

Multi-County Goods Movement Action Plan

Volume 1: Action Plan



Metro



Caltrans



OCTA



RCTC
Riverside County
Transportation Commission



**Governments
SANBAG**
Working Together



**SOUTHERN CALIFORNIA
ASSOCIATION OF
GOVERNMENTS**



SANDAG



Prepared for:

**Los Angeles County Metropolitan Transportation Authority
California Department of Transportation
Orange County Transportation Authority
Riverside County Transportation Commission
San Bernardino Associated Governments
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April 30, 2008



**“The findings and recommendations of this document supersede
all previous technical documents.”**

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

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Chapter 1 – Project Overview

Purpose and Objectives

This Multi-County Goods Movement Action Plan (herein referred to as “the MCGMAP” or “the Action Plan”) represents an unprecedented partnership between county, regional and state transportation agencies in Southern California to address the challenges associated with the movement of goods, which is projected to increase dramatically over the next 25 years. The MCGMAP is intended to serve as a master plan for goods movement in the region and a guide in the preparation of state, regional, and local transportation plans. The objectives of the MCGMAP are to develop strategies that: 1) address the goods movement infrastructure capacity needs of the region; 2) identify environmental mitigation strategies; and 3) improve the quality of life and community livability for Southern California residents. The Action Plan is regional in scope, such that the Plan's analyses of potential strategies and investments are at a macro or corridor level rather than a local or project specific-level. While detailed project-level analyses were not part of this effort, it is nevertheless critical and will be conducted as part of subsequent project development effort.

The MCGMAP project study area includes the counties of Los Angeles, Orange, Riverside, San Bernardino, Ventura, San Diego and beyond. With its extensive system of ports, airports, border crossings, highways and rail facilities, the study area is a major gateway for international commerce (see Figure 1). All projections point to continued robust growth in goods movement volumes, both international and domestic freight moving through the study region. Freight logistics play a vital role in the national, state, and regional economies. One out of every seven jobs in Southern California depends on the trade/logistics sectors. Environmental and public health impacts, however, have led communities and policy makers to demand mitigation and challenge proposals for infrastructure capacity enhancement. Research has clearly shown that there are serious health impacts from diesel pollution. Communities surrounding major goods movement centers (e.g., ports, rail yards, warehousing) are impacted by 24-hour operations to accommodate the high volumes of trade. Drivers on the region's roadways are impacted by high volumes of truck traffic moving goods to both local and national destinations.

The goods movement system is rapidly reaching capacity. Increasing congestion adversely affects the efficiency of cargo movement and aggravates environmental impacts such as diesel emissions. By voicing their opposition to various key infrastructure improvement projects, communities are calling for slower growth and mitigation of existing impacts. For a more detailed discussion of the existing and forecast future conditions of the region's goods movement system, see Chapters 3, 4, and 6 of this document. A more detailed discussion of the existing and forecast future conditions of the region's economy and environment can be found in Chapters 5 and 7.

Substantial progress in addressing the impacts of goods movement has already taken place with some notable successes that include the completion of the Alameda Corridor, Alameda Corridor-East grade separation projects, the adopted I-710 Major Corridor Study, the San Pedro Bay Ports Clean Air Action plan, the state Goods Movement Action Plan, the California Marine and Intermodal Transportation System Advisory Council (CALMITSAC) effort, the PierPass program, and the passage of Proposition 1B (Trade Corridor Improvement Fund). To meet future challenges, however, a coordinated regional framework is required. Such a framework is needed to meet the rapidly growing demand for freight movement and to ensure prudent investment of public and private resources, continued economic vitality, and implementation of environmental mitigation measures that improve the health and quality of life of Southern California residents.

Figure 1 shows the study area and illustrates the existing regional goods movement system.

The MCGMAP identifies actions to be undertaken by the partner agencies, the state and federal agencies, and the private sector to maintain Southern California's role as a center for international trade, commerce, and manufacturing by planning for freight growth while simultaneously and aggressively mitigating environmental and local community impacts. The Action Plan sets forth a framework to structure and understand the issues and defines actions that should be taken to address infrastructure needs, environmental concerns, and community impacts within the context of that structure. Also, it incorporates and builds on existing studies and initiatives already in progress, and focuses on developing an integrated and comprehensive regional approach.

Project Partners/Funding Agencies

The agencies participating in the development of the MCGMAP are:

- ◆ Los Angeles County Metropolitan Transportation Authority (Metro)
- ◆ Orange County Transportation Authority (OCTA)
- ◆ Riverside County Transportation Commission (RCTC)
- ◆ San Bernardino Associated Governments (SANBAG)
- ◆ Ventura County Transportation Commission (VCTC)
- ◆ California Department of Transportation (Caltrans) Districts 7, 8, 11, and 12
- ◆ San Diego Association of Governments (SANDAG)
- ◆ Southern California Association of Governments (SCAG)

Metro served as the administrative lead for the project. The participating agencies (or "project partners") and consultant team comprised the Technical Advisory Committee (TAC), which met bi-weekly (or as needed) to monitor the progress of the Action Plan, provide reviews of all technical products being developed, ensure a complete analysis was performed, and achieve consensus on recommended courses of actions. The TAC members also met as needed with the Executive Officers (TAC Execs) of the participating agencies. In addition, the TAC formed smaller working groups to provide input on specific technical and policy issues, such as modeling, outreach, and environmental concerns. These working groups also met when needed as specific issues arose.

A proactive outreach plan was undertaken to provide opportunity for the public and interested stakeholders to participate in the development of the Action Plan. The project partners and consultant team met with the MCGMAP Stakeholder Advisory Group (SAG) during major milestones of the project to integrate their feedback into the Action Plan. Also, existing forums such as the SCAG Goods Movement Task Force and others groups were given regular updates on the progress of the Action Plan to obtain input from a broad cross-section of public and private sector stakeholders.

MCGMAP Partner Agency Roles

The Action Plan recognizes that goods movement is a diverse industry with a broad and disparate group of public and private sector stakeholders, each with its own roles and responsibilities. The MCGMAP partners are the transportation and planning agencies that co-manage the development of the Action Plan.: Los Angeles County Metro, Orange County Transportation Authority, Riverside County Transportation Commission, San Bernardino Associated Governments, San Diego Association of Governments, Southern California Association of Governments, Ventura County Transportation Commission, and Caltrans Districts 7, 8, 11, and 12. The MCGMAP partners plan, fund, maintain, operate, construct, and implement multi-modal transportation projects

and influence the goods movement system through the regional planning and programming of funds to transportation projects.

Other organizations, such as the Ports of Los Angeles and Long Beach, have authority to plan and construct transportation and facility improvements within the Ports' jurisdiction, while the South Coast Air Quality Management District develops and implements plans to improve the region's air quality. Decisions regarding land use, arterial improvements and the permitting of warehouses and transloading centers are made by local municipalities.

Regional, state, and federal agencies have varying regulatory authorities over the trucking and rail industries, but the MCGMAP partners have little ability to regulate the operations, business practices, or pollutant emissions of the private sector goods movement operators, and no authority to regulate shippers and ocean carriers. As a result, the MCGMAP partners have focused primarily on goods movement infrastructure while acknowledging the essential roles to be played by the regulatory agencies, the Ports Clean Air Action Plan, and public or private technology initiatives.

Given their defined roles and responsibilities, the MCGMAP partners cannot fully implement many of the plan's recommended strategies on their own. Therefore, to fully realize the benefits of this plan, continued collaboration and consensus building among the MCGMAP partners and other public and private sector stakeholders will be critical.

The project partners identified the following core mandates and implementation principles to guide in the development of the Action Plan:

CORE MANDATES

Environment: Avoid, Reduce, and Mitigate Environmental, Community, and Health Impacts

Environmental and community impacts must receive equal attention in the implementation of solutions.

Mobility: Promote the Safe and Efficient Movement of All Modes and Reduce Congestion

Traffic growth will result in the significant deterioration of the region's highway and rail system's performance capabilities and present potential safety concerns for the public, particularly in terms of truck accidents, rail crossings, and truck encroachment into neighborhoods.

Economy: Ensure Vitality of Regional Economy

Goods movement is an important segment of the MCGMAP region and the U.S. trade economy, and the associated industries (e.g., logistics) provide direct and indirect benefits to the region's economy.

Funding: Secure the Region's Fair Share of Public and Private Funds

Although the region's goods movement system serves markets within and outside of California, these markets and associated system users are not paying their fair share to the region. While still advocating for dedicated federal and state funding sources, user-based public-private funding arrangements must be a major component of the financing for critical projects.

IMPLEMENTATION PRINCIPLES

The MCGMAP builds upon the principles set forth in the Statewide Goods Movement Action Plan that was adopted in January 2007. The following represent implementation principles specific to MCGMAP:

1. **Guideline:** The Action Plan is the master plan for goods movement in Southern California and is intended to be used as guidance in the preparation of state, regional, and local transportation plans. The Action Plan can also be a tool for local jurisdictions to make informed land use decisions.
2. **Investment:** Investments in goods movement infrastructure will be implemented on a simultaneous and continuous[†] basis with investments in environmental/community mitigation.
3. **Cost Distribution:** A fair share of the cost of the impacts of goods movement on transportation infrastructure, environment, and communities must be borne by those benefiting from it.
4. **Management:** The need for institutional mechanisms, such as joint powers authorities, for financing or implementing projects, will be defined as such needs are clearly identified.
5. **Public Benefit:** Projects supported by public/private partnerships and private projects supported by public funding should demonstrate a clear public benefit.
6. **Land Use Compatibility:** Partner agencies shall encourage land use decisions that will result in buffers (both open and developed) that separate goods movement infrastructure and sensitive receptors such as residential areas, schools, and hospitals.

Building the MCGMAP Action Plan

The Action Plan is organized around tasks performed by the consultant team that are shown in Figure 2 and described below. Each task served as building blocks that led to the completion of the Action Plan that is documented in technical memoranda (Tech Memos) and summarized in the chapters herein. With the exception of Chapters 5 and 7 of this Action Plan, each chapter corresponds to the tasks described below. The Action Plan consists of two volumes. The Action Plan contains an executive summary, topical chapters, and county Action Plan chapters. The Action Plan Technical Appendices contains Technical Memos 2 through 7, the financial framework (Appendix A), supporting tables, charts and project lists (Appendix B), and public comments and responses (Appendix C).

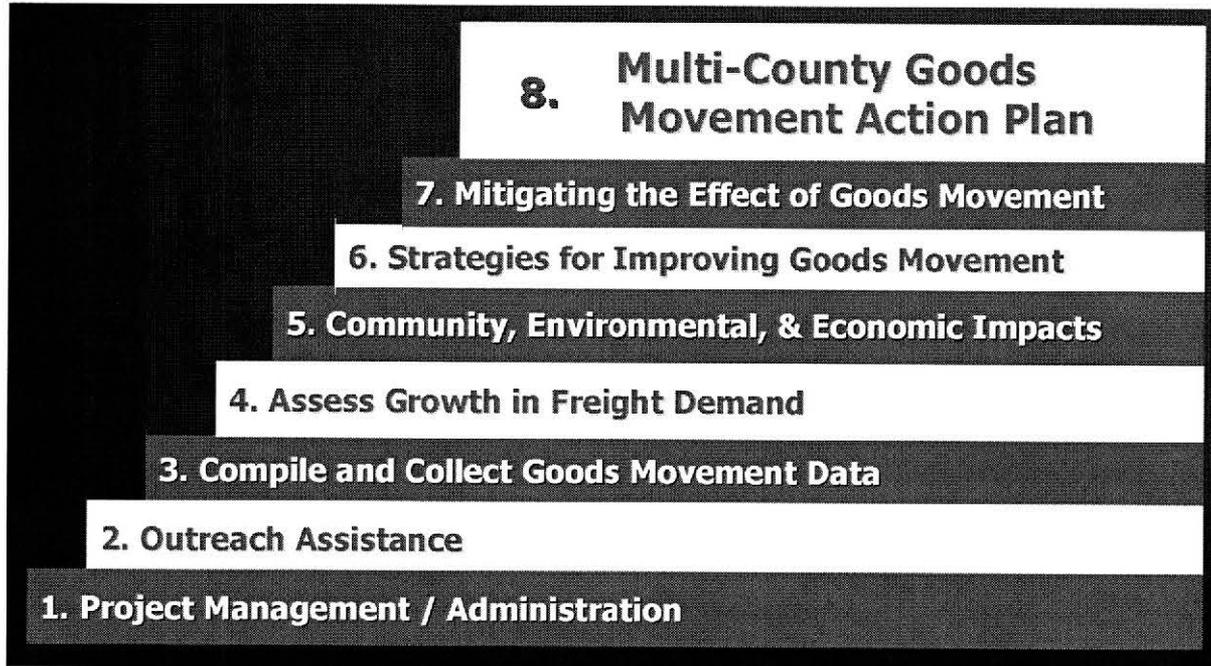
Task 1.0 Project Management and Administration - This task consists of the ongoing project management, control and administration of all tasks including agency coordination, monthly TAC meetings, and weekly correspondence between the consultant project team and Metro project manager (Chapter 1 and summarized in the Project Management Plan).

Task 2.0 Outreach Assistance - This task comprises the stakeholder and private sector outreach elements of the project, including periodic SAG meetings, planned workshops within the study area counties, and stakeholder

[†] Note that the use of the term "simultaneous and continuous" in this document is similar, but not identical, to the use applied by the State of California. A definition of "simultaneous and continuous" is provided in the glossary.

surveys. This task also includes meetings with individual stakeholders throughout the course of the project (Summarized in Chapter 2 and described in more detail in Tech Memos 2a and 2b).

**Figure 2
Building the MCGMAP**



Task 3.0 Compile and Collect Goods Movement Data – This task provides a summary of the existing conditions and constraints of the goods movement system, with a focus on the ports (sea and air), rail, highway, and warehousing/distribution components of the regional goods movement system. It also includes an identification of the location and magnitude of existing deficiencies on the freeways and railways within the region and within the logistics network in general (Summarized in Chapter 3 and described in more detail in Tech Memo 3).

Task 4.0 Assess Growth in Freight Demand, Trends in the Logistics Industry and Baseline (2030) System Performance – Task 4 focuses on the assessment of future freight growth within and outside of the study area. The goal of Task 4 is to identify the baseline conditions for the study area, as well as identify potential freight growth scenarios that could occur depending on local or global changes to the goods movement industry (Summarized in Chapter 4 and described in more detail in Tech Memos 4a and 4b).

Task 5.0 Evaluate Economic, Environmental and Community Impact of Freight Movement Generators and Facilities – The purpose of Task 5 is to document the economic, environmental, and community impacts within the region of the existing goods movement system described in Task 3. For the economic component, this task identifies logistics-related jobs by job type and by wage scale, and documents the relationship between jobs, wages, business activity/expansion, tax revenue, and growth in freight. For the environmental component, this task identifies locations around the region that are currently or will potentially be impacted by freight movement affecting neighborhoods and quality of life. The result of this task will be a documentation of the type, general

location, and magnitude of the environmental and community impacts of goods movement (Summarized in Chapter 5 and described in more detail in Tech Memos 5a and 5b).

Task 6.0 Identify and Evaluate Strategies for Improving the Movement of Goods – This task includes the critical element of the MCGMAP project: the evaluation of strategies and projects identified to improve the future movement of goods. These strategies and projects have been developed through coordination with the TAC and evaluated against the freight growth scenarios identified in Task 4. This task includes a two-part screening evaluation process to initially evaluate a broad set of goods movement projects and strategies and a more detailed evaluation of specific projects and strategies (Summarized in Chapter 6 and described in more detail in Tech Memos 6a and 6b).

Task 7.0 Identify Strategies for Mitigating the Effect of Goods Movement on Local Communities and the Environment – This task consists of the identification of a set of good practices to mitigate the environmental and community impacts of the goods movement strategies within the region, including those projects and strategies identified in Task 6 (Summarized in Chapter 7 and described in more detail in Tech Memo 7).

Task 8.0 Develop Multi-County Goods Movement Action Plan Report and Identify Institutional/Funding Arrangements Needed to Implement the Plan – Task 8 represents the culmination of the project and includes the recommended actions for simultaneously and continuously improving the goods movement system and the environment. Also included is a discussion of the financing mechanisms required to implement the recommended actions and associated goods movement projects and strategies. Lastly, this task provides a summary of the high-priority goods movement projects for the region, as identified by this effort (Chapter 7 of the Action Plan).

