficiency measures. Whatever additional reductions are needed to bring emissions within the cap are accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. ARB also recommends specific measures for the remainder of the economy – the "uncapped sectors."

# EXHIBIT 9

# SUPERIOR COURT OF THE STATE OF CALIFORNIA
# FOR THE COUNTY OF SAN DIEGO

CLEVELAND NAT'L FOREST FOUNDATION, et al.,

Petitioners,

v.

SAN DIEGO ASS'N OF GOVERNMENTS,

Respondent;

And CONSOLIDATED CASE and COMPLAINT IN INTERVENTION BY the ATTORNEY GENERAL OF CALIFORNIA

Case No. 2011-00101593

**RULING ON PETITIONS FOR WRIT OF MANDATE**

Judge: Timothy B. Taylor
Dept.: 72

Hearing: November 30, 2012

## 1. Overview and Procedural History.

In this CEQA case, the petitioners and the Attorney General claim SANDAG abused its discretion when it decided to certify an EIR and adopt a Regional Transportation Plan (RTP) which for the first time included a "Sustainable Communities Strategy" (SCS) ostensibly designed to meet a greenhouse gas emission reduction target as required by Senate Bill 375, Stats. 2008, Ch. 728. The parties agree this is the first RTP in California to be adopted following the 2008 legislation [AR2075; AR 04465], but they fundamentally disagree about the reach and requirements of that statute as it interfaces with the requirements of CEQA. No court has heretofore interpreted SB 375; the RTP/SCS at issue is meant to provide a blueprint for transportation planning for the next

40 years; and entities like SANDAG up and down the State are looking for guidance from this case regarding how to implement SB 375 in the context of an EIR. Thus, this court is but a way station in the life of this case, which is clearly headed for appellate review regardless of the outcome at the trial level. The case arises against a backdrop of intense scientific and political debate over what one counsel referred to as the signal issue of our time: global climate change.

Petitioners Cleveland Nat'l Forest Foundation ("Cleveland") and the Center for Biological Diversity ("CBD") filed the petition on November 28, 2011. The case was assigned to Judge Hayes, but Cleveland challenged her and the case was reassigned. Petitioners CREED-21 and the Affordable Housing Coalition ("AHC") filed a substantially similar petition, also on November 28, 2011 (ROA 42). This case, No. 2011-00101660, was initially assigned to another department, but the parties later stipulated to (and the court ordered) consolidation with the low-numbered case (ROA 41).

Cleveland and CBD filed an amended petition on 1/23/12, adding the Sierra Club as a petitioner (ROA 17). The AG sought and obtained leave to intervene on 1/25/12, and filed her petition in intervention the same day on behalf of the People (ROA 22-25).

At a CMC on 2/24/12, the parties advised the court that the Administrative Record in this case exceeds 10,000 pages in length (as it turned out, it is over 30,000 pages). In light of this, the court adopted a party-proposed briefing schedule, granted relief from brief page limits imposed by the Rules of Court, and set the matter for a merits hearing (ROA 38). SANDAG subsequently filed answers to both the Cleveland/CBD/Sierra Club amended petition and the CREED-21/AHC petition (ROA 48, 49). SANDAG also filed its answer to the AG's petition in intervention.

The Administrative Record, which is contained on a CD, was lodged on June 27 (ROA 53), having been certified by SANDAG on May 3 (ROA 45). Joint excerpts are contained in two binders, which were lodged 10/25/12. On November 19, the parties lodged a "Corrected Joint Appendix" (ROA 80); but by this time, the court had done the lion's share of its review using the joint excerpts lodged in October.

The briefing has been extensive, and as will be explained below, might have been even more extensive. On June 27, the AG filed an opening brief, an amended opening brief, and (a few days later) an errata to the amended opening brief (ROA 52, 56). Also on June 27, CREED-21/AHC filed their opening brief (ROA 54), and Cleveland/CBD/Sierra Club filed their opening brief (ROA 55). This was a total of 81 pages of briefing (not counting the AG's amendments and corrections). On Sept. 10, SANDAG filed its responsive briefs: one in response to the AG's amended brief (ROA 62), and a second in response to the Cleveland and CREED-21 briefs (ROA 61). This was a total of 95 pages of briefing.