Chapter 2 – Stakeholder Outreach

This chapter summarizes the work conducted under Task 2 to build the Action Plan. The stakeholder outreach process included conducting MCGMAP Stakeholder Advisory Group meetings, administering surveys, compiling survey results, convening meetings and making presentations to local stakeholders, convening workshops, and documenting stakeholder opinions, concerns and recommendations throughout the development of the Action Plan. Furthermore, all study related documents were posted onto the MCGMAP web site, which is: <http://www.metro.net/mcgmap/>.

Stakeholder Outreach

Stakeholder Advisory Group Meetings

In the fall of 2005, the partner agencies established Stakeholder Advisory Group (SAG) meetings to solicit input from stakeholders, share project information, and to identify the issues and concerns of greatest importance to stakeholders regarding goods movement. The SAG consisted of a broad cross section of stakeholders that included representatives from air quality and environmental organizations, freight, shipping, trucking, and railroad industries, local ports (sea and air), chambers of commerce, business organizations, local, state and federal officials, council of governments, regulatory agencies, academia, and community groups.

The project team held the following SAG meetings to date:

No.	Date	Location
1.	October 26, 2005	Los Angeles County Metropolitan Transportation Authority Office
2.	March 22, 2006	San Bernardino Associated Governments Office
3.	May 24, 2006	City of Long Beach Council Chambers
4.	July 26, 2006	City of Buena Park Council Chambers
5.	October 25, 2006	Southern California Association of Governments Office
6.	July 25, 2007	Southern California Association of Governments Office
7.	November 8, 2007	Southern California Association of Governments Office.
8.	March 6, 2008	Los Angeles County Metropolitan Transportation Authority Office

The SAG meetings were attended by a broad cross section of stakeholders. Below is a partial listing of the various groups and organizations that participated in the SAG meetings.

- ◆ Alameda Corridor East (ACE) Construction Authority
- ◆ Alameda Corridor Transportation Authority (ACTA)
- ◆ Automobile Club of Southern California
- ◆ BREATHE California of Los Angeles County
- ◆ Burlington Northern Santa Fe Railway
- ◆ California Air Resources Board (CARB)
- ◆ California Trucking Association
- ◆ Center for Community Action and Environmental Justice
- ◆ Coalition for a Safe Environment
- ◆ East Yard Communities for Environmental Justice
- ◆ Gateway Cities Council of Governments
- ◆ Los Angeles World Airports

- ◆ Majestic Realty Company
- ◆ National Association of Industrial and Office Properties
- ◆ Natural Resources Defense Council
- ◆ Orange County Business Council
- ◆ Port of Long Beach
- ◆ Port of Los Angeles
- ◆ Rail America
- ◆ San Gabriel Valley Council of Governments
- ◆ South Bay Council of Governments
- ◆ South Coast Air Quality Management District
- ◆ Union Pacific Railroad
- ◆ University of Southern California Keck School of Medicine
- ◆ University of Southern California, Southern California Particle Center
- ◆ Watson Land Company

Stakeholder Surveys

Two anecdotal opinion surveys were conducted to determine the key goods movement issues and to obtain feedback on potential solutions. In early 2006, the first survey was developed and administered to key stakeholders in the MCGMAP six-county study area and beyond in order to gather perceptions and opinions of goods movement issues. Details of the survey results are included in Tech Memos 2a and 2b. From the results of the survey, the MCGMAP project team was able to validate and/or re-consider existing assumptions about key issues, problems, and potential solutions as they relate to goods movement and stakeholders in the Southern California region. Survey respondents included goods movement stakeholders representing government agencies, academia, community and environmental groups, industry and non-profit associations, and private industry.

Survey No. 1 – Goods Movement Issues

The MCGMAP Survey No. 1 included questions about highways, trucks, freight trains, ports, industrial areas, aviation areas, and goods movement benefits. Each respondent was asked to self-identify for documentation and future notification purposes. All individual data results are kept confidential. Surveys were distributed and received between March and June, 2006. The survey was comprised of 53 questions across five pages and took about 15 minutes to complete.

Each County Transportation Commission (CTC) utilized either direct mail or electronic mail to distribute the surveys. Using in-house databases, the CTCs disseminated the survey to local jurisdictions (staff and elected officials), business and community organizations, and environmental and community groups.

The survey was also made available via Zoomerang, an internet survey based application that was linked to the project website. All those who received the survey had the option to complete a hard copy of the survey or to complete the survey online.

A total of 166 surveys were completed. In general, the survey results validated what the MCGMAP technical team anticipated about goods movement concerns. When asked to freely identify from their own perception and experiences which goods movement issues were the most important, the following were the top three:

1. Traffic congestion and truck issues

2. Infrastructure and traffic congestion issues
3. Infrastructure/construction and environmental issues

When asked to choose from a list of previously identified issues and the same general issues, with an additional level of specificity, the following was reported:

1. Traffic delays on freeway due to congestion (41 out of 143 responses)
2. Air/water pollution from cargo ships, including health impacts (33 out of 164 responses)
3. Traffic delays on local streets due to congestion (13 out of 129 responses)

Survey No. 2 – Goods Movement Projects/Strategies

Survey No. 2 was completed in early 2007. The objective of the second survey was to solicit reaction from stakeholders on a specific listing of goods movement projects and strategies. Respondents were asked to also offer any other innovative idea or solution for addressing the goods movement challenge in Southern California. As with Survey No. 1, the partner agencies distributed the survey in hard copy and electronic formats to their stakeholders in each county. The survey was also accessible online through Zoomerang. A total of 138 surveys were completed.

Respondents indicated their support for a wide range of goods movement projects and strategies. A high level of support was received for projects and strategies that improved operations and capacity at the ports and local rail facilities, including grade separations. Respondents also demonstrated support for a dedicated truck lane between the ports and the Inland Empire. No specific east-west corridor was identified as the most preferred corridor for a truck lane facility, but the majority of respondents felt that an east-west corridor should be the focus of goods movement infrastructure improvements.

Organization Presentations

This unprecedented multi-county goods movement planning process generated interest from various stakeholders. The project team provided updates to local agency boards, committees and other organizations about the development of the Action Plan. These presentations included, but are not limited to, the following organizations:

- ◆ Gateway Cities Council of Governments
- ◆ Los Angeles Chamber of Commerce
- ◆ Metro
 - Board of Directors
 - Goods Movement Workshop
 - Planning and Programming Committee
- ◆ North County Transportation Coalition
- ◆ Orange County Transportation Authority (OCTA)
 - Board of Directors
 - Regional Planning & Highways Committee
- ◆ Office of Senator Dianne Feinstein
- ◆ Port of Long Beach/Port of Los Angeles
- ◆ Riverside County Transportation Commission (RCTC)
 - Plans & Programs Committee
 - Regional Technical Advisory Committee

- ◆ San Gabriel Valley Council of Governments
- ◆ San Bernardino Associated Governments (SANBAG)
 - Board of Directors
 - Plans & Programs Committee
- ◆ San Diego Association of Governments (SANDAG)
 - Regional Freight Working Group
 - Transportation Committee
- ◆ Southern California Association of Governments (SCAG)
 - Goods Movement Task Force
 - Plans & Program Technical Advisory Committee
 - Regional Council
 - Transportation and Communications Committee
- ◆ South Bay Cities Council of Governments
- ◆ Ventura County Transportation Commission (VCTC)

Additional, briefings and presentations to the Councils of Governments and other various groups were held prior to finalizing the Action Plan.

Public Workshop Process

Public Workshop Series (December, 2007 - February, 2008)

Twelve public workshops were held throughout the six-county study region to present a summary of the Draft Action Plan- recommended actions and goods movement strategies/projects, and proposed mitigation measures. The workshops were conducted to give the public an opportunity to comment on the material presented and give feedback to the Technical Advisory Committee (TAC). All public comments were recorded and considered prior to finalizing the Action Plan. Also, topical summaries of public comments will be provided to each of the project partner's executive boards for review and consideration.

Workshop Locations

The workshops were held throughout the six participating counties. Each workshop was held at a location that was easily accessible to the community. Upon completion of each public workshop, all public comments were recorded and processed. The project team compiled the comments by topic and provided topical responses that are presented in Appendix C of the Final Action Plan. The workshop schedule is listed on the following page.

Agency	County	Proposed Locations	Dates	No. of Meetings
Metro	Los Angeles	<ul style="list-style-type: none"> • South Coast Air Quality Management District • Boys and Girls Club of East Los Angeles • Wilmington Senior Center • Larry Chimbole Cultural Center - City of Palmdale • Bannings Landing Community Center 	December 3, 4, 6 and 13, 2007 February 20, 2008	5
OCTA	Orange	<ul style="list-style-type: none"> • City of Anaheim – Gordon Hoyt • Laguna Hills Community Center 	January 14 and 17, 2008	2
RCTC	Riverside	<ul style="list-style-type: none"> • Jurupa Community Center • Coachella Council Chamber 	December 10 and 17, 2007	2
SANDAG	San Diego	<ul style="list-style-type: none"> • SANDAG offices 	February 21, 2008	1
VCTC	Ventura	<ul style="list-style-type: none"> • Camarillo City Hall • City of Camarillo Library 	December 11, 2007	1
SANBAG	San Bernardino	<ul style="list-style-type: none"> • SANBAG offices 	January 9, 2008	1

Initial Stakeholder Comments

In general, there is support of a coordinated effort among the partner agencies and stakeholders to solve the goods movement challenges facing the region. During the SAG meetings, presentations, and workshops that were conducted, stakeholders expressed the following key concerns/suggestions:

- ♦ More aggressive environmental mitigation strategies is needed to reduce current levels of goods movement impacts before any new infrastructure project is built;
- ♦ Dedicated new private/public funding sources is needed to reduce health and environmental impacts of goods movement throughout the region;
- ♦ All costs and benefits should be studied before decision-makers agree to meet unlimited goods movement demand;
- ♦ Equal analysis of environmental and community impacts, planned improvements and mitigation measures should be completed as a part of the evaluation of a new (or expanded) goods movement system;
- ♦ Placing limits on trade growth, diversion to other ports, and investing in clean industries is a more cost-effective approach to solve the goods movement challenges in the region; and
- ♦ Explore the use of clean alternate technologies to transport goods and to support goods movement activities, operations, and equipment.

Chapter 3 – Existing Conditions and Constraints

Chapter 3 summarizes the work done under Task 3 to build the Action Plan, that is further described in Tech Memo 3. This chapter identifies the key factors that influence goods movement decisions, describes how freight is moved, provides an inventory of the components of the regional goods movement system, and identifies issues, constraints and other deficiencies in the system and supply chain. This chapter also identifies community and environmental impacts that are further described in Chapter 5.

Key Goods Movement Factors

- ◆ Projections- Freight cargo volumes that are expected to triple by 2030, will place an additional heavy burden on the environment, local communities and the region's aging transportation infrastructure.
- ◆ Quality of Life- According to the California Air Resources Board (CARB) and others emissions from goods movement sources, particularly ozone and diesel particulate matter, has a direct and negative impact on public health and the environment.
- ◆ Trade Relations- A national policy that promotes reduced barriers to trade, combined with the export of U.S. industrial jobs, particularly to Asia, has increased the nation's reliance on imports thereby increasing the flow of goods through the region's system.
- ◆ Demand- Due to its strategic location, Southern California has become an important trade gateway for the rest of the nation, carrying a disproportionate share of international trade. Moreover, much of the goods moved within the region support one of the largest metropolitan populations in the country and the third largest manufacturing center in the nation.¹
- ◆ Economics- The goods movement system is vital to the local economy and provides many jobs within the study area, particularly in the logistics sector. Southern California's burgeoning population requires a logistics sector that matches its size and growth.
- ◆ Funding- Nonconformance of regional air quality goals may result in a cessation of federal transportation improvement funds for the region. Moreover, transportation funding for goods movement has not kept pace with needed improvements and mitigation measures; traditional fund sources are steadily shrinking.

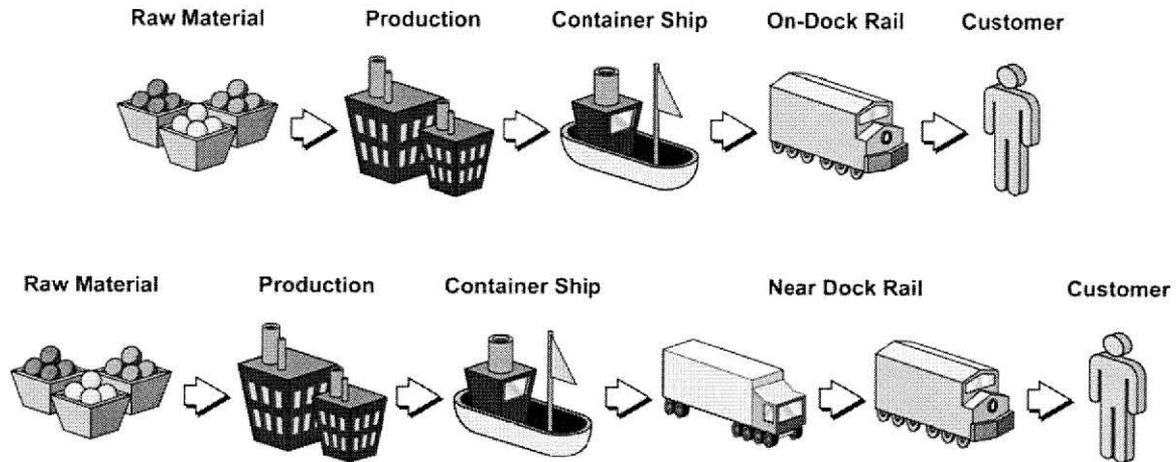
Understanding Freight Flows

Freight moves through ports in one of three ways:

- ◆ **Inland-point Intermodal Service** - The ocean carrier arranges transfer of marine container from vessel to rail and rail line haul movement,
- ◆ **Transportation to the Port Gate with a Container Mounted on a Chassis** - The customer arranges for a marine container to be transported from port gate to a destination (or distribution center) via long-haul truck or dray.
- ◆ **Transportation to Inland Warehouses** - Dray from port gate to warehouse may be arranged by the shipping line or by customer. The customer contracts with a Third Party Logistics (3PL) firm, sometimes a subsidiary of the ocean carrier or Non-Vessel Owing Common Carriers, to provide deconsolidation and transloading into domestic trailers or containers.

Figures 3 through 8 graphically depict the various ways goods are moved in the region through the supply chain to the ultimate destination- the consumer.

Figure 3
INTERNATIONAL RAIL DISTRIBUTION



As shown in Figure 3, international goods arrive at the Ports via oceangoing vessels and then leave the region via rail. Sometimes the cargo is first loaded onto trucks for transport to inland (near-dock, off-dock, or inland distribution centers) for transloading to rail. These goods move to points east of the MCGMAP region (typically distances of 500 miles or more) and are shipped as whole containers.

Figure 4 depicts another aspect of the supply chain that represents transload rail intermodal distribution. These goods move in a manner similar to the international rail distribution shown in Figure 3. Figure 5 shows how international cargo moves into and through the region via aircraft.

Figure 4
**INTERNATIONAL TRANSLOAD
INTERMODAL DISTRIBUTION**

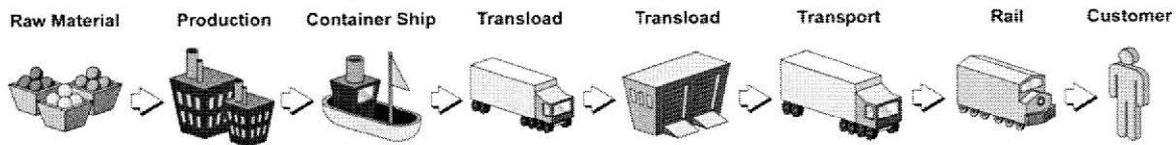


Figure 5
**INTERNATIONAL/DOMESTIC
REGIONAL AIR DISTRIBUTION**

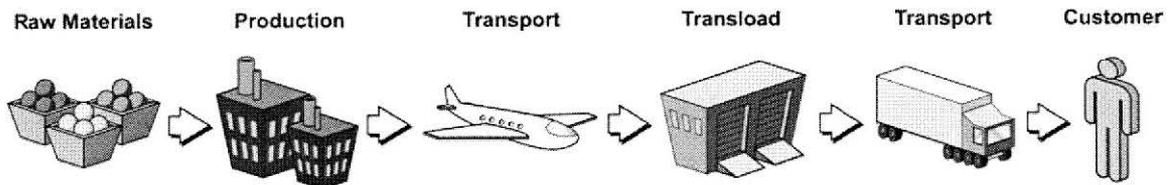
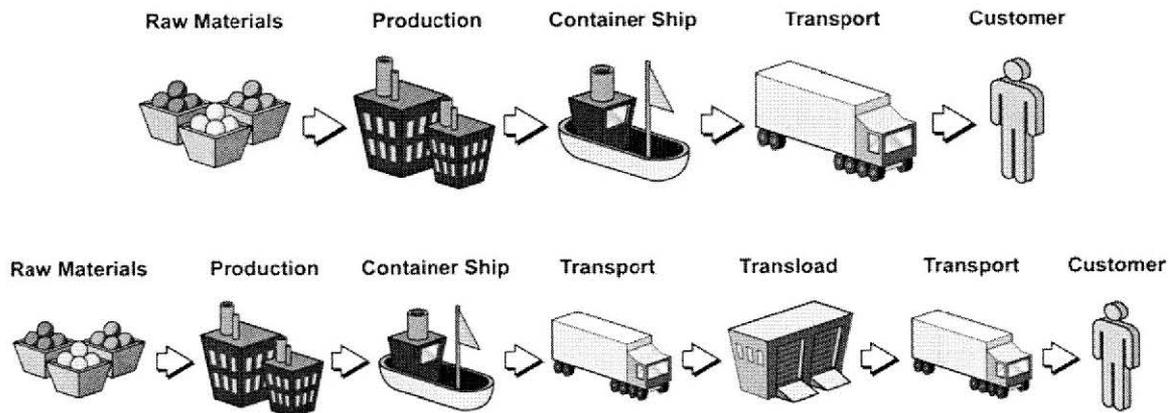
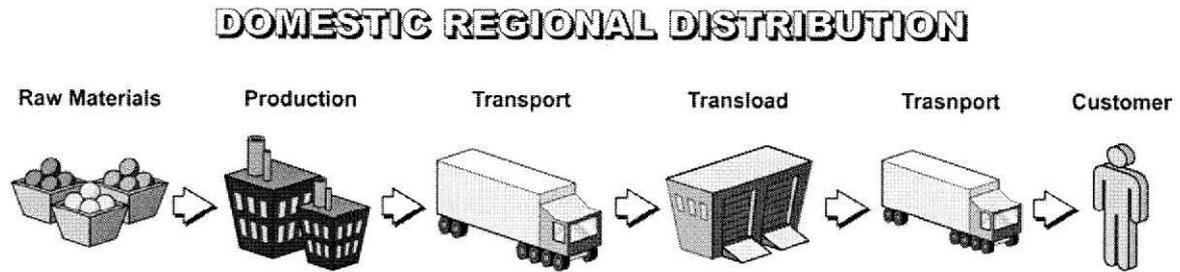


Figure 6
INTERNATIONAL LOCAL/REGIONAL DISTRIBUTION



As shown in Figure 6, international goods that arrive at the Ports (via ocean going vessels) can also leave the region by truck. This includes goods that are transloaded at inland distribution centers. These containers are broken down for distribution to various markets east of the study region, to locations such as Phoenix, Salt Lake City, or Las Vegas, and north to northern California, Oregon, and Washington.

Figure 7



As depicted in Figure 7, domestic goods produced within or outside of the MCGMAP region are primarily moved by trucks. These local goods typically leave the place of production and are transported by truck to a transload or distribution facility to be distributed to the customer.

Figure 8

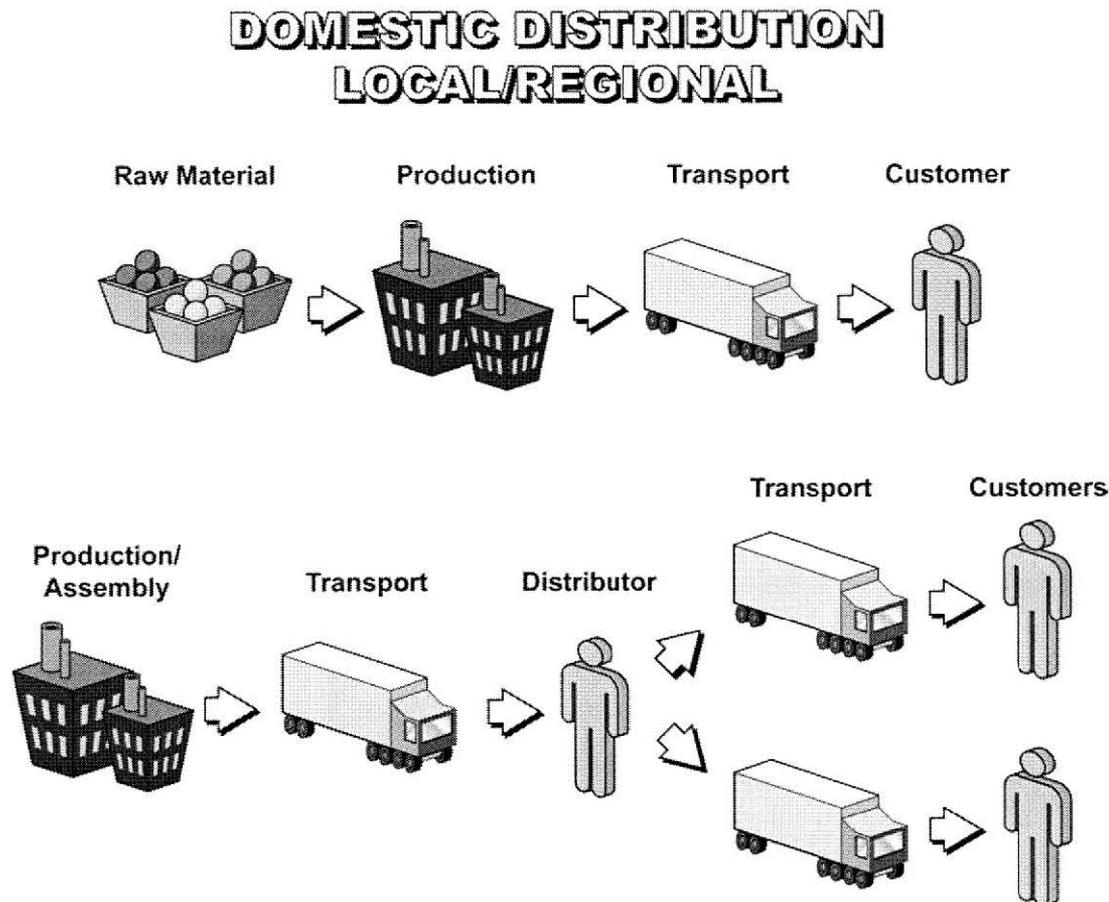


Figure 8 illustrates the local and regional distribution system wherein goods are shipped directly from the point of production to the customer. In some cases, one customer acts as a distributor, resulting in multiple “secondary” trips to other customers.

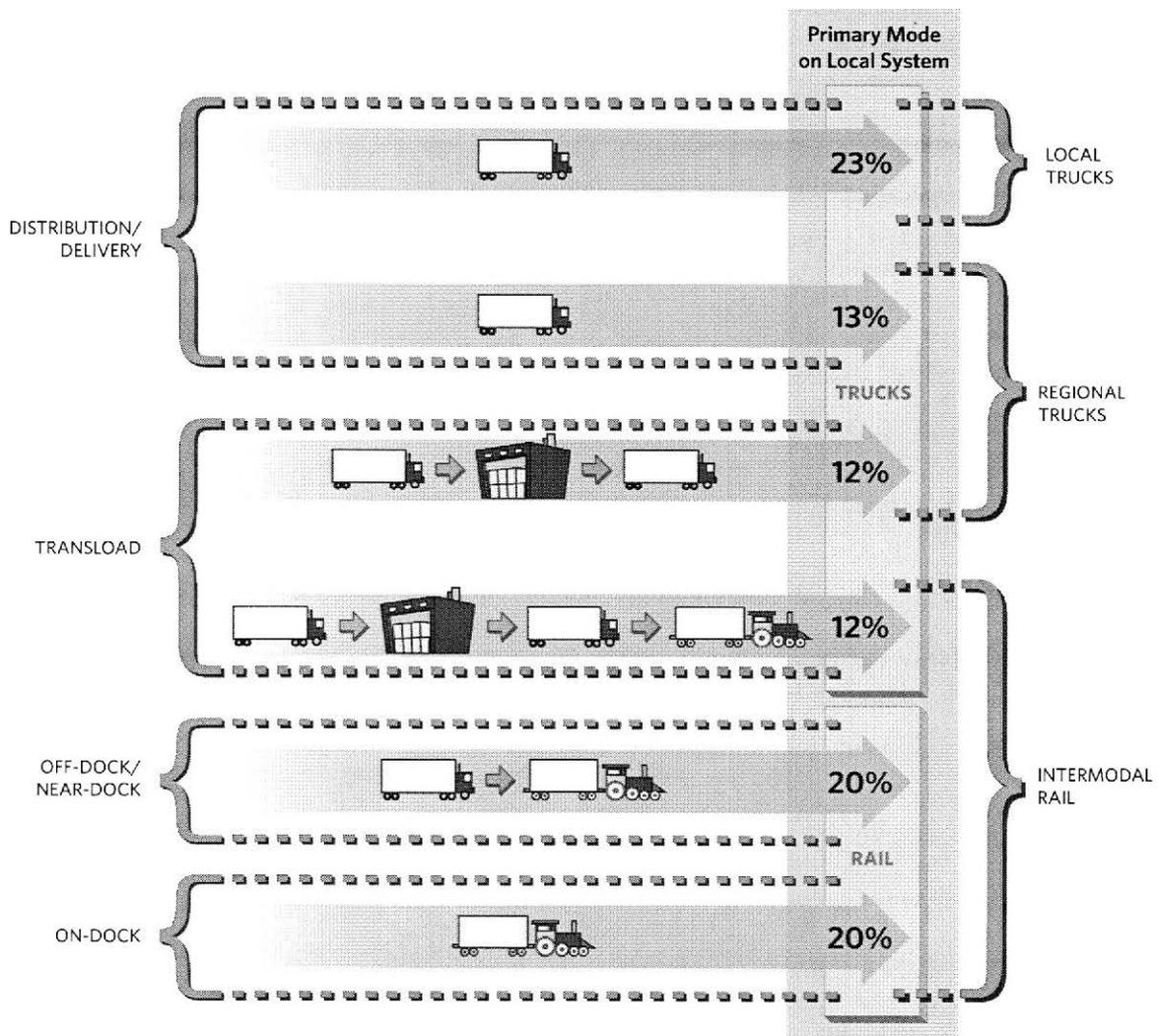
Market Segmentation

The study area has the largest goods movement system in North America. However, each mode operates largely as an independent entity. As a result, the modes are not organized at a level that easily permits integration across the entire supply chain. While the goods themselves move from mode to mode, the carriers and service providers typically do not have the ability to influence the reliability and quality of service of the entire supply chain. Carriers do not typically venture into total logistics services and, if they do, it is generally to gain pricing control and competitive advantage rather than to make door-to-door supply chain improvements.²

Within the study region, goods movement consists of six broad modal segments, as illustrated in Figure 9. Each of these modal market segments presents strategic opportunities for applying goods movement specific actions. Intermodal rail shipments, depicted at the top of Figure 9 are loaded directly on-dock at the

ports, and involve no truck movements on the local and regional highways. This mode of transport is indicative of how international container cargo shipments are handled. In contrast, local and regional distribution and delivery shipments, shown at the bottom of Figure 9, are transported exclusively by truck moves on the local and regional highway system. This mode is indicative of how domestic cargo and some local and regional international cargo shipments are handled. The segments in between on Figure 9, represent cargo that is moved using multiple modes that require staging activities and multiple trips on the regional highways before reaching its final destination. Also, the following conclusions can be drawn from Figure 9:

**Figure 9
Modal Market Segments**



* All percentages estimated; based on 2005 figures

Regional Intermodal Rail Market Segment – Approximately half of the entire international container market utilizes the region's intermodal rail system. Between 50 and 55% of all containers moving through the region's ports are either loaded/unloaded (1) directly on/off an intermodal train on the docks (e.g., on-dock intermodal rail), (2) directly on/off an intermodal train at an intermodal rail yard near or distant from the docks (e.g., near- or off-dock intermodal rail), or (3) indirectly after the contents of an international container are transloaded into larger domestic containers at off-dock warehouses before being trucked to an off-dock intermodal yard (e.g., transloaded intermodal rail). While the on-dock market segment (approximately 20%) requires no truck movements on the local and regional roadway system, the remaining intermodal market movements require at least one truck-trip to an off-dock intermodal facility plus an additional return trip (often with an empty container). Also, the Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) move an estimated 40 percent of all international containers through the study area (many of these are empty westbound containers) as part of their intermodal service.³ The Alameda Corridor Transportation Authority (ACTA) conducted a study in 2004 that estimated the railroads also transport another 12 percent of what had been international containerized cargo in domestic containers.⁴ This is cargo that had been warehoused or transloaded in the study area before being transported eastbound in domestic containers..

Regional Truck Market Segment – Trucks serve another significant segment of the international container market that includes Phoenix, Salt Lake City, San Francisco, Seattle, and other regional urban markets. These regional trucks haul either directly loaded containers or larger domestically configured tractor-trailer combinations with international shipments transloaded from ocean containers. These trucks rely on the region's local transportation roadway system and a concentrated set of regional freeways for the line-haul portion of their trips. These trips are typically up to 500 miles in length; however, some trips exceed that distance.

Local Truck Market Segment –Local goods movement (e.g. domestic cargo, local distribution) represents the least opportunity for strategically directing specific solutions and funding options, but it cannot be overlooked. Local trucks traverse a broad system of local roadways to serve a large number of consumers that are spread throughout the region.

While the region is a major gateway for international container movements, the local and domestic component is more dominant because the study area represents the third largest manufacturing center in the United States and is home to almost 20 million residents. These factors alone generate a significant demand for local goods within the study area.

Components of the Region's Goods Movement System

SEA PORTS

The San Pedro Bay Ports of Long Beach and Los Angeles are the largest container ports nationally, and the fifth largest in the world (Table 1). These ports handled 15.7 million Twenty-Foot Equivalent Units (TEUs) of containers in 2006. Three quarters of the trade through the San Pedro Bay Ports of Long Beach and Los Angeles is produced or consumed elsewhere.⁵ Only one quarter is for local consumption. In 2005, the value of containerized trade moving through the San Pedro Bay Ports of Long Beach and Los Angeles totaled \$256 billion, which is a 246% increase over the 1994 level of \$74 billion and a 31% increase over the 2000 level of \$196 billion.⁶ In terms of tonnage, the Port of Los Angeles handled cargo 169 million metric

revenue tons (MRT) in CY 2005, while the Port of Long Beach handled over 159 million metric revenue tons in CY 2005. The MCGMAP study area is also home to two other ports: the Port of Hueneme and the Port of San Diego. The Port of Hueneme is 60 miles north of the City of Los Angeles in Ventura County. Port Hueneme handled one million MRT of cargo in 2003. The port’s principal commodities include automobiles, bananas, wood pulp, fresh fruit, general cargo, offshore oil support, and fish. The Port of San Diego handled close to three million MRT of cargo in CY 2005.

**Table 1
2005 Top Ports in North America and the World (millions of TEUs Annually)**

Top North American Ports		Top World Ports	
Port	TEUs	Port	TEUs
1. Los Angeles	7.48	1. Singapore	23.19
2. Long Beach	6.71	2. Hong Kong	22.60
3. NY/NJ	4.79	3. Shanghai	18.00
4. Oakland	2.27	4. Shenzhen	16.20
5. Seattle	2.09	5. Los Angeles/Long Beach Combined	14.19
6. Tacoma	2.07	6. Busan	11.84
7. Charleston	1.99	7. Kaohsiung	9.47
8. Hampton Roads	1.98	8. Rotterdam	9.30
9. Savannah	1.90	9. Hamburg	8.08
10. Vancouver	1.77	10. Dubai	7.62
11. San Juan	1.73	11. Los Angeles	7.48
12. Houston	1.58	12. Long Beach	6.71
13. Montreal	1.26	13. Antwerp	6.49

Source: Containerization International and North American Port Container Traffic, American Association of Port Authorities, 2005

In addition to environmental and community-related constraints, there are also physical and operational constraints affecting existing capacity and throughput at the ports in the study area. The potential throughput at the port terminals is constrained by existing operational and management practices. While the estimated maximum throughput capacity at the San Pedro Bay ports is over 10,000 TEUs of containerized cargo per acre per year,⁷ current average throughput at both ports combined is about 4,700 TEUs per acre per year.⁸ Terminal capacity is affected by the availability of berths, backland acreage, and the number of cranes. It is also affected by operational and management practices such as container stacking and storage, container dwell times, hours of service and labor productivity. Capacity has been recently enhanced by the use of information technology such as optical character recognition systems and radio frequency identification.