On September 25, 2012, the court had the unpleasant experience of denying several requests for leave to file *amicus* briefs. ROA 68. Respondents recruited several *amici*

who spent time and energy preparing extensive briefs. See ROA 59, 64. The parties and the proposed *amici* appeared on September 25 to ask the court to allow the filing of these briefs, and to set a briefing schedule for joinders and responses thereto. The court was constrained to exercise its discretion to deny all such requests; it explained its decision in two ways. First, the court is aware of its limited role here: to ensure a complete record, and to provide the parties with a timely decision so that the case may proceed promptly to appellate review. The court was concerned that allowing *amicus* briefing, joinders and responses would retard rather than advance the latter goal (particularly given that the trial court's decision will not affect the others statewide with an interest in this topic, but rather only the parties – and then only for the limited period between the decision set forth below and the issuing of a learned opinion from the 4th DCA, Div. 1).

Second, and in a related vein, the court noted that Brobdingnagian budget cuts recently suffered by the Judicial Branch have caused the San Diego Superior Court to lay off hundreds of staff, stop providing court reporters in civil cases, restrict office hours, and, most recently, close a county-wide total of seven civil independent calendar courtrooms (with a consequent re-distribution of the caseload among the "surviving" departments). Again, the court was concerned that 100+ pages of additional briefing (on top of the lengthy party/intervenor briefs) could not be properly addressed by the court in a timely fashion, given these harsh fiscal and workload realities. Fortunately, the work done by *amici* will not have been wasted; they remain free to polish their briefs in light of this court's decision and seek leave to file them as the case proceeds to review before courts with broader authority.

Finally, reply briefing was filed by the AG on October 12; petitioners filed their consolidated reply that same day (ROA 72, 73). This was an additional 50 pages of briefing. The court has reviewed the opening, opposition and reply briefing, as well as the Administrative Record and the Supplement thereto filed October 22 (ROA 74).

The court notes that the briefing was accompanied by lodgments of non-California authorities. The court asks the parties to forebear from routinely lodging copies of federal or foreign authorities in the future. These are ordinarily available to the court on Westlaw. Counsel are encouraged to review the Summer 2011 amendments to CRC 3.1113(i) in this regard. The former rule made such lodgments mandatory; the current rule permits judicial discretion in this area. The court will advise counsel if it needs a lodgment of a non-California authority. Many trees will be saved if counsel will honor this request. Also, recent budget cuts imposed on the court make the clerk time for the handling of these lodgments quite problematic.

On November 16, 2012, the court published a lengthy tentative ruling. The court did so early, in order to facilitate counsel's preparation in light of the intervening Thanksgiving holiday. The court entertained well-prepared and very thoughtful argument on November 30 from Mr. Seymour on behalf of SANDAG, Mr. Selmi on behalf of petitioners, and by Mr. Patterson and Ms. Durbin on behalf of the AG. Petitioners and the AG used a Powerpoint presentation, which the court marked as Ex. 1 to the hearing for record purposes. Following argument, the court took the matter under submission. The court

now renders its decision. Record references below are to the excerpts lodged by the parties in October, except where stated. The court notes that, near the end of her comments during the 1 hour 45 minute hearing, Ms. Durbin requested a Statement of Decision. This is not required, as there was no "trial" of this matter as contemplated by CCP section 632. There was no testimony or cross examination; the matter proceeded, as most if not all CEQA cases do, in the manner of a complex motion argument. The court hopes that the following discussion will be deemed by the parties and the reviewing court to be an adequate specification of the grounds for non-compliance as required by Pub. Res. Code section 21005(c), and an adequate setting forth of the court's decision and the reasons therefor.

**2. Overview of the CEQA Process.**

**A. The Court's Role in CEQA Cases.**

In *Mira Mar Mobile Community v. City of Oceanside,* 119 Cal.App.4th 477, 486 (2004) (*Mira Mar Mobile Community*), the court explained that "[i]n a mandate proceeding to review an agency's decision for compliance with CEQA, [courts] review the administrative record *de novo* [citation], focusing on the adequacy and completeness of the EIR and whether it reflects a good faith effort at full disclosure. [Citation.] [The court's] role is to determine whether the challenged EIR is sufficient as an information document, not whether its ultimate conclusions are correct. [Citation.]" An EIR is presumed adequate. Pub. Res. Code § 21167.3, subd. (a).

Courts review an agency's action under CEQA for a prejudicial abuse of discretion. Pub. Res. Code § 21168.5. "Abuse of discretion is established if the agency has not proceeded in a manner required by law or if the determination or decision is not supported by substantial evidence." *Id.;* see *Mira Mar Mobile Community, supra,* 119 Cal.App.4th at 486; *County of San Diego v. Grossmont-Cuyamaca Community College Dist.* ("*Grossmont*"), 141 Cal. App. 4th 86, 96 (2006)(same).