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PierPass was introduced in July 2005 to help shift traffic from the traditional work day hours to off peak travel times. These off peak travel times are defined as 6:00 pm – 3:00 am Monday through Thursday, and 8:00 am – 6:00 pm on Saturdays. This program provides an incentive for importers to move containers during off peak times. In 2006, the PierPass official website estimates that on average 60,000 truck trips per week have been shifted to off peak hours, or roughly 30-35% of the port cargo now moves off peak. The PierPass official website estimates that next year as many as 2.8-3 million truck trips may be shifted to off peak travel times.

While container traffic has received most of the attention in recent years, the terminal capacity for commodities such as petroleum liquid bulk has become a growing concern at the ports. California is now an important net importer of refined fuels, while demand is outstripping petroleum storage capacity. The need to accommodate containerized cargo is crowding out the petroleum facilities, adding to the overall complexity surrounding the expansion of the terminals.

While delay on the roadway system impacts goods movement, the most significant delays are at the goods movement facilities such as ports, intermodal facilities, and warehouse and distribution centers. The issue is most evident at the port container terminals, where almost half (44 percent) of the total roundtrip time is spent waiting for the container to be loaded and unloaded.⁹ The delay is not associated with the actual turnaround of the load, which on average takes about 35 minutes, but with the queuing time to be loaded.¹⁰ Regulatory measures, such as AB 2650, a state law passed to impose a fine on terminal operators if trucks idle outside the gate for a period longer than 30 minutes, have been effective in reducing queuing outside terminal gates.¹¹ However, some truckers complain that the queuing has simply moved inside the terminal gates. Terminals that maintain appointment systems or extend gate hours are able to avoid AB 2650-related fines. With PierPass in effect, all terminals have extended hours and are therefore exempt from these fines.

AIR CARGO

In recent years, air cargo has become the fastest growing segment of the goods movement industry in the United States, placing increasing demands on airports and ground transportation to and from airports.

The air freight industry is classified into five major types of carriers:

1-Integrated Air Cargo Carriers – Companies such as Federal Express (FedEx), UPS, DHL, Airborne, Emery, and BAX are known as integrated carriers because they provide door-to-door service by any combination of modes (air, truck, and rail intermodal). Integrated air cargo carriers control the reliability of service by owning some of the ground transport operations as well as the air lift capacity. These carriers also use information technology to exercise control.

2-Non-integrated (Cargo-only) Carriers – This sector does not provide an integrated door-to-door service, only line-haul service for the airport to airport portion, typically international. Shippers, freight forwarders, cargo handling companies, and other carriers buy lift capacity from non-integrated carriers.

3-Freight Forwarders - Freight forwarders do not operate as carriers. Freight forwarders handle and manage the shipment of air cargo on behalf of shippers, particularly international shipments, and buy air lift capacity from passenger belly space and cargo-only carriers.

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4-Passenger Belly - Most international flights between major cities use wide-body aircraft which have enough space in the “belly” below the passenger level to store passenger baggage as well as commercial cargo. The bulk of air cargo carried by passenger belly service has reduced in the recent years. More than 70 percent of all air cargo is shipped on dedicated freight aircrafts. This shift has enhanced the ability of these airports to serve cargo.

5-Postal Services – While most of the mail is shipped in the U.S. by ground transport, there is some air mail.

There are six airports in the study area that have significant air cargo activity. Those airports include Los Angeles International (LAX), Ontario International (ONT), John Wayne (SNA), Long Beach (LGB), Bob Hope (BUR), and San Diego (SAN).

Table 2 below summarizes air cargo activity within the study area region between 2003 and 2005. As shown, Los Angeles International Airport (LAX) clearly handles the majority of the air cargo activity at more than 2.1 million tons of air cargo in 2005. It is the second largest air cargo hub in the nation and it handled approximately 75% of the study area’s 2.7 million tons of air cargo in 2003.¹² LAX has 170 acres of cargo ramp and a total of two million square feet of building space for three cargo complexes. Approximately, 50 trucking firms operate terminals within two miles of the airport perimeter. As shown in Table 2, Ontario International Airport handled more than 575,000 tons of air cargo in 2005. Ontario Airport has 96,000 square feet of cargo building and office space to support all-cargo, airline belly cargo, and air mail. Twelve major air freight carriers serve this airport - Air Transport International, Airborne Express, Ameriflight, DHL, Empire Airways, Evergreen, Express Net, Federal Express, Kalitta Air, West Air, Union Flights, and UPS. Long Beach Airport is also served by air freight carriers that include FedEx, Airborne Express, and UPS. In 2005, Long Beach airport handled 54,300 tons of air cargo. Also in 2005, Bob Hope Airport, John Wayne Airport, and San Diego International Airport handled 52,900, 24,103, 168,101 tons of cargo, respectively.

Table 2
Air Cargo Activity 2003-2005 MCGMAP Study Area Airports
Tons of Air Cargo

Airport	2003	2004	2005	2005 Market Share
Los Angeles (LAX)	2,022,076	2,115,314	2,137,188	71.0%
Ontario (ONT)	571,992	605,211	575,369	19.1%
Long Beach (LGB)	56,081	57,050	54,298	1.8%
Bob Hope (BUR)	47,634	49,633	52,867	1.8%
John Wayne (SNA)	15,816	20,796	24,103	0.8%
San Diego (SAN)	146,328	152,257	168,101	5.5%
Total	2,859,927	3,000,261	3,011,926	100.0%

Source: SCAG Region Aviation Activity Report, 2003-2005, Caltrans Office of Aviation Planning
Primary Annual Air Cargo Tonnage Report, San Diego Airport Economic Analysis Draft Summary
Report 2005-2035, May 2006

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In addition to environmental and community-related constraints, there are also physical and operational constraints affecting existing capacity and throughput at the airports in the study area. Delays during peak periods continue to mount at airports, mainly because of on-airport warehouse space and peak-period lift capacity. Also, competition for space impacts the airports in the study area, particularly Los Angeles International Airport (LAX), where high demand exists for both passenger and cargo services. Runways, taxiways, aprons to park aircraft, maintenance facilities, and cargo-handling facilities are needed for air cargo services. One proposal to alleviate this competition at LAX is to attract cargo to outlying airports such as San Bernardino International, Ontario International, Palmdale, Victorville and March, where capacity exists. Some of these have been proposed as all-cargo airports. However, the potential for all-cargo airports is limited because a significant portion of air cargo moves in the bellies of large international passenger aircraft, due to the pricing advantage offered by the extra belly space, most of which fly out of LAX. In addition, since most air cargo is destined for use within the region, the location of LAX makes it the most convenient with respect to the cargo's final destination.

RAIL

The study area is home to the nation's busiest rail intermodal operations. It is a key mode of transport for goods through the MCGMAP region and it is preferred when there is a need to move large volumes of goods over long distances. Freight is often transferred to eastern carriers who deliver shipments to dense eastern markets such as Columbus, Detroit, Boston, New York/New Jersey, Philadelphia, Baltimore, Norfolk, Atlanta and Jacksonville. The total domestic and intermodal volume moving through the eight terminals operated by Burlington Northern Santa Fe Railway (BNSF) and the Union Pacific Railroad (UP) in the study area approaches five million containers annually, of which 64 percent are international and 36 percent are domestic containers¹³. BNSF and UP are linked to the Mexican and Canadian rail systems. On an average weekday, 80 freight trains run through the study area, hauling 52 percent¹⁴ of the ports' international containerized goods to and from other parts of the country.

There are two immediate issues facing the railroads serving Southern California which are (1) terminal capacity to load and stage freight and (2) mainline capacity east of Los Angeles over the mountains. As a result of historical growth in the intermodal container market, mostly due to growth in Asian imports, mainlines are reaching their capacity. Terminals are being stretched to their limits, recent reduction in free time at the terminals has provided some relief but the growing volumes are exceeding the capacity of the existing terminals. Some carriers have actively tried to relocate business segments to other terminals east of Los Angeles, with some success. The impact of mainline capacity constraints is a reduction in system velocity, which results in delay and increased backlog along the mainlines as well as at the rail yards. The average train trip is delayed by over 30 minutes east of Los Angeles.¹⁵ A backup in the system is far reaching, resulting in the delay in the delivery of time-sensitive shipments to customers nationwide.

The following sections describe more about the existing freight rail system, rail intermodal facilities and commuter rail service within the study area.

Freight Rail System- The freight rail system within the study area consists of mainline freight lines, short lines, and the Alameda Corridor. Three mainline freight lines within the LA basin transport more than 98 percent of all Los Angeles and Long Beach port intermodal traffic. These lines are (1) the BNSF Transcon west of San Bernardino, (2) the UP Los Angeles Subdivision, and (3) the UP Alhambra Line. The BNSF Transcon in the Basin runs from San Bernardino to downtown Los Angeles, then connects to the triple track

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Alameda Corridor and thus to the Ports of Los Angeles and Long Beach. In addition, Amtrak operates long distance Southwest Chief and the Amtrak Pacific Surfliners while Metrolink operates its 91 Line service, its Inland Empire Orange County Line service, and its Orange County Line service on the BNSF Transcon. UP's Los Angeles Subdivision runs from West Riverside to downtown Los Angeles. The Alhambra Line runs from Colton to downtown Los Angeles. Both lines connect to the Alameda Corridor. These lines also connect to the north-south rail routes for UP, the Coast, and the Santa Clarita Lines as shown in Figure 10. Current freight and passenger train volumes for these lines are listed in Tables 3 and 4.

There are four primary short line operators in the study area. All of the short lines are essentially switching carriers and performing work of high labor-intensity. They provide a specialty service to the large railroads by concentrating their resources on intra-city (and to a lesser degree intra-region) operating issues. None of the short lines have operating scopes beyond defined boundaries. The short lines have no regional influence on goods movement issues and should be viewed as outsourcing entities of UP and BNSF.

The Alameda Corridor is a publicly owned, grade separated track running from near downtown Los Angeles to the San Pedro Bay Port area. In 2005, this line handled approximately 54 trains per day.

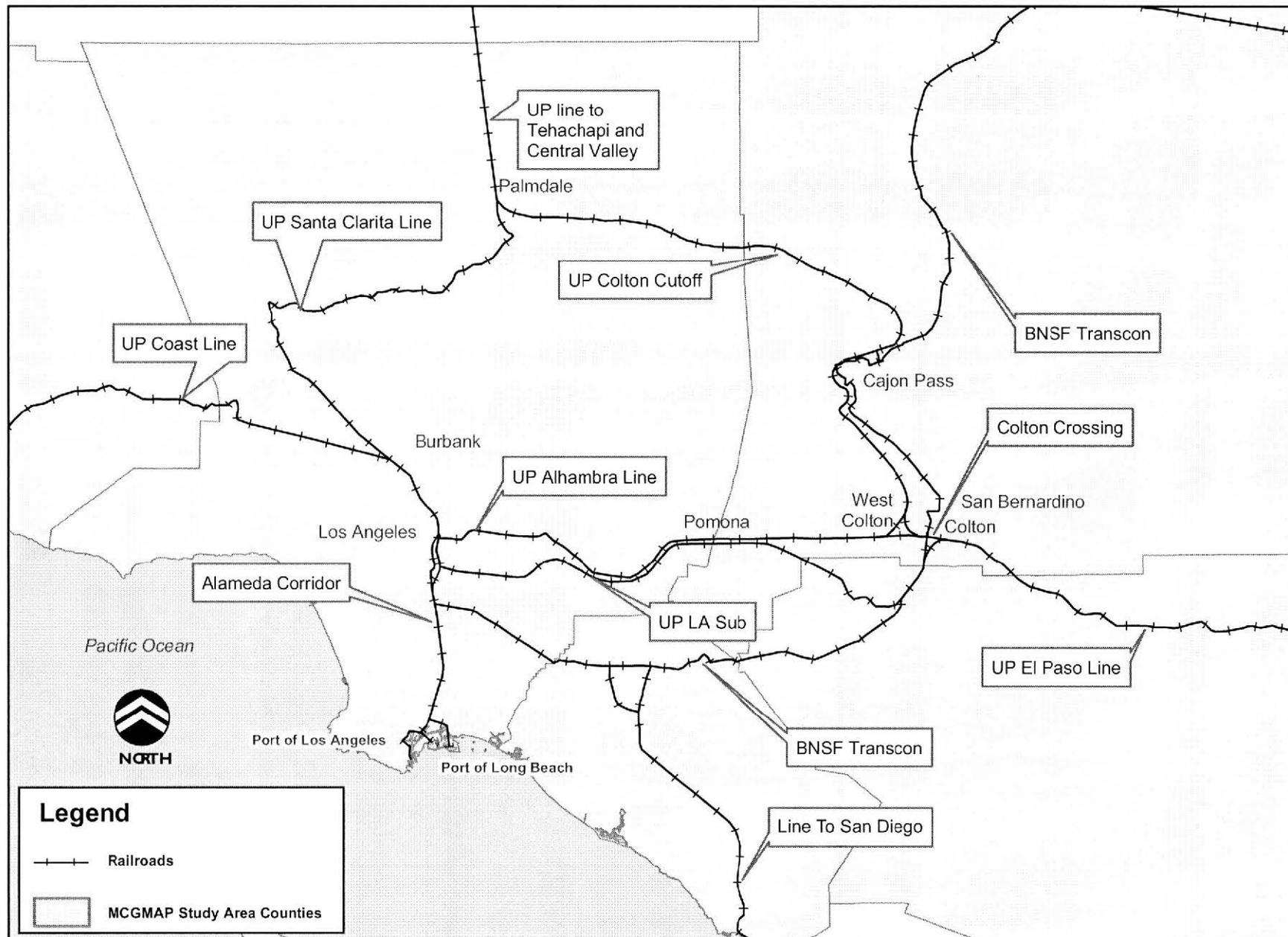


Figure 10
 BNSF TRANSCON WEST OF SAN BERNARDINO, UP LOS ANGELES SUBDIVISION, AND UP ALHAMBRA LINES

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**Table 3
Total Through Passenger Train Movements
per Peak Day by Line Segment and/or Carrier and Route, Year 2000**

BNSF/UP Line Segment	Train Movements
BNSF Hobart – Fullerton Jct.	46
BNSF Fullerton Jct. – Atwood	5
BNSF Atwood – West Riverside	16
BNSF/UP West Riverside – Colton	11
BNSF/UP Colton – San Bernardino	11
Lines over Cajon Pass (including BNSF/UP Cajon Line and UP Palmdale Line)	2
UP Mira Loma – W. Riverside plus	14
UP West Colton - Colton	
UP Yuma Line	2
Metrolink	
Covina - Los Angeles	30(20)
San Bernardino – Covina	30(20)
San Bernardino – Riverside	9(4)
Riverside – Atwood	15(10)
Atwood – Fullerton	3(0)
Fullerton – Los Angeles	22(14)
Riverside – Pomona – Los Angeles	12(10)
Amtrak	
Fullerton – Los Angeles	22
El Monte – Indio	2
Los Angeles – Fullerton – Barstow	2
Los Angeles – Pomona – Barstow	0

Source: Inland Empire Railroad Main Line Study, Final Report, June 30, 2005.

Note: Figures in parentheses for Metrolink trains are train counts during peak hours. Figures for Year 2000 are actual movements.

**Table 4
Total Through Freight Train Movements
per Peak Day by Line Segment, Year 2000**

Line Segment	Train Movements
BNSF Hobart – Fullerton Jct.	50
BNSF Fullerton Jct. – Atwood	50
BNSF Atwood – West Riverside	57
BNSF/UP West Riverside – Colton	92
BNSF/UP Colton Crossing	121
BNSF/UP Colton – San Bernardino	79
Lines over Cajon Pass (including BNSF/UP Cajon Line and UP Palmdale Line)	93
UP Mira Loma – W. Riverside plus	64
UP West Colton - Colton	
UP Yuma Line	42

Source: Inland Empire Railroad Main Line Study, Final Report, June 30, 2005.