In defining the term "substantial evidence," the CEQA Guidelines state: " 'Substantial evidence' ... means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made ... is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion[,] narrative [or] evidence which is clearly erroneous or inaccurate ... does not constitute substantial evidence." CEQA Guidelines, § 15384(a). "In applying the substantial evidence standard, [courts] resolve all reasonable doubts in favor of the administrative finding and decision. [Citation.]" *Mira Mar Mobile Community, supra,* 119 Cal.App.4th at 486; *Grossmont, supra,* 141 Cal. App. 4th at 96.

Although the lead agency's factual determinations are subject to the foregoing deferential rules of review, questions of interpretation or application of the requirements of CEQA are matters of law. While judges may not substitute their judgment for that of the decision

makers, they must ensure strict compliance with the procedures and mandates of the statute. *Grossmont, supra*, 141 Cal. App. 4th at 96.

**B. The Three Steps of CEQA.**

CEQA establishes "a three-tiered process to ensure that public agencies inform their decisions with environmental considerations." *Banker's Hill, et al v. City of San Diego*, 139 Cal. App. 4th 249, 257 (2006)("*Banker's Hill*"); see also CEQA Guidelines, § 15002(k)(describing three-step process).

***First Step in the CEQA Process.***

The first step "is jurisdictional, requiring that an agency conduct a preliminary review in order to determine whether CEQA applies to a proposed activity." *Banker's Hill, supra,* 139 Cal. App. 4th at 257; see also Guidelines, § 15060. The Guidelines give the agency 30 days to conduct this preliminary review. (Guidelines, § 15060.) The agency must first determine if the activity in question amounts to a "project." *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 380. "A CEQA ...project falls into one of three categories of activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment (§ 21065.)" *Sunset Sky Ranch Pilots Assn. v. County of Sacramento* (2009) 47 Cal.4th 902, 907.

As part of the preliminary review, the public agency must also determine the application of any statutory exemptions or categorical exemptions that would exempt the proposed project from further review under CEQA. See Guidelines, § 15282 (listing statutory exemptions); Guidelines, §§ 15300–15333 (listing 33 classes of categorical exemptions). The categorical exemptions are contained in the Guidelines and are formulated by the Secretary under authority conferred by CEQA section 21084(a). If, as a result of preliminary review, "the agency finds the project is exempt from CEQA under any of the stated exemptions, no further environmental review is necessary. The agency may prepare and file a notice of exemption, citing the relevant section of the Guidelines and including a brief 'statement of reasons to support the finding.' " *Banker's Hill, supra*, 139 Cal.App.4th at 258, citing Guidelines, §§ 15061(d), 15062(a)(3).

***Second Step in the CEQA Process.***

If the project does not fall within an exemption, the agency proceeds to the second step of the process and conducts an initial study to determine if the project *may* have a significant effect on the environment. (Guidelines, § 15063.) If, based on the initial study, the public agency determines that "there is substantial evidence, in light of the whole record ... that the project may have a significant effect on the environment, an environmental impact report [(EIR)] shall be prepared." [CEQA, § 21080(d).] On the other hand, if the initial study demonstrates that the project "would not have a significant effect on the environment," either because "[t]here is no substantial evidence, in light of whole record" to that effect or the revisions to the project would avoid such an effect, the

agency makes a "negative declaration," briefly describing the basis for its conclusion. (CEQA, § 21080(c)(1); see Guidelines, § 15063(b)(2); *Banker's Hill, supra*, 139 Cal.App.4th at 259.)

The Guidelines and case law further define the standard that an agency uses to determine whether to issue a negative declaration. "[I]f a lead agency is presented with a *fair argument* that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect." (Guidelines, § 15064(f)(1), italics added.) This formulation of the standard for determining whether to issue a negative declaration is often referred to as the "fair argument" standard. See *Laurel Heights Improvement Assn. v. Regents of University of California,* 6 Cal.4th 1112, 1134–1135 (1993). Under the fair argument standard, a project "may" have a significant effect whenever there is a "reasonable possibility" that a significant effect will occur. *No Oil v. City of Los Angeles*, 13 Cal.3d 68, 83-84 (1974). Substantial evidence, for purposes of the fair argument standard, includes "fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact." § 21080, subd. (e)(1). Substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence of social or economic impacts unrelated to physical impacts on the environment. § 21080, subd. (e)(2).

If the initial study reveals no substantial evidence that the project may have a significant environmental effect, the agency may adopt a negative declaration. Pub. Res. Code § 21080, subd. (c)(2); Guidelines, § 15070, subd. (b); *Grand Terrace, supra,* 160 Cal.App.4th at 1331; *Save the Plastic Bag Coalition v. City of Manhattan Beach*, 52 Cal. 4th 155, 175 (2011)(holding common sense is part of the substantial evidence analysis). "Alternatively, if there is no substantial evidence of any net significant environmental effect in light of revisions in the project that would mitigate any potentially significant effects, the agency may adopt [an MND]. [Citation.] [An MND] is one in which '(1) the proposed conditions "avoid the effects or mitigate the effects to a point where *clearly* no significant effect on the environment would occur, *and* (2) 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." (§ 21064.5 . . . .)' [Citations.]" *Grand Terrace, supra,* at 1331-1332. The MND allows the project to go forward subject to the mitigating measures. Pub. Res. Code §§ 21064.5, 21080, subd. (c); see *Grand Terrace, supra,* 160 Cal. App. 4th at 1331.

***Third Step in the CEQA Process.***

If no negative declaration is issued, the preparation of an EIR is the third and final step in the CEQA process. *Banker's Hill, supra*, 139 Cal. App. 4th at 259; Guidelines, §§ 15063(b)(1), 15080; CEQA, §§ 21100, 21151.

## C. The Environmental Impact Report.

Central to CEQA is the EIR, which has as its purpose informing the public and government officials of the environmental consequences of decisions before they are made. [Citation.] "An EIR must be prepared on any 'project' a local agency intends to approve or carry out which 'may have a significant effect on the environment.' Pub. Res. Code §§ 21100, 21151; Guidelines, § 15002, subd. (f)(1). The term 'project' is broadly defined and includes any activities which have a potential for resulting in a physical change in the environment, directly or ultimately. Pub Res. Code § 21065; Guidelines, §§ 15002, subd. (d), 15378, subd. (a); [Citation].) The definition encompasses a wide spectrum, ranging from the adoption of a general plan, which is by its nature tentative and subject to change, to activities with a more immediate impact, such as the issuance of a conditional use permit for a site-specific development proposal." *CREED v. City of San Diego*, 134 Cal. App. 4th 598, 604 (2005).

"To accommodate this diversity, the Guidelines describe several types of EIR's, which may be tailored to different situations. The most common is the project EIR, which examines the environmental impacts of a specific development project. (Guidelines, § 15161.) A quite different type is the program EIR, which 'may be prepared on a series of actions that can be characterized as one large project and are related either: (1) Geographically, (2) As logical parts in the chain of contemplated actions, (3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.'" Guidelines, § 15168, subd. (a); *CREED, supra*, 134 Cal. App. 4th at 605. As the court held in *CREED*, a program EIR may serve as the EIR for a subsequently proposed project only to the extent it contemplates and adequately analyzes the potential environmental impacts of the project. *CREED, supra,* 134 Cal. App. 4th at 615.

The EIR at issue in this case is of the latter variety, a program EIR. Cleveland/CBD/ Sierra Club accuse SANDAG of attempting to use the "programmatic" nature of the EIR as an invalid attempt to excuse it from fully analyzing the health impacts of the RTP. [ROA 55 at 15] The AG joins in this criticism. [ROA 52 at 29]

Under CEQA, an EIR is presumed adequate (Pub. Resources Code, § 21167.3), and the plaintiff in a CEQA action has the burden of proving otherwise. (*Preserve Wild Santee v. City of Santee*, 210 Cal. App. 4th 260, 275 (4th DCA Div. 1 Oct. 19, 2012, internal quotation marks omitted), quoting *Concerned Citizens of South Central L.A. v. Los Angeles Unified School Dist.* (1994) 24 Cal.App.4th 826, 836.) Courts review an agency's determinations and decisions for abuse of discretion. An agency abuses its discretion when it fails to proceed in a manner required by law or there is not substantial evidence to support its determination or decision. [§§ 21168, 21168.5; *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 426-427 (2007) ("*Vineyard*")]. "Judicial review of these two types of error differs significantly: While [courts] determine de novo whether the agency has employed the correct procedures, 'scrupulously enforc[ing] all legislatively mandated CEQA

requirements' [citation], [courts] accord greater deference to the agency's substantive factual conclusions." (*Vineyard, supra*, 40 Cal. 4th at 435.)

Consequently, in reviewing an EIR for CEQA compliance, courts adjust "scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard, supra*, 40 Cal.4th at 435.) For example, where a petitioner claims an agency failed to include required information in its environmental analysis, the court's task is to determine whether the agency failed to proceed in the manner prescribed by CEQA. Conversely, where a petitioner challenges an agency's conclusion that a project's adverse environmental effects are adequately mitigated, courts review the agency's conclusion for substantial evidence. (*Vineyard, supra*, 40 Cal. 4th at 435.)