The two primary segments of the railroad business are intermodal and carload. The intermodal segment includes the movement of international and domestic containers and trailers and is the main market emphasis for the railroads in the study area, which includes container traffic through the ports. In terms of the intermodal segment of the railroad business, the following is noted:

- ♦ The railroads wholesale intermodal train capacity directly to the marine lines rely on third party intermodal marketers for the domestic and transload business segments.
- ♦ The drayage part of the business (pick-up and delivery of containers to and from the terminal) is typically arranged by the intermodal marketing companies. An intermodal shipment consists of several trip segments (or legs).
- ♦ The line-haul is the long haul rail portion of the trip between the originating and terminating intermodal yards. On either end of the line-haul is the local dray to and from the actual shipper or receiver of the goods.
- ♦ Approximately 50 percent of all international container traffic moves via intermodal service to inland U.S. points, another 12 percent of these international containers are transloaded to 53' domestic containers, and move inland for final delivery¹⁶.
- ♦ The UP and BNSF move an estimated 40 percent of all international containers through the study area (many of these are empty westbound containers) as part of their intermodal service.¹⁷
- ♦ In addition to port-related traffic, UP and BNSF transport a large number of domestic containers, adding billions of dollars to the total value of intermodal cargo in the study area. Domestic intermodal cargo includes customers such as UPS, U.S. manufactured food products, and high value merchandise (e.g., cigarettes and alcohol).

Carload typically carries commodities such as grain and fertilizers, lumber, paper, scrap metal, coal, aggregates, chemicals, steel, machinery, automobiles, oil and petroleum products, and consumer products. Carload traffic represents about a third of the rail goods movement in the study area. Also, it is estimated that carload volumes represent less than a third of the overall rail market volume in the study area.

Intermodal Facilities- Rail intermodal facilities allow for the transfer of containers from one mode to another, specifically the transfer of containers between rail and truck. The location of an intermodal yard, relative to the ports, has an impact on the amount of truck travel through the study area. There are two general types of intermodal terminals. On-dock rail terminals are typically single user facilities which are fed directly by an ocean vessel. While the inbound containers are significant, often time-sensitive cargo or containers destined to secondary markets will move to the common user intermodal facilities, off-dock. Off-dock terminals as noted earlier, create blocks of traffic, and the terminal operators build these blocks to match the markets the train will be serving. So all the Chicago freight is grouped together and separated from the Dallas or the Kansas City blocks of traffic. These two types of terminal facilities have some important safety and velocity differences. On-dock terminals have been very successful in reducing truck traffic in the study area. A truck carrying a port-generated container to an intermodal yard in or near a port (i.e., an on-dock or near-dock intermodal yard) will travel a shorter distance than one going to an inland facility (i.e., an off-dock intermodal yard).

The efficiency of an intermodal yard has an impact on the overall productivity and velocity of the goods movement system. On-dock facilities typically are single-user facilities, and near-dock and off-dock facilities are typically common user facilities. Marine terminal on-dock rail yards have a different set of safety concerns than off-dock rail facilities. These safety issues are driven, in part, by the marine terminal workers. Even with this, the on-dock rail yards have made an enormous contribution to reduction of truck traffic on the highways. In 2005, over 1.6 million lifts (21% of the San Pedro Bay ports' volume) were handled at the on-dock rail yards.

Intermodal throughput capacity is also affected by the types of operations and practices utilized by the railroads operating the intermodal yards. For example, the UP uses a "wheeled operation" at its Intermodal Container Transfer Facility (ICTF), where almost every container is stored on a trailer chassis. While this lowers the cost of operations, it also limits the container throughput per acre. In comparison, the BNSF uses management techniques to increase throughput per acre at its Hobart facility, including stacking containers vertically, allocating containers (per carrier), and imposing fees on containers that stay longer than a day. The result is that throughput per acre per year is twice as high at Hobart¹⁸ as it is at ICTF.¹⁹

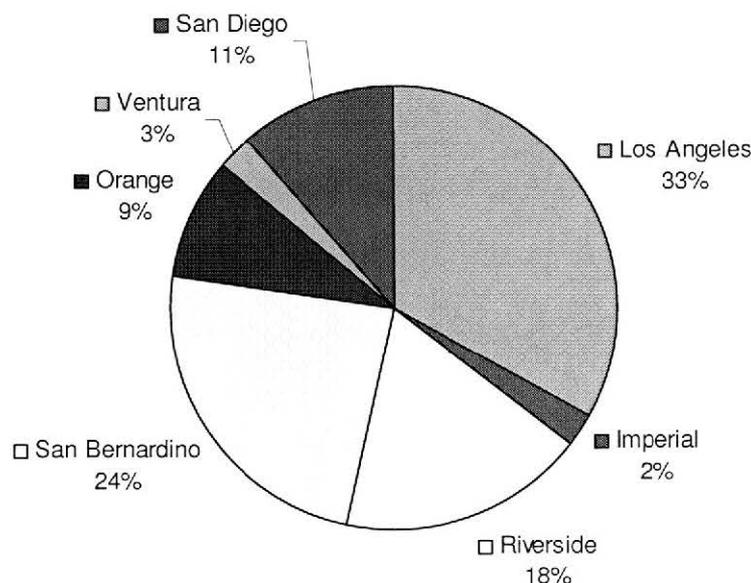
Commuter Rail Service - In addition to the freight trains, the network carries 145 commuter trains (Metrolink) on an average weekday. In addition, Metrolink commuter passenger rail services operate on the existing freight rail system. Metrolink is planning major increases in passenger trains using BNSF and UP mainlines in the study area; these increases will further strain capacity in the absence of any improvements. Metrolink trains are most frequent during the morning and afternoon weekday commute periods, and are oriented inbound to Los Angeles in the morning and outbound in the afternoon. About a third of Metrolink trains operate on BNSF and UP mainlines today. Amtrak long distance and Pacific Surfliner corridor trains also use BNSF and UP mainlines in the study area. Capacity is also a concern on publicly owned tracks. As noted, Metrolink dispatches about 100 freight trains on publicly owned tracks, and these trains share the track with the majority of Metrolink trains. As freight and passenger trains increase, capacity will increasingly become a concern for all users of these publicly owned tracks.

TRUCK FLOWS and CONGESTION

Highways within the study area carry some of the highest truck volumes in the U.S.²⁰ One third of the region's 9,000 lane miles of highways carry more than 10,000 trucks per day. I-710, which links trucks directly to and from the ports and to I-605 and SR-91, carry up to 40,000 trucks on an average weekday.²¹ The truck mode plays a significant role in moving goods door-to-door between shippers and receivers, as well as transferring goods from one mode to another (for example, between a port and an intermodal yard). Also, from a national standpoint, most heavy truck mileage is generated in the carriage of freight. Truck traffic is concentrated on major routes connecting population centers, ports, border crossings, and other major hubs of activity.²²

Freight moves on highways through International ports of entry along the U.S./Mexico border and to destinations north and east of the study area. Trucks carry almost two-thirds of goods from Mexico and Canada to the United States. According to the Federal Highway Administration (FHWA), in 1998 trucks moved 71 percent of total (international and domestic) tonnage and 80 percent of the total (international and domestic) value of U.S. shipments. The distribution of truck vehicle miles traveled (VMT) throughout the study area by county is shown in Figure 11.

Figure 11
2003 Percentage of Truck VMT in the MCGMAP Study Area by County



Source: Caltrans 2004

Table 5 shows the distribution of port-related (POLA and POLB) truck trips over the existing freeway system. As shown, I-710 is the primary and dominant corridor for port-specific traffic. There also appears to be an inverse relationship that exists between distance to the ports and port-related traffic. For example, the further north from the ports, the lower the amount of port-related traffic. While total truck traffic shows no significant trend in volumes or as a share of total vehicle traffic, the share of port-specific truck traffic declines sharply in terms of its share of total truck traffic further away from the ports. Chapter 6 contains a more detailed discussion of the role of secondary truck trips, including those truck trips not directly to or from the ports but also due to goods moving to or from the ports to inland warehouse and distribution centers. Lastly, data is not available to quantify secondary trips or to identify a relationship between number of port trips and number of secondary trips generated.

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**Table 5
Comparison of Port Truck Volumes to Total Daily Truck Volumes
on Study Area Roadways, Year 2003**

Highways	Segments	Total Daily Vehicle Volume	Total Daily Truck Volume	Daily Port Truck Volume	Total Trucks as % of Total Vehicle Volume	Port Trucks as % of Total Truck Volume
I-110	PCH to Sepulveda	148,000	9,900	7,810	6.7%	78.9%
	Sepulveda to I-405	226,000	11,900	7,335	5.3%	61.6%
I-110	I-405 to SR-91	266,000	23,900	6,015	9.0%	25.2%
	SR-91 to I-105	247,000	17,800	4,680	7.2%	26.3%
I-710	I-105 to I-10	324,000	15,900	2,485	4.9%	15.6%
	PCH to Willow	146,000	25,400	23,900	17.4%	94.1%
	Willow to I-405	161,000	27,100	23,235	16.8%	85.7%
	I-405 to SR-91	186,000	31,400	20,045	16.9%	63.8%
	SR-91 to I-105	227,000	38,300	15,315	16.9%	40.0%
	I-105 to I-5	237,000	34,600	11,685	14.6%	33.8%
	I-5 to SR-60	199,000	24,200	1,025	12.2%	4.2%
I-405	SR-60 to I-10	132,000	11,300	845	8.6%	7.5%
	I-605 to I-710	289,000	15,700	1,875	5.4%	11.9%
	I-710 to I-110	283,000	15,400	2,965	5.4%	19.3%
	I-110 to SR-91	270,000	14,600	1,960	5.4%	13.4%
	SR-91 to I-105	294,000	12,100	1,810	4.1%	15.0%
SR-91	I-105 to I-10	310,000	12,800	1,590	4.1%	12.4%
	SR-57 to I-5	250,000	21,800	1,135	8.7%	5.2%
	I-5 to I-605	283,000	39,900	1,470	14.1%	3.7%
	I-605 to I-710	263,000	37,100	2,870	14.1%	7.7%
	I-710 to I-110	212,000	13,700	1,385	6.5%	10.1%
I-105	I-110 to I-405	67,000	1,500	195	2.2%	13.0%
	I-605 to I-710	212,000	18,800	2,800	8.9%	14.9%
	I-710 to I-110	231,000	14,700	1,605	6.4%	10.9%
I-5	I-110 to I-405	243,000	13,800	390	5.7%	2.8%
	SR-57 to SR-91	223,000	21,400	225	9.6%	1.1%
	SR-91 to I-605	199,000	18,600	160	9.3%	0.9%
	I-605 to I-710	249,000	23,200	195	9.3%	0.8%
	I-710 to SR-60	267,000	20,600	1,800	7.7%	8.7%
SR-60	SR-60 to I-10	247,000	20,400	710	8.3%	3.5%
	SR-57 to I-605	265,000	23,200	1,560	8.8%	6.7%
I-10	SR-57 to I-605	259,000	18,100	1,775	7.0%	9.8%
	I-605 to I-710	234,000	14,200	585	6.1%	4.1%
	I-710 to I-5	254,000	9,000	190	3.5%	2.1%
	SR-60 to I-110	284,000	21,600	300	7.6%	1.4%

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**Table 5
Comparison of Port Truck Volumes to Total Daily Truck Volumes
on Study Area Roadways, Year 2003**

Highways	Segments	Total Daily Vehicle Volume	Total Daily Truck Volume	Daily Port Truck Volume	Total Trucks as % of Total Vehicle Volume	Port Trucks as % of Total Truck Volume
I-605	I-405 to SR-91	245,000	11,300	20	4.6%	0.2%
	I-105 to I-5	297,000	41,900	4,100	14.1%	9.8%
	I-5 to SR-60	265,000	37,400	3,825	14.1%	10.2%
I-605	SR-60 to I-10	224,000	26,800	1,815	12.0%	6.8%
SR-57	I-5 to SR-91	276,000	18,800	10	6.8%	0.1%
	SR-91 to SR-60	296,000	23,400	135	7.9%	0.6%
	SR-60 to I-10	139,000	8,100	40	5.8%	0.5%

Source: Port of Los Angeles, "Baseline Transportation Study," pg. 39, 2004.
Caltrans Truck Volumes 2004 (Year 2003 Data).

Also, approximately 65 percent of inbound truck trips to the MCGMAP region's warehouse/distribution centers originate from port and/or airport terminals. The remaining approximately 35 percent of inbound truck trips to warehouse/distribution centers originate from local industries and railyards where domestic intermodal shipments arrive from elsewhere in North America. Further, the SCAG 2004 RTP reported that in the Year 2000 total daily delay due to congestion in the study area was estimated at 2.2 million person-hours. The impact of delay on the freight industry is significant, since it can increase the hourly cost of carrying goods by 50 to 250 percent, from a base value of \$25 to \$200 per hour, depending on the commodity.²³

Table 6 presents a summary of Year 2003 daily and peak period volumes on segments within the SCAG region identified as experiencing high levels of congestion during peak periods.

Table 6
MCGMAP Study Area Daily and Peak Period Truck and Vehicle Volumes
Year 2003 – Segments of High Congestion

Route	County	Postmile (b)	Location	AM Peak Hour					PM Peak Hour					Total ADT		
				Dir	Total Vehicle Volume (b)	Total Truck Volume (c)	Speed (c)	Truck Percentage	Dir	Total Vehicle Volume (b)	Total Truck Volume (c)	Speed (c)	Truck percentage	Total ADT (a)	Total Truck (a)	Total Truck Percentage
I-5	ORG	30.0	SR-55 to SR-57	S	12833	656	31.1	5%	N	10703	283	31.5	3%	344000	22016	6.4
I-5	ORG	33.1	SR-57 to LA County Line	S	11427	252	27.9	2%						260000	18200	7
I-10	LA	6.7	I-405 to I-110	W	8732	282	33.9	3%						264000	10639	4.03
I-10	LA	24.3	I-710 to I-605	W	7462	282	32	4%						22500	13658	6.07
I-110	LA	20.7	I-105 to I-10	N	8166	372	28.3	5%						292000	15388	5.27
I-215	RIV	38.3	I-10 to I-259						N	5206	393	33.3	8%	185000	20165	10.9
I-405	ORG	28.3	I-5 to SR-133	N	10958	288	21.6	3%						225000	9608	4.27
I-405	ORG	19.2	Beach Blvd to LA County Line	S	9294	363	30.2	4%						287000	9586	3.34
I-405	LA	14.9	I-110 to I-91	N	9178	309	26.2	3%						250000	11575	4.63
I-405	LA	44.3	US-101 to End	S	9503	309	26.2	3%	N	9311	209	30.2	2%	227000	8694	3.83
I-605	LA	11.0	SR-91 to I-105						N	7114	450	34.2	6%	247000	11436	4.63
I-605	LA	11.0	I-105 to I-5						N	7114	569	27.1	8%	267000	37700	14.12
I-605	LA	11.0	I-5 to SR-60	S	8377	889	33.1	11%	N	7114	814	33.6	11%	254000	35865	14.12
I-710	LA	25.2	I-5 to SR-60						S	4896	478	28.4	10%	133000	11385	8.56
SR-55	ORG	8.5	I-405 to I-5						N	3903	172	32.9	4%	257000	15163	5.9
SR-55	ORG	8.5	I-5 to SR-22	S	15037	565	24	4%						257000	15163	5.9
SR-57	ORG	15.6	I-5 / SR-22 to SR-91	S	9213	633	26.9	7%	N	12220	252	34.3	2%	300000	20400	6.8
SR-57	ORG	15.6	SR-91 to LA County Line	S	9213	466	28	5%	N	12220	280	31.5	2%	300000	20400	6.8
SR-60	LA	2.2	End to I-710	W	9013	247	28.5	3%						210000	10164	4.84

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**Table 6
MCGMAP Study Area Daily and Peak Period Truck and Vehicle Volumes
Year 2003 – Segments of High Congestion**

Route	County	Postmile (b)	Location	AM Peak Hour					PM Peak Hour					Total ADT		
				Dir	Total Vehicle Volume (b)	Total Truck Volume (c)	Speed (c)	Truck Percentage	Dir	Total Vehicle Volume (b)	Total Truck Volume (c)	Speed (c)	Truck percentage	Total ADT (a)	Total Truck (a)	Total Truck Percentage
SR-60	LA	23.6	I-605 to SR-71						E	10955	424	32.6	4%	345000	27980	8.11
SR-91	LA	17.6	I-710 to I-605	W	9255	341	31.9	4%						273000	25280	9.26
SR-91	ORG	10.1	SR-241 to Riverside County Line						E	10261	241	23.5	2%	284000	13206	4.65
SR-91	RIV	6.4	Riverside County Line to I-15	W	7954	364	30.5	5%	E	8091	403	34.3	5%	250000	17000	6.8
US-101	LA	12.4	I-110 to SR-170	S	9581	263	32.1	3%	N	9766	172	23.6	2%	292000	7738	2.65
US-101	LA	19.9	SR-170 to I-405	S	10487	274	33.7	3%						216000	8510	3.94
SR-134	LA	12.1	SR-170 to I-5						E	8751	142	33.9	2%	213000	5708	2.68

Sources: (a) Caltrans, Traffic and Vehicle Data Systems Unit, 2004 Truck; (b) Caltrans, 2005 Peak Hour Volume Data; (c) Southern California Association of Governments (SCAG), 2005 PeMS Database v. 6.