**4. Issues Raised in This Case.**

SANDAG is a council of local governments, and is one of 18 Metropolitan Planning Organizations ("MPO") in California. Each MPO is charged under law with the development of the region's RTP, which must be updated every four years. SANDAG began its work in April of 2010, released drafts of the RTP/SCS for public comment on 4/22/11, and released the draft EIR for public comment on June 7, 2011 [AR225-1580]. Petitioners and the AG's office criticized the drafts. [AR4430, 12696-12699, 17972-75, 18053-55] The final EIR was released on October 18, 2011 [AR1969-3401], and was certified after a public hearing on October 28, 2011. Inasmuch as the petitions were filed on November 28, there is no issue in this case regarding the timeliness of the legal challenges to the EIR. Nor are any issues raised by SANDAG with regard to exhaustion of administrative remedies or standing.

There is substantial overlap in the attacks on the EIR leveled by petitioners and the AG. Both sets of petitioners assert that the EIR fails to adequately analyze air quality impacts [ROA 54 at 3-6; ROA 55 at 12-20]. The AG joins in this assertion [ROA 52 at 7-29]. Both petitioners add that the EIR failed to analyze a reasonable range of alternatives [ROA 54 at 6; ROA 55 at 38].

CREED-21/AHC's brief focuses on the failure of the EIR to properly analyze air quality impacts in two specific areas: greenhouse gas emissions and sensitive receptors [ROA 54 at 4-6]. The Cleveland/CBD/Sierra Club brief carefully analyzes the deficiencies of the EIR in relation to greenhouse gas emissions (ROA 55 at part III), while the AG provides extensive discussion on both sensitive receptors and greenhouse gas emissions [ROA 52 at 14-18 and 22-29]. The Cleveland/CBD/Sierra Club brief raises several other issues which neither the AG nor CREED-21/AHC discuss in any detail (mass transit ridership, agricultural land, growth-inducing impacts, parking management, etc.).

**5. Ruling.**

The court finds that the real focal point of this controversy is whether the EIR is in conformance with a series of state policies enunciated by the legislative and executive branches since 2005 relating to greenhouse gases. Governor Schwarzenegger issued, in

2005, Executive Order S-03-05, which for the first time set a state goal of reducing greenhouse gas emissions. This Executive Order gave rise to the Global Warming Solutions Act of 2006 (AB 32), which is codified at H&S Code section 38500 *et seq.* Section 38550 provides:

"By January 1, 2008, the [Air Resources Board] shall, after one or more public workshops, with public notice, and an opportunity for all interested parties to comment, determine what the statewide greenhouse gas emissions level was in 1990, and approve in a public hearing, a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. In order to ensure the most accurate determination feasible, the state board shall evaluate the best available scientific, technological, and economic information on greenhouse gas emissions to determine the 1990 level of greenhouse gas emissions."

It is undisputed that the ARB has established greenhouse gas targets for the SANDAG region for 2020 and 2035.

In 2008, the Legislature passed SB 375, which amended both the Public Resources Code and the Government Code in several respects. In section 1 of the statute, the Legislature found and declared:

"(a) The transportation sector contributes over 40 percent of the greenhouse gas emissions in the State of California; automobiles and light trucks alone contribute almost 30 percent. The transportation sector is the single largest contributor of greenhouse gases of any sector.

(b) In 2006, the Legislature passed and the Governor signed Assembly Bill 32 (Chapter 488 of the Statutes of 2006; hereafter AB 32), which requires the State of California to reduce its greenhouse gas emissions to 1990 levels no later than 2020. According to the State Air Resources Board, in 1990 greenhouse gas emissions from automobiles and light trucks were 108 million metric tons, but by 2004 these emissions had increased to 135 million metric tons.

(c) Greenhouse gas emissions from automobiles and light trucks can be substantially reduced by new vehicle technology and by the increased use of low carbon fuel. However, even taking these measures into account, it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32.

(d) In addition, automobiles and light trucks account for 50 percent of air pollution in California and 70 percent of its consumption of petroleum. Changes in land use and transportation policy, based upon established modeling methodology, will provide significant assistance to California's goals to implement the federal and state Clean Air Acts and to reduce its dependence on petroleum.

(e) Current federal law requires regional transportation planning agencies to include a land use allocation in the regional transportation plan. Some regions have engaged in a regional "blueprint" process to prepare the land use allocation. This process has been open and transparent. The Legislature intends, by this act, to build upon that successful process by requiring metropolitan planning organizations to develop and incorporate a sustainable communities strategy which will be the land use allocation in the regional transportation plan.

(f) The California Environmental Quality Act (CEQA) is California's premier environmental statute. New provisions of CEQA should be enacted so that the statute encourages developers to submit applications and local governments to make land use decisions that will help the state achieve its climate goals under AB 32, assist in the achievement of state and federal air quality standards, and increase petroleum conservation.

(g) Current planning models and analytical techniques used for making transportation infrastructure decisions and for air quality planning should be able to assess the effects of policy choices, such as residential development patterns, expanded transit service and accessibility, the walkability of communities, and the use of economic incentives and disincentives.

(h) The California Transportation Commission has developed guidelines for travel demand models used in the development of regional transportation plans. This act assures the commission's continued oversight of the guidelines, as the commission may update them as needed from time to time.

(i) California local governments need a sustainable source of funding to be able to accommodate patterns of growth consistent with the state's climate, air quality, and energy conservation goals."

Section 4 of SB 375 added Government Code section 65080, which provides, in relevant part:

"(a) **Each transportation planning agency** designated under Section 29532 or 29532.1 **shall prepare and adopt a regional transportation plan directed at achieving a coordinated and balanced regional transportation system**, including, but not limited to, mass transportation, highway, railroad, maritime, bicycle, pedestrian, goods movement, and aviation facilities and services. The plan shall be action-oriented and pragmatic, considering both the short-term and long-term future, and shall present clear, concise policy guidance to local and state officials. The regional transportation plan shall consider factors specified in Section 134 of Title 23 of the United States Code. Each transportation planning agency shall consider and incorporate, as appropriate, the transportation plans of cities, counties, districts, private organizations, and state and federal agencies.

(b) The regional transportation plan shall be an internally consistent document and shall include all of the following:

(1) A policy element that describes the transportation issues in the region, identifies and quantifies regional needs, and describes the desired short-range and long-range transportation goals, and pragmatic objective and policy statements. The objective and policy statements shall be consistent with the funding estimates of the financial element. The policy element of transportation planning agencies with populations that exceed 200,000 persons may quantify a set of indicators including, but not limited to, all of the following:
(A) Measures of mobility and traffic congestion, including, but not limited to, daily vehicle hours of delay per capita and vehicle miles traveled per capita.
(B) Measures of road and bridge maintenance and rehabilitation needs, including, but not limited to, roadway pavement and bridge conditions.
(C) Measures of means of travel, including, but not limited to, percentage share of all trips (work and nonwork) made by all of the following:
(i) Single occupant vehicle.
(ii) Multiple occupant vehicle or carpool.
(iii) Public transit including commuter rail and intercity rail.
(iv) Walking.
(v) Bicycling.
(D) Measures of safety and security, including, but not limited to, total injuries and fatalities assigned to each of the modes set forth in subparagraph (C).
(E) Measures of equity and accessibility, including, but not limited to, percentage of the population served by frequent and reliable public transit, with a breakdown by income bracket, and percentage of all jobs accessible by frequent and reliable public transit service, with a breakdown by income bracket.
(F) The requirements of this section may be met utilizing existing sources of information. No additional traffic counts, household surveys, or other sources of data shall be required.

(2) A sustainable communities strategy prepared by each metropolitan planning organization as follows:
(A) No later than September 30, 2010, the State Air Resources Board shall provide each affected region with greenhouse gas emission reduction targets for the automobile and light truck sector for 2020 and 2035, respectively.

***

(B) **Each metropolitan planning organization shall prepare a sustainable communities strategy,** subject to the requirements of Part 450 of Title 23 of, and Part 93 of Title 40 of, the Code of Federal Regulations, including the requirement to utilize the most recent planning assumptions considering local general plans and other factors. The sustainable communities strategy shall (i) identify the general location of uses, residential densities, and building intensities within the region, (ii) identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over

the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth, (iii) identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Section 65584, (iv) identify a transportation network to service the transportation needs of the region, (v) gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of Section 65080.01, (vi) consider the state housing goals specified in Sections 65580 and 65581, (vii) **set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the greenhouse gas emission reduction targets approved by the state board,** and (viii) allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act (42 U.S.C. Sec. 7506).

Section 14 of SB 375, among other revisions, amended Pub. Res. Code section 21155.3 to provide as follows:

"(a) The legislative body of a local jurisdiction may adopt traffic mitigation measures that would apply to transit priority projects. These measures shall be adopted or amended after a public hearing and may include requirements for the installation of traffic control improvements, street or road improvements, and contributions to road improvement or transit funds, transit passes for future residents, or other measures that will avoid or mitigate the traffic impacts of those transit priority projects.