Table 6 summarizes the following conditions during periods of high congestion:

- ◆ Both I-710 and I-605 between I-5 and SR-60 in Los Angeles County carry more than 35,000 trucks, representing 14 percent of total daily traffic on these segments.
- ◆ I-605 between I-5 and SR-60 in Los Angeles County, with 11 percent truck traffic, represents the highest truck percentage in both the AM and PM peak hour.
- ◆ I-710 southbound between I-5 and SR-60 in Los Angeles County, with 10 percent truck traffic, represents the second highest truck percentage in the PM peak hour.

While congestion and delay affect the everyday lives of commuters in the study area, they also have a significant impact on goods movement. Eighteen percent of all truck volumes on the freeways within the study area experience delay due to congestion, which results in an increase in the cost of transporting goods by 50 to 250 percent.²⁴ Goods rely substantially on trucking to connect warehouses, distribution facilities, intermodal facilities, and other businesses. For the most part, these facilities and businesses operate during daytime hours, although some operate during the night. Daytime operations cause conflicts between everyday commuter traffic and truck traffic. This conflict also creates a perception that goods movement is the sole contributor to congestion and delays, given that the bulk of truck traffic does not occur during the morning and early evening peak commute hours and that approximately two thirds of trucks traffic occurs during off-peak hours. Congestion and delays on the highway system cannot be fully addressed without including strategies to reduce commuter traffic congestion as well as truck traffic.

Automobile drivers and passengers are often concerned about being involved in a traffic accident with a truck. These concerns may affect the implementation of goods movement and trade initiatives in the study area. Truck accidents result in a higher probability of damage to the other vehicle and injury to its occupants. Of all accidents involving large trucks, 84 percent of fatalities are passengers in vehicles other than the truck.²⁵ In the same study of all large truck collision incidents, 50.7% of these events were caused by the driver of the passenger vehicle. Between 2000 and 2003, the number of fatalities in accidents involving a truck increased by 17 percent in the study area.²⁶ Moreover, an accident involving a truck impacts system traffic flow more than an accident involving passenger vehicles.

Also, the lack of truck inspection and enforcement facilities within the study area presents a further constraint to addressing truck safety. Caltrans operates 37 truck inspection facilities in California.²⁷ Six of these facilities operate within the study area - Los Angeles County, Castaic (I-5); San Bernardino County, Cajon (I-15); Riverside County, Blythe (I-10); Riverside County, Desert Hills (I-10); Orange County, Peralta (SR-91); and Ventura County, Conejo (US-101). These facilities are located near the borders of the study area and inspect trucks entering or exiting the region. There are no inspection facilities within the study area that inspect the intra-regional truck travel.

In addition, trucks contribute to pavement deterioration. While an 80,000 pound truck weighs as much as 20 automobiles, it has the same impact on pavement condition as 9,600 automobiles.²⁸ Currently trucks pay truck weight fees that contribute toward a portion of growing road maintenance costs, these revenues do not contribute to congestion relief.

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BORDER CROSSINGS

The number of trucks passing through the U.S./Mexico border crossings in San Diego and Imperial Counties are projected to grow from approximately 7,000 per day in 2005 (representing a total value of approximately \$36 billion in annual value) to more than 12,000 per day in 2020; some forecasts project more than 17,500 trucks per day by 2030 (Figure 12). Additional capacity is needed at the border crossings and highways that serve them to meet current and future truck traffic projections.

Tables 7 and 8 summarize vehicle and truck volumes along freeway segments in San Diego County. Existing cross-border truck movements are shown in Table 9.

Table 7
San Diego Region Daily Vehicle and Truck Volumes
Year 2006

Route	Location	Postmile	Total Vehicle Volume	Total Truck Volume	Truck Percentage
I-5	JCT. RTE. 8/ROSECRANS	20.06	211000	8651	4.10%
I-5	BASILONE ROAD	71.38	150000	10500	7.00%
I-8	SAN DIEGO, JCT. RTE. 163	2.41	229000	6412	2.80%
I-8	SAN DIEGO, JCT. RTE. 805	4.38	217000	6944	3.20%
I-8	GREENFIELD DRIVE	18.73	88000	6072	6.90%
SR-15	JCT. RTE. 163	12.12	294000	10966	3.73%
SR-15	SAN DIEGO, MIRAMAR/ POMERADO ROADS	15.00	291000	10942	3.76%
SR-15	SAN DIEGO, POWAY ROAD	18.76	255000	18105	7.10%
SR-15	SAN DIEGO/RIVERSIDE COUNTY LINE	0.00	127000	8573	6.75%
SR-52	SAN DIEGO, GENESEE AVENUE	2.90	92000	3036	3.30%
SR-52	JCT. RTE. 805	3.76	97000	3007	3.10%
SR-52	SANTO ROAD	8.71	76000	1976	2.60%
SR-54	JCT. RTE. 94	10.99	60000	2340	3.90%
SR-67	POWAY ROAD	15.20	22000	2024	9.20%
SR-75	CORONADO, POMONA AVENUE	17.46	25500	485	1.90%
SR-76	JCT. RTE. 5	0.00	52000	2288	4.40%
SR-78	OCEANSIDE, EL CAMINO REAL	1.50	153000	5294	3.46%
SR-94	SAN DIEGO, JCT. RTE. 805	5.70	187000	7293	3.90%
SR-94	JCT. RTE. 125	8.98	144000	5328	3.70%
SR-163	JCT. RTE. 5	0.89	110000	3300	3.00%
I-805	JCT. RTE. 54	8.85	245000	14700	6.00%
SR-905	JCT. RTE. 805	5.16	53000	4293	8.10%

Source: Caltrans District 11, 2006; SANDAG, 2006.

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**Table 8
San Diego Region Peak Vehicle and Truck Volumes
Year 2006**

Route	AM Peak Hour			PM Peak Hour		
	Total Vehicle Volume	Heavy Duty Truck volume	Truck percentage	Total Vehicle Volume	Heavy Duty Truck volume	Truck percentage
SR-94 JCT. RTE. 125	19189	514	2.68%	21565	290	1.34%
I-15 POWAY ROAD	17484	1695	9.69%	20565	1268	6.17%
I-15 West of SR-76	8403	1422	16.92%	10091	1995	19.77%
SR-76 (I-15 & I-5)	3777	195	5.16%	3839	106	2.76%
SR-52 (SR-125 & 805)	13151	745	5.66%	12372	506	4.09%
SR-56 (I-15& I-5)	10129	730	7.21%	16055	1314	8.18%
I-805 (SR-905 & SR-54)	9575	1213	12.67%	19916	1947	9.78%
SR-905 (East of I-805)	4312	827	19.18%	9607	1918	19.96%
I-5 west of SR-76	6872	1490	21.68%	15785	1732	10.97%
I-5 (SR-905 & SR-54)	15216	2003	13.16%	21989	1190	5.41%
I-8 (East of SR-125)	2514	684	27.21%	5029	454	9.03%

Source: Caltrans District 11, 2006; SANDAG, 2006.

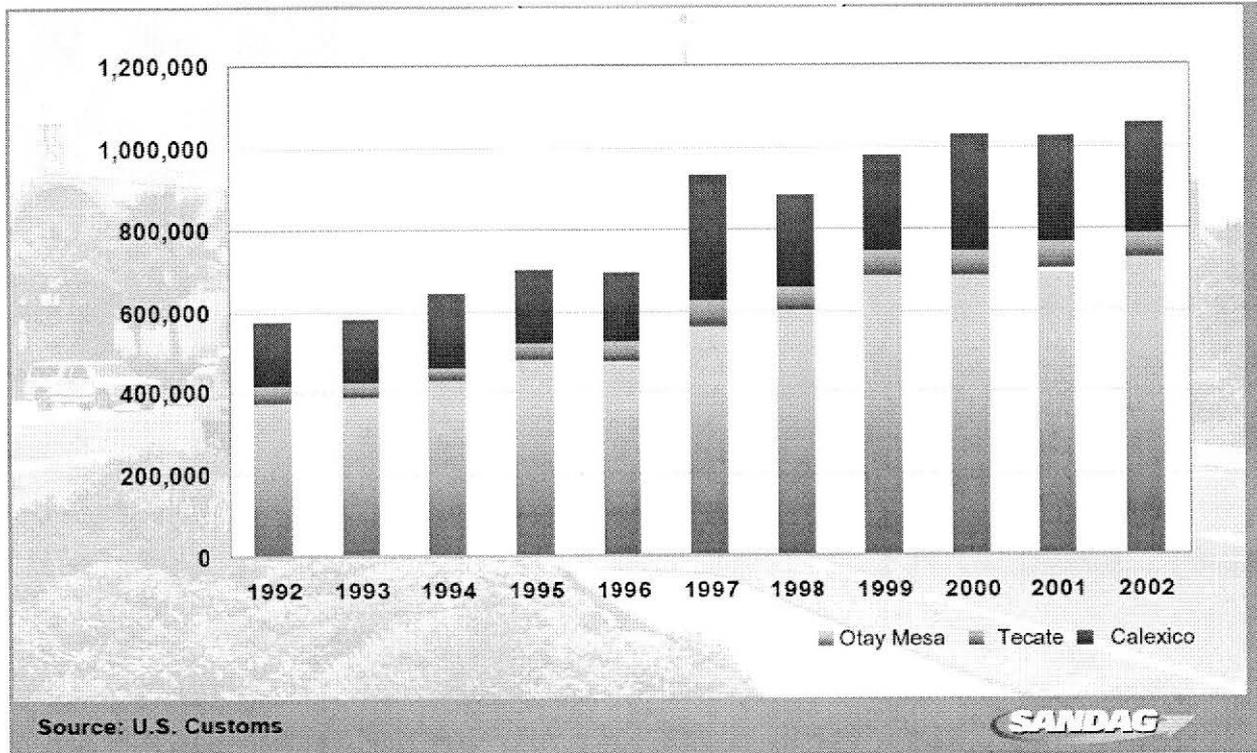
**Table 9
Border Crossings, 2005**

U.S. Port of Entry	Annual Trade Value (million \$)	Truck Crossings Entries per Day
Truck		
Otay Mesa Station, CA	24,417	5,175
Calexico, CA	10,750	2,303
Tecate, CA	1,157	479

Source: Trade value data are from U.S. Department of Transportation, Transborder Surface Freight Data (2005). Truck crossings data are from U.S. Customs and Border Protection, Border Crossing Statistics (2005).

Note: The border crossings are truck entries (imports) into California only, and do not include truck exits (exports) to Mexico.

Figure 12
Annual Cross-Border Truck Volumes



WAREHOUSING AND DISTRIBUTION

Warehouse, distribution, transload, and cross-dock operations occupy approximately 1.5 billion square feet of building space throughout the study area. This represents 15 percent of the nation, and 60 percent of the entire west coast markets. Warehouses and distribution centers in the MCGMAP area are an integral part of the regional goods movement system. These centers are places in the supply chain where goods merge and flow from various origins to multiple consumer end points. Warehousing and distribution centers are sites used to receive, deliver, consolidate, distribute, and store goods. Local and regional warehouses typically are selected to serve final users within a 24-hour order placement window. Because the Southern California region is the largest population center west of the Mississippi, many domestic facilities are located in the study area. International goods from multiple origins around the world come to the MCGMAP Region and are merged with other international products coming from multiple origins to leave the region and move to single inland locations (such as Memphis, Chicago, Columbus, etc.) Mixing international cargo is usually referred to as cross docking which means little or no product is going to be delivered locally. This confluence of two types of warehousing activities (serving inbound international freight and local domestic distribution) leads to the wide dispersion of warehouse locations.

Table 10 summarizes the total acreage (square foot) available and under construction for the warehousing, manufacturing, and distribution industry throughout the study area. In addition, the following is worth noting:

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- ◆ The greater Los Angeles County area is attractive to warehousing and distribution centers due to its proximity to the ports and consumers, the large labor force available, and the existing transportation centers and hubs.
- ◆ In Orange County, industrial land is frequently redeveloped for retail activities. Older warehousing and distribution facilities are in the relatively more expensive northern parts of the county, due to proximity to the seaports and current consumers. New warehouse facilities are being built further to the south, where more land is available at relatively lower costs.
- ◆ In Ventura County there are very limited warehouse and distribution facilities, relative to the other counties in the study area. The key contributing factor is the focus on agricultural land uses in the county, as well as relatively high housing costs for workers. The Ventura market is relatively stable with slightly declining vacancy levels and moderate increases in available space. The development of new industrial space has regained momentum.
- ◆ The Inland Empire (essentially defined as San Bernardino and Riverside Counties) has an especially strong warehouse and industrial market. This subarea is attractive to warehousing and distribution centers because it has areas of land available for large (one million plus square feet) facilities -- something that is in short supply throughout other portions of the MCGMAP study area.
- ◆ Warehousing and industrial land uses in San Diego County are concentrated at the border region. These facilities range in sizes that are typically 50,000 square feet.

The five main reasons that firms have located their warehouses and distribution centers in the MCGMAP study area are:

- ◆ Access to the two largest ports in the nation that are within the study area which is a strategic advantage point for unloading goods arriving from Asia for distribution around the U.S.
- ◆ Access to other Western U.S. cities such as Las Vegas and Phoenix and multiple transportation modes and distribution facilities makes these areas a desirable logistics hub.
- ◆ Access to a substantial local market of an estimated 17 million people, making it arguably one of the largest consumer markets in the country.
- ◆ The study area represents the third largest manufacturing center in the nation.²⁹
- ◆ Currently the warehousing, distribution, and manufacturing industry in the study area includes approximately 1.7 billion square feet (SF) of space, with an additional 30 million SF under construction as of the second quarter of 2006.