(b)(1) A transit priority project that is seeking a discretionary approval is not required to comply with any additional mitigation measures required by paragraph (1) or (2) of subdivision (a) of Section 21081, for the traffic impacts of that project on intersections, streets, highways, freeways, or mass transit, if the local jurisdiction issuing that discretionary approval has adopted traffic mitigation measures in accordance with this section.
(2) Paragraph (1) does not restrict the authority of a local jurisdiction to adopt feasible mitigation measures with respect to the effects of a project on public health or on pedestrian or bicycle safety.

(c) The legislative body shall review its traffic mitigation measures and update them as needed at least every five years."

As already noted, the centerpiece of this case is the parties' fundamental disagreement over implementation of these statutory requirements within the framework of CEQA. In all the statutory quotations immediately above, **bold type** has been added by the court.

The court agrees with the points made in section III of the Cleveland brief (ROA 55), part II of the AG's brief (ROA 52), and pp. 4-5 of the CREED-21 brief (ROA 54) regarding the inadequate treatment of greenhouse gas emissions in the EIR. This failure is not, as SANDAG would have it, merely a debate over "editorial control" of the EIR (ROA 62 at 32:24). Rather, the issue is whether the EIR fails to carry out its role as an informational document to inform the public about the choices made by its leaders. The court finds that this failure is manifest in several ways.

First, although SANDAG acknowledges SB 375 mandates a "sharper focus on reducing GHG emissions" (AR 13091, Excerpt Tab 190), the EIR is impermissibly dismissive of Executive Order S-03-05. SANDAG argues that the Executive Order does not constitute a 'plan' for GHG reduction, and no state plan has been adopted to achieve the 2050 goal. [ROA 62 at 34] The EIR therefore does not find the RTP/SCS's failure to meet the Executive Order's goals to be a significant impact. This position fails to recognize that Executive Order S-3-05 is an official policy of the State of California, established by a

gubernatorial order in 2005, and not withdrawn or modified by a subsequent (and predecessor) governor. Quite obviously it was designed to address an environmental objective that is highly relevant under CEQA (climate stabilization). See AR 17622 (Excerpt Tab 216). SANDAG thus cannot simply ignore it. This is particularly true in a setting in which hundreds of thousands of people in the communities served by SANDAG live in low-lying areas near the coast, and are thus susceptible to rising sea levels associated with global climate change. The court in *Association of Irritated Residents v. State Air Resources Board*, 206 Cal. App. 4th 1487, 1492-93 (2012), recognized the importance of the Executive Order in upholding the ARB's Scoping Plan. The court agrees with petitioners that the failure of the EIR to cogently address the inconsistency between the dramatic increase in overall GHG emissions after 2020 contemplated by the RTP/SCS and the statewide policy of reducing same during the same three decades (2020-2050) constitutes a legally defective failure of the EIR to provide the SANDAG decision makers (and thus the public) with adequate information about the environmental impacts of the SCS/RTP. Moreover, as was pointed out in oral argument, having chosen to develop a plan for 15 years beyond that which was required under law, SANDAG was obligated to discuss impacts beyond the 2020 horizon. The ARB's scoping plan adopts the Executive Order, and SANDAG failed to extend the analysis to 2050.

Second, SANDAG's response has been to "kick the can down the road" and defer to "local jurisdictions." See, e.g. AR 31-0064, 32-0065, 33-0066, 34-0067, 35-0068, 117-0090, 118-0091 (Excerpts Vol. 1, Tab 3); 4.8-36, 0790 (Excerpts Tab 7); AR G-63-64, 03825-3826 (Excerpts Tab 8B); AR 27734 and 8A:2588 (Nov. 19 Appx.). This theme is repeated in SANDAG's brief at page 38 (arguing mitigation is the responsibility of other agencies). This perverts the regional planning function of SANDAG, ignores the purse string control SANDAG has over TransNet funds, and more importantly conflicts with Govt. Code section 65080(b)(2)(B) quoted above. As the AG argues, it is certainly feasible for SANDAG to agree to fund local climate action plans, yet the EIR does not adopt or even adequately discuss this form of mitigation (AR 2588, Excerpt Tab 8A). And as argued by petitioners in their consolidated reply brief, "encouraging" an optional local plan that "should" incorporate regional policies falls well short of a legally enforceable mitigation commitment with teeth. This is what the CEQA Guidelines require at subsections 15126.4(a)(1)(B), (a)(2) and (c)(5) in a setting in which SANDAG controls the funding for at least some of the projects contemplated by the SCS/RTP. Contrary to SANDAG's assertion (Oppo. at 38:21), it does have the legal power -- indeed, the obligation – to see to it that TransNet funds are spent in a manner consistent with the law. SANDAG conceded (even embraced) this at the November 30 hearing.

Resolution No. 2012-09, adopted by SANDAG, finds that the RTP/SCS "achieves the regional greenhouse gas reduction targets established by CARB" (AR 239-0219, Excerpts Tab 4) when in fact it either does not (AR 118-0091-92, Excerpts Tab 3; AR 4.8-21-23, 0775-0777, Excerpts Tab 7; AR 4.8-15-17, 02567-2569, 2578, Excerpts Tab 8A; AR08242-8245, Excerpts Tab 111) or does so based on questionable inputs [AR 30143, 30187 *et seq.* (Supp. filed 10/22/12); compare AR 14550 (Excerpt Tab 190). The shortcomings of the **EIR** in this regard (for petitioners do not contend, nor does the court

find, that SB 375 was violated) were called to SANDAG's attention as evidenced by what it called "Master Response # 20-23," discussed at AR G-55, 03817 *et seq.* (Excerpts Tab 8B); see also AR 19685 (Excerpts Tab 296); AR 25640 *ff* (Excerpts Tab 311). SANDAG erroneously and peremptorily states in response to these comments that the "upward trajectory" in per capita GHG emissions "does not present an SB 375 or CEQA compliance issue." AR G-59. CEQA requires further discussion, not a one sentence dismissal. Nor is the court convinced that SANDAG may avoid examination of GHG reduction due to "modeling constraints." AR G-68, 003830 (Master Response #23).

In light of the foregoing, the court finds that the petitioners and intervenor have overcome the presumption of validity and have established a prejudicial abuse of discretion. The court does not reach this conclusion lightly, as it is evident from section 9.0 of the EIR that it involved thousands of hours of effort by numerous talented professionals. No doubt the EIR is a satisfactory informational document in many respects; being the first in the state to tackle something as important to future generations as reduction of greenhouse gases in a regional transportation setting carried some risk, and the court, after reviewing the Administrative Record independently, finds that the EIR is inconsistent with state law as described above. Thus, it is the court's duty under *Vineyard, supra*, to sustain the positions advanced by petitioners and the petitioner in intervention.

Had they been permitted to file briefs, *amici* would no doubt have argued that the court's interpretation of CEQA's interface with Executive Order S-03-05 and the statutory scheme of SB 375 (which the Legislative Counsel's Digest filed with Secretary of State September 30, 2008 concedes is an "unfunded mandate") will retard growth, harm California's efforts to attract jobs and create economic activity, and slow down the state's recovery from the recession. All of this may very well be true, but these are arguments properly presented to the political branches of the government which adopted the Executive Order and enacted SB 375 in the first place.

Because the court finds it can resolve the case solely on the inadequate treatment in the EIR of the greenhouse gas emission issue, it finds that it need not address the other issues raised by the parties. *Compare Natter v. Palm Desert Rent Review Comm'n.,* 190 Cal. App. 3d 994, 1001 (1987); *Young v. Three for One Oil Royalties*, 1 Cal. 2d 639, 647-648 (1934).

Let a writ of mandate issue forthwith, directing respondent SANDAG to set aside its October 28, 2011certification of the EIR for the RTP/SCS. Counsel for petitioners is directed to forthwith submit same to the court for signature.

**IT IS SO ORDERED.**

Dated: December 3, 2012

TIMOTHY B. TAYLOR
Judge of the Superior Court

**SUPERIOR COURT OF CALIFORNIA, COUNTY OF SAN DIEGO**

Central
330 West Broadway
San Diego, CA 92101

**SHORT TITLE:** Cleveland National Forest Foundation vs. San Diego Association of Governments [IMAGED]

| **CLERK'S CERTIFICATE OF SERVICE BY MAIL** | CASE NUMBER: **37-2011-00101593-CU-TT-CTL** |
|---|---|

I certify that I am not a party to this cause. I certify that a true copy of the Ruling on Petitions for Writ of Mandate dated December 3, 2012 was mailed following standard court practices in a sealed envelope with postage fully prepaid, addressed as indicated below. The mailing and this certification occurred at San Diego, California, on 12/03/2012.

Clerk of the Court, by: Andrea Taylor A. Taylor, Deputy

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