Table 10
Summary of Warehouse and Industrial Space within the MCGMAP Study Area

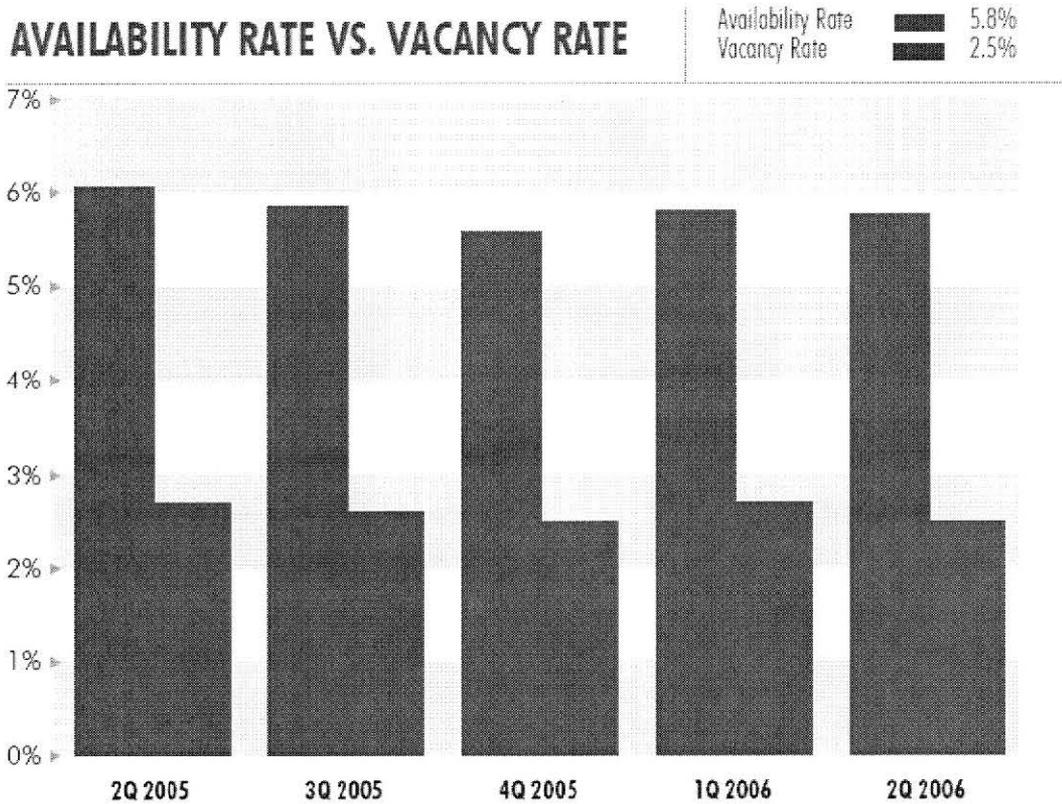
Market Area	Net Rentable Area (SF)	Availability Rate	Vacancy Rate	SF Net Absorption	SF Under Construction	Avg. Asking Lease Rate per SF
Los Angeles County	920,658,073	4.9%	1.4%	2,022,941	6,110,312	\$0.61
Inland Empire ¹	324,901,814	6.2%	3.2%	3,750,391	18,472,426	\$0.41
Orange County	245,244,115	5.7%	3.1%	525,978	1,162,263	\$0.63
San Diego County	189,907,900	9.0%	5.4%	741,174	4,553,785	\$1.05
Ventura County	60,059,272	7.6%	5.2%	461,936	536,202	\$0.72
Study Area	1,740,771,174	5.8%	2.5%	7,502,420	30,835,988	\$0.65

Source: National Association of Industrial and Office Properties (NAIOP) & C.B. Richard Ellis (CBRE), 2Q2006

Notes: ¹The data used comes from a source that specifically breaks out the Inland Empire as a subregion without giving more detail at the county level.

Figure 13 presents a series of graphs (1 through 4) and summaries related to the warehousing and industrial market in Southern California. Figure 13 represents several key indicators of the warehousing and distribution center marketplace that include (1) demand (availability and vacancy rate), (2) price (lease rates), (3) utilization (net absorption) and (4) construction activities within the study area in 2006.

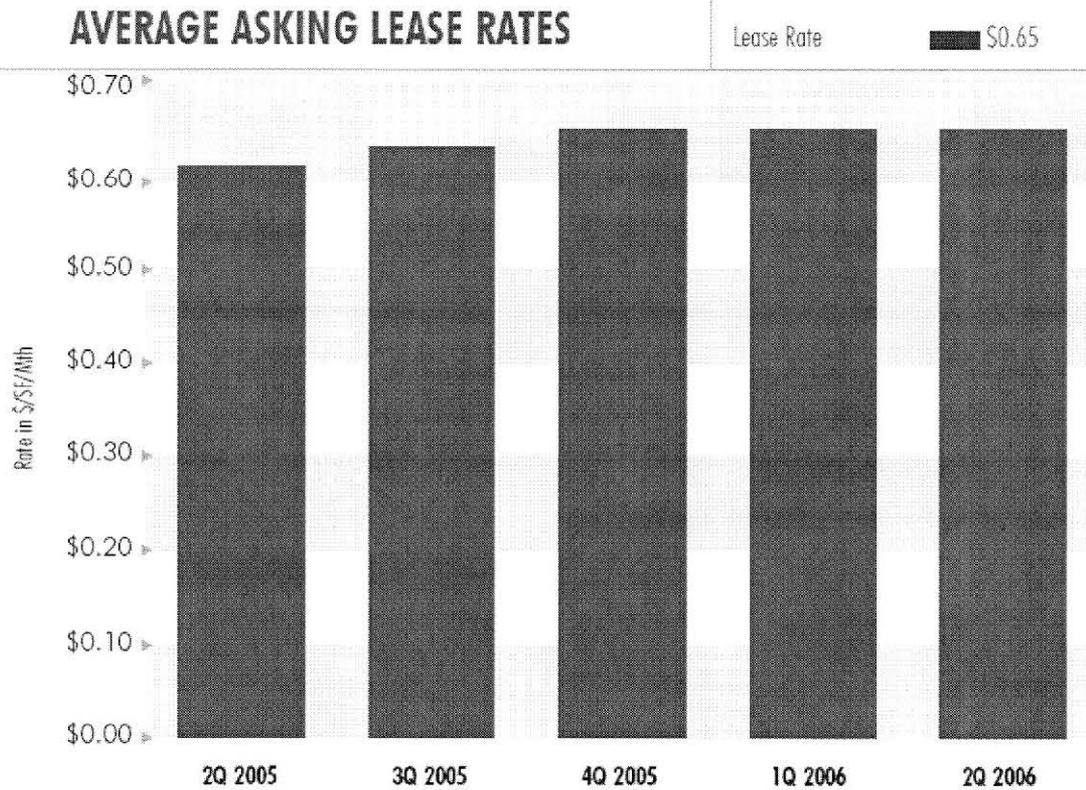
Figure 13



After increasing in the first quarter, the Southern California industrial vacancy rate experienced a drop to 2.5%, while the availability rate remained unchanged at 5.8%. Los Angeles Counties possess the lowest availability rate at 4.9%, while San Diego County and Ventura County reported the highest rates of Southern California at 9.0% and 7.6%, respectively. Orange County and the Inland Empire fall between the spectrums with rates hovering between 5.7% and 6.2%. Vacancy rates ranged throughout the five counties from the record-low 1.4% in Los Angeles County and Inland Empire to San Diego's rate of 5.4%.

Source: NAIOP / CBRE 2Q2006

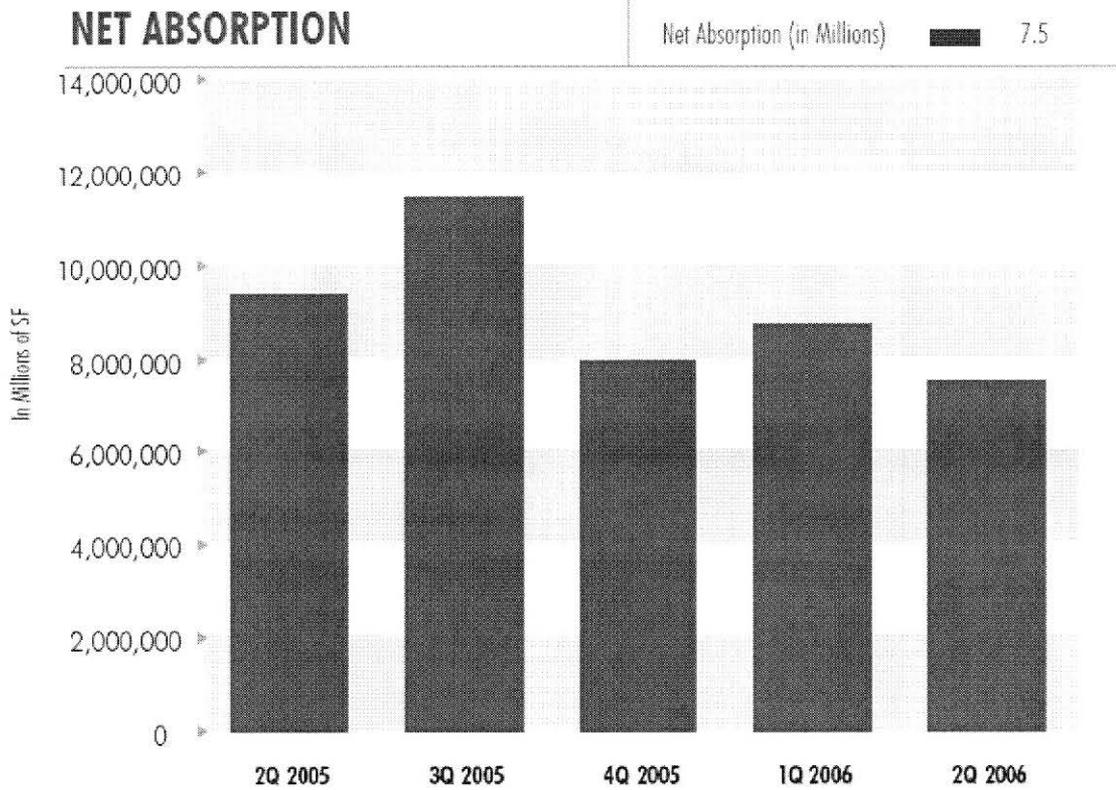
Figure 13
(Continued)



Standing at \$0.65 per square foot for three consecutive quarters, the average asking lease rate for the Southern California industrial product remained constant this quarter. Conversely, the majority of the markets witnessed a change in the average asking lease rate. Ventura County added \$0.06 this quarter to stand at \$0.72 per square foot. San Diego County also experienced an increase, rising \$0.03 to \$1.05 per square foot. Los Angeles County's lease rate decreased from \$0.63 to \$0.61 per square foot, as did the Inland Empire, which declined \$0.01 to post a rate of \$0.41 per square foot. Orange County, remained steady at \$0.63 per square foot.

Source: NAIOP / CBRE 2Q2006

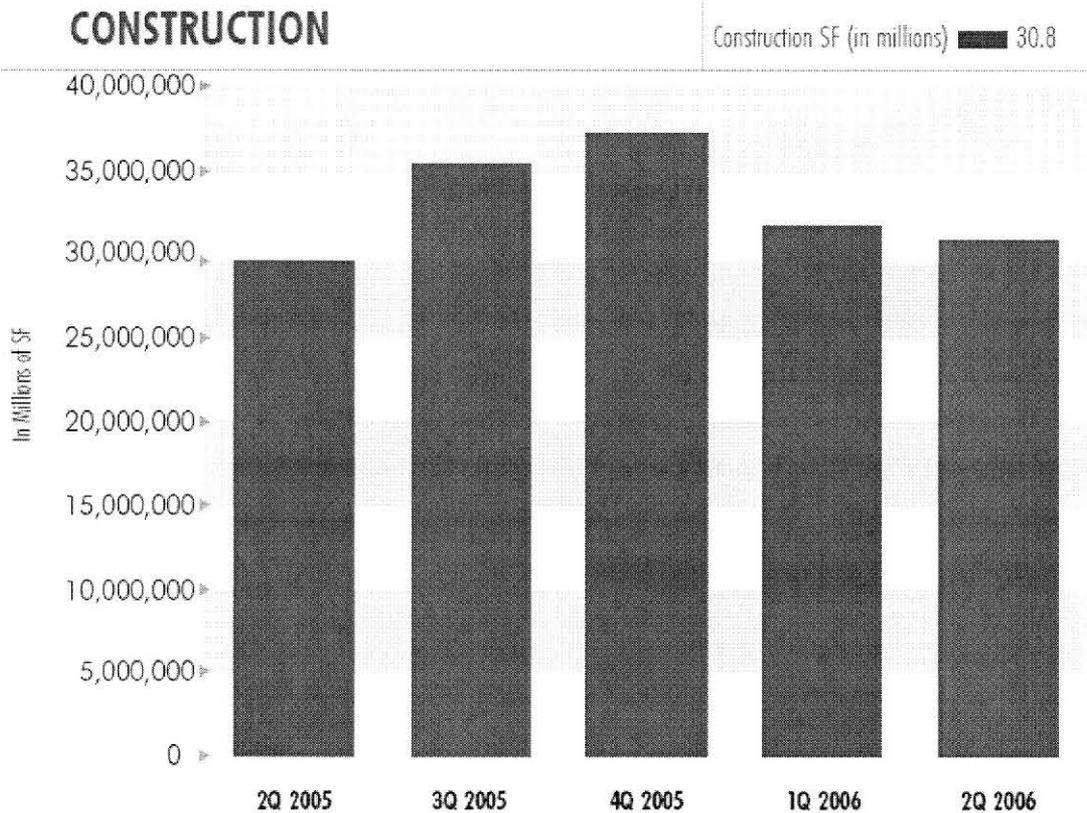
Figure 13
(Continued)



The Southern California industrial market experienced an additional 7.5 million square feet of net absorption in the second quarter, bringing the year-to-date total to over 16.2 million square feet of positively absorbed space. The majority of the absorption was in the Inland Empire where 3.8 million square feet was absorbed into the marketplace. A significant rise in activity was demonstrated in the Los Angeles market, which produced over 2.0 million square feet of absorption. A rise of demand also occurred in Ventura County, resulting in 461,936 square feet. A slowdown did take place in San Diego County, which absorbed a positive 741,174 square feet, whereas the Orange County market posted a steady 525,978 square feet of positive absorption.

Source: NAIOP / CBRE 2Q2006

Figure 13
(Continued)



New construction of industrial product within the Southern California market slowed to just over 30 million square feet under construction in the second quarter. Despite this minimal decrease, it is representative of a 4% annual increase over last year. The Inland Empire accounts for 60% of the total construction activity with 18.5 million square feet currently in the construction phase. Los Angeles County experienced a significant rise in new construction with 6.1 million square feet under development, as did Orange County, which pushed upward to 1.2 million square feet under construction. Construction of new space in San Diego and Ventura Counties kept at a steady level with 4.6 million and 536,202 square feet, respectively.

Source: NAIOP / CBRE 2Q2006

In addition, the warehouse sector is expected to remain strong, growing from 1.5 billion square feet of warehouse floor space in 2005 to over 4.5 billion square feet by 2030. This tripling of warehouse space needs is based on the assumption that international trade through the San Pedro Bay ports will triple from 2005 to 2030 to 42.5 million TEUs. The above trend is also based on the assumption that the demand is directly correlated to the number of TEUs through the ports. If the demand is directly correlated to the growth in population, the total warehouse space will increase to 1.87 billion sq ft. by 2030 due to population growth rate of 23%. Chapter 4 and Tech Memo 4a contain more information about warehousing growth and trends.

Further, the locations chosen by private sector developers for land uses associated with goods movement, specifically warehouses and distribution centers are shifting away from the traditional locations close to the ports and intermodal rail yards. This practice is impacting communities located throughout the study area and, in particular, to the east of Los Angeles. Increased truck travel to reach these more distant locations causes increased emissions and congestion. Moreover, these new warehouse and distribution facilities are appearing in high growth real estate markets where residential and other commercial development demands are growing. The result is a conflict between residential and goods movement uses. Therefore, the same concerns raised by communities around existing goods movement-intensive land uses (increased truck traffic, intrusion on neighborhoods and schools, noise, congestion, emissions, and safety) are emerging in new areas.

REGIONAL ISSUES AND CONSTRAINTS

Community Concerns about Environmental Impacts

The impacts of goods movement on the environment, quality of life and the resulting community concerns about these impacts is a major constraint to continued goods movement activities. Public health and other environmental impacts present a significant challenge to the future development of the goods movement system. Over time, the focus on types of air quality impacts has changed. For much of the 20th century, concerns were generally about the visual impacts. In recent years, as the visual nature of air pollution (smog) was reduced, concern shifted to the health impacts associated with various pollutants. Research conducted by the Keck School of Medicine at the University of Southern California (USC) indicates that the combination of gases and fine particles in transportation exhaust, especially diesel fuels, affects lung function and contributes to arterial thickening, birth defects, and low birth weights.³⁰ Data also indicates that the closer one lives to pollution sources, such as the ports, intermodal yards, or major freeways, the higher the risk. For example, the increased incidences of cancer and of asthma in children are shown to be related by proximity to pollution sources. Furthermore, the study area is required to demonstrate attainment with National Ambient Air Quality Standards (NAAQS) established per federal mandate. The U.S. EPA routinely evaluates air quality nationwide and periodically updates or establishes new standards (NAAQS). On April 15, 2004, EPA implemented an 8-hour ozone NAAQS (supplanting a previous 1-hour ozone standard), for which the South Coast Air Basin is to demonstrate attainment by 2021. These obligations cannot be achieved without making significant investments in environmental mitigation as well as a more focused effort to reduce the level of emissions from goods movement activities and other sources.

The widespread dissemination of this information has raised awareness and increased concern within affected neighborhoods. Environmental groups have forced a significant slowdown in port development in recent years. For example, the proposed Pier J expansion at the Port of Long Beach was halted due to concerns about the environmental document. Also, improvements to the China Shipping Terminal at the Port of Los Angeles were

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

CHAPTER 3 – EXISTING CONDITIONS AND CONSTRAINTS

delayed because of a lawsuit by the Natural Resources Defense Council (NRDC). Community-based resistance has also affected plans to address the existing levels of highway congestion.

There have also been some successful efforts working with local communities. For example, after nine months of deliberations by a broad-based group appointed by I-710 corridor communities and the I-710 Oversight Policy Committee (OPC) (collectively known as the Tier 2 Committee), a consensus emerged.³¹ This consensus also involved community-level committees (known as Tier 1 Committees) consisting of the most directly impacted communities in the corridor. The chairs of the Tier 1 Committees were also represented on the Tier 2 Committee, along with a representative named by each City Council in the remaining corridor cities.³² The committee recognized that something must be done to address the current congestion and design of the I-710 freeway, and that the hybrid design concept presented could accomplish maximum build-out in a manner that reflected the Tier 1 Committee's concerns and recommendations for their communities.³³

The experience and results of the I-710/Major Corridor Study show that consensus can be achieved when the community is involved at the local level. The consensus achieved on the I-710 hybrid alternative is a major success story and is proof that responsible agencies and communities can resolve differences and find a common agenda to move forward. The efforts of the I-710 / Major Corridor Study were led by Metro and the Gateway Cities Council of Governments. The MCGMAP will require similar success stories. Nevertheless, concerns over the negative health impacts of diesel emissions potentially threaten the viability of the I-710 improvements and other goods movement projects, including plans to expand rail intermodal capacity, airport capacity, and the development of warehouse and distribution facilities.

Also, the impacts associated with at-grade crossings include noise, congestion, emissions, and safety are still a major concern for some communities. While communities and transportation agencies have worked hard to address at-grade crossing issues, in conjunction with efforts to encourage diversion from truck to rail, there is a significant shortfall in funding to fully implement existing plans. The Alameda Corridor project was successful in eliminating conflicts at 200 at-grade crossings between downtown Los Angeles and the ports. The project continues to reduce accidents, emissions, and congestion, as well as improve safety for the traveling public. There are existing efforts to eliminate at-grade crossings east of Los Angeles. However, the amount of federal funding provided accounts for only 23 percent of what was requested. Alameda-Corridor East related projects, including specific grade separations, received approximately \$212 million of the estimated \$900 million requested as part of the most recent national transportation reauthorization bill. This is arguably a national issue given that the freight traffic on the rail system is headed for destinations throughout the nation. The shortfall in funding for grade separation projects has implications for the safety of the communities along the rail freight corridors.

Furthermore, Metrolink is embarking on a Sealed Corridor initiative. The purpose of the project is to enhance safety at crossings as well as to inhibit unauthorized vehicular access to rail rights-of-way owned by Metrolink. The current focus is on at least 57 crossings in the San Fernando Valley and Ventura County. This project gained increased attention following an incident within the railroad right-of-way in the San Fernando Valley.

System-wide Goods Movement Data Limitations

Good information and data are required to make informed decisions about the goods movement system and its impacts. Currently, the level of existing data and information is not sufficient to effectively support decisions concerning an ever-changing market-driven goods movement industry. There are two specific areas of concern regarding data limitations. The first is the data and information used to support travel demand modeling tools and techniques. The second is a lack of system-wide performance data for the goods movement system. While carriers and modal operators typically have data and information regarding the performance of their particular areas, there is no system-wide approach to monitoring and managing the performance of the system as a whole. Shippers and receivers have good data about their specific shipments, including location, volume, type, and other information they need to make decisions about the allocation of their inventory and stock. There is no current method to track data that would provide information about the operational aspects of the modal system, efficiencies, performance, bottlenecks and delays that occur, average speeds, the velocity of the system, and the allocation of assets (e.g., trucks, chassis, container slots) other than the areas within their respective sphere.

Not having a means for measuring and determining performance across the system undermines the ability to identify opportunities for optimization throughout the system. System-wide measures will likely help identify opportunities for improving performance. Also, the lack of system-wide performance data undermines the effectiveness of policies and investments directed at specific issues. For example, existing port policies directed at shifting truck traffic to off-peak hours have been effective at reducing congestion on the highway system.³⁴ However, these policies have had negative impacts for individual truck drivers who spend longer hours away from their families,³⁵ as well as for communities near warehouses and distribution centers that now have to deal with more noise and traffic at night. Performance measures for all aspects of the goods movement system, including operations and throughput, congestion and delay, air quality and emissions, and others, are needed to improve the effectiveness of the system.

Security

The existing conditions of the goods movement system present significant safety concerns for the public, specifically safety concerns regarding at-grade crossings and truck accidents. In addition, the increased focus on the security of the system has placed a significant fiscal burden on the owners and operators of the goods movement system, particularly at the ports and airports. While there are existing federal programs to improve security, seaports, and airports, owners must fund many of the security projects using their own limited resources. Congress is currently evaluating the effectiveness of security procedures and programs for air cargo and maritime cargo. For example, one of the options for air cargo is to implement 100 percent screening, requiring large amounts of land near air cargo facilities, the consolidation of air cargo facilities, additional warehouse screening buildings, separate secure access roads for trucks, increased security personnel, and screening equipment and technology.

Funding

While the goods movement system is largely intermodal, the organizations and entities involved in movement of goods are structured to operate independently and often with competing interests. This leads to missed opportunities for the coordinated funding and deployment of system-wide solutions. A lack of funding affects all modes. It presents a significant obstacle to reaching a balanced emphasis on expenditures that improves the competitiveness of the goods movement system and minimizes the impact on the health and well being of the community. As such, funding for goods movement-related projects is falling behind. The most tangible example

is the shortfall in funds requested by communities and agencies in the study area in conjunction with the most recent national transportation reauthorization legislation (SAFETEA-LU). Although its political leaders and transportation agencies jointly supported several key projects for funding, the study area received a minor share of the total amount requested. While there is a growing awareness of the existing capital needs required to accommodate goods movement as well as to mitigate the impact of goods movement, this awareness has not translated into funding. The MCGMAP will address the need for mechanisms that translate the value (created by improvements to the goods movement system) into revenue that can be earmarked for improving the infrastructure and meeting mitigation needs.

Fragmented Goods Movement Systems and Processes

The study area's ports, airports, rail carriers, and intermodal terminals have existing capacity constraints that undermine the efficiency and productivity of the system as a whole. Today's goods movement system optimizes each mode within the supply chain independently. Gaps occur at the points of interface where information and ownership of the goods are exchanged. This fragmentation makes it difficult to tackle the issues in a coordinated and strategic manner. Although the system operates well enough to allow goods to effectively move from mode to mode, the organizations involved in goods movement (private carriers, intermodal operators, warehouse and logistics operators, port owners and operators, and the public entities and transportation agencies) function independently. Many of the identified issues and constraints require a system-wide solution. Private sector entities operate in a competitive environment that make it difficult to create broad-based support for major solutions, since a solution that helps one mode may reduce the competitiveness of another. While individual operators within the system address operational and investment strategies within their respective sphere of influence, they neither have the means nor the information to address system-wide issues. Coordination among the modal components, where it does exist, is solely undertaken to increase their competitive edge. Wal-Mart is the leader in supply chain integration and it has often been said that Wal-Mart is a supply chain company that happens to have retail stores.

Public agencies each have their own specific transportation planning and outreach processes that typically have differing priorities and time horizons for decision making and investments. A project viewed as a priority in one jurisdiction may be viewed as competition for finite resources by a neighboring jurisdiction. There are many communities affected by goods movement throughout the study area, and each represents potentially different ideals and priorities. One community's view of economic growth and prosperity may translate to health and congestion concerns in another. The challenge is to develop an institutional approach that can garner the collective support of communities as well as the public and private sectors to tackle specific solutions that are broad and system-wide.

Chapter 4 – Future Demand Forecasts

This chapter summarizes the work done under Task 4 to build the Action Plan, which is further described in Tech Memos 4a (Freight Demand) and 4b (System Performance Report). These memoranda documents projected levels of goods movement activities, evaluate highway and rail system performance, and outline four scenarios for future growth and investment in goods movement facilities. The scenarios contained at the end of this chapter will be evaluated in Chapter 6 to determine a range of potential projects, strategies, and mitigation measures. In order to evaluate the potential impacts of various components of the region's freight system demand forecast for 2030 were developed. The following is a summary of freight demand forecasts for various components of the region's goods movement system that include marine cargo, air cargo, rail, truck flow and warehouse, and distribution centers:

Marine Cargo Forecasts

The study region's ports expect dramatic growth in cargo flows. Driving this growth is the nation's reliance on imports from Asia, particularly from China, whose economy has been growing at an average annual rate of 9 percent over the past two decades. China is on pace to become the largest exporter in the world, overtaking the U.S. and Germany by 2010, producing as much as 10 percent of global trade, up from a current share of 6 percent¹.

Container volume through the San Pedro Bay Ports of Los Angeles and Long Beach are projected to triple from 15.7 million Twenty-Foot Equivalent Units (TEUs) in 2006 to 42.5 million TEUs by 2030². These forecasts are capacity constrained at a level significantly below anticipated demand for the study area. One independent study has predicted unconstrained cargo demand to reach 59.4 million TEUs by 2020³. The 42.5 million TEU forecast represents a compound annual growth rate that is half the San Pedro Bay Ports historical growth rate of 9.7 percent between 1985 and 2005, and half of China's growth rate over the past two decades. These capacity constrained forecasts also consider that there will be an improvement in terminal productivity from a current average throughput level of 4,700 TEUs per acre per year to over 10,000 TEUs per acre per year. The actual number of containers utilizing the landside transportation system will grow from a level of 7.7 million containers to 23 million by 2030, of which 23 percent or 5.3 million will be local and 77 percent or 17.7 million are considered long-term discretionary [non-local]⁴. Of the long-term discretionary market, 52 percent or approximately 9.2 million containers would move by rail and the remainder by long-haul truck.

Air Cargo Forecasts

Growth in air cargo has moderated in the last few years as compared to the booming 1980s and 1990s. While air cargo will continue to focus on major international gateways such as Los Angeles International Airport (LAX), the trend away from belly space (described later in this section) provides opportunity for air cargo development at smaller regional airports.

According to Boeing, which manufactures air cargo aircraft, the domestic and international air cargo sectors are expected to continue growing at an annual rate of 4.1 percent and 6.8 percent respectively. Using these rates, air cargo volumes for the study area will grow from a level of 2.8 million tons in 2004 to 10.7 million tons by 2030, of which 5.9 million tons will be international and 4.8 million tons will be domestic. The SCAG air cargo forecast through the year 2030 for the region fall between the Boeing based and FAA based air cargo forecasts. The SCAG forecasts anticipate the annual tonnage for the year 2030 to be over 8.7 million tons.

Table 11
Comparison of Air Freight Forecasts within the Study Region

Forecast	2010 Annual Tons	2020 Annual Tons	2030 Annual Tons
SCAG	3,300,000	6,312,000	8,724,000
FAA	3,585,600	5,668,900	n/a
Boeing	3,735,469	6,319,300	n/a

Table 12 details the growth rates used to develop the air cargo forecasts presented in Table 13. Table 13 details the total air cargo forecast for the study area, encompassing airports reporting air cargo activity. (LAX accounts for the majority of current and forecasted activity or over 75 percent of total air cargo volume). As illustrated in Table 14, the SCAG forecasts show these airports, particularly March Air Reserve Base (RIV), as garnering an increasing share of the region's total air cargo activity; 9 percent by 2010, 17 percent by 2020, and 20 percent by 2030.

Table 12
2004-2024 Air Cargo Forecast Factors
Boeing and FAA Growth Rates

Market Pair	Direction	Annual Growth
Boeing Forecast		
Domestic	Inbound	4.1%
	Outbound	4.1%
US-Canada	Inbound	6.8%
	Outbound	6.8%
US-Asia Pacific	Inbound	7.3%
	Outbound	7.2%
US-Europe	Inbound	5.8%
	Outbound	5.2%
US-Latin America/ Caribbean*	Inbound	6.1%
	Outbound	5.5%
US-Mid-East/Africa	Inbound	4.7%
	Outbound	4.7%
FAA Forecast		
Domestic		3.3%
International		6.3%

*Includes Mexico

Source: Boeing World Air Cargo Forecast 2004/2005,
 FAA Aerospace Forecasts, Fiscal Years 2005-2016

Table 13
MCGMAP Region Air Cargo Forecast Summary
2004-2024 Annual Tons

	Annual Growth	2004 (Actual)	2009	2014	2019	2024
Boeing Forecast						
Domestic Total:		1,680,586	2,054,539	2,511,702	3,070,589	3,753,836
Inbound	4.1%	792,773	969,176	1,184,830	1,448,471	1,770,775
Outbound	4.1%	887,813	1,085,363	1,326,871	1,622,118	1,983,061
International Total:		1,069,871	1,493,451	2,087,059	2,919,693	4,088,588
Inbound	6.8%	679,852	957,364	1,348,905	1,901,581	2,682,046
Outbound	6.8%	390,019	536,086	738,154	1,018,113	1,406,542
Boeing Forecast Total:		2,750,457	3,547,990	4,598,761	5,990,282	7,842,424
Inbound		1,472,625	1,926,540	2,533,735	3,350,052	4,452,821
Outbound		1,277,832	1,621,450	2,065,025	2,640,231	3,389,603
FAA Forecast						
Domestic	3.3%	1,680,586	1,976,798	2,325,220	2,735,052	3,217,119
International	6.3%	1,069,871	1,452,104	1,970,898	2,675,041	3,630,753
FAA Forecast Total:		2,750,457	3,428,902	4,296,117	5,410,092	6,847,872

*Includes Mexico

Source: Bureau of Transportation Statistics - FAA T-100 Data, Boeing World Air Cargo Forecast 2004/2005, FAA Aerospace Forecasts, Fiscal Years 2005-2016

Table 14
SCAG Air Cargo Forecast
2010, 2020, 2030 Annual Tons

		2010	2020	2030
SCAG Forecast				
Bob Hope-Burbank	BUR	60,000	87,000	87,000
Los Angeles International	LAX	1,570,000	2,059,000	2,340,000
Long Beach	LGB	86,000	133,000	137,000
Ontario International	ONT	876,000	1,536,000	2,252,000
Palmdale Regional	PMD	119,000	605,000	1,024,000
Palm Springs International	PSP	82,000	123,000	128,000
March Air Reserve Base	RIV	132,000	627,000	1,117,000
San Bernardino International	SBD	253,000	756,000	1,092,000
John Wayne-Orange County	SNA	41,000	43,000	43,000
Southern California Logistics	VCV	81,000	343,000	504,000
SCAG Forecast Total		3,300,000	6,312,000	8,724,000

Source: SCAG 2004 Regional Transportation Plan, Technical Appendix D-6-11, Preferred Aviation Plan

Competition for space impacts the airports within the study area, particularly at LAX, where a high demand exists for both passenger and cargo services. At LAX, there are delays in processing cargo due to the scarcity of on-airport cargo warehousing and processing facilities. Runways, taxiways, aprons to park aircraft, maintenance facilities, and cargo-handling facilities, which are essential for air cargo services, require a substantial amount of land. One strategy to alleviate this competition for space at LAX is to attract cargo to newly developed cargo-only airports within the study area. Ontario Airport is currently filling this role, and it is anticipated that as Los Angeles metropolitan area grows, March Air Reserve Base and Southern California Logistics Airport will also expand activity in support of the region's air cargo market. Also, the new master plan for the Palmdale Regional Airport could play a significant role in the ways airports and airlines do business today. This new master plan will guide the development at the airport through the year 2030.

Rail Forecasts

Train volumes are expected to increase significantly on the study area's mainline tracks. Growth in train traffic is driven by international trade, domestic intermodal and carload business (which is assumed to grow at the same rate as the domestic economy), and passenger service (Amtrak and Metrolink). These projections are based on the assumption that TEUs through the Ports of Los Angeles and Long Beach will triple to 42.5 million TEUs from 2005 to 2030. Depending on Metrolink's ultimate growth plan for passenger services, weekday train volumes through the Colton crossing could reach 255 trains by 2025. Train traffic through the Alameda Corridor is expected to reach 144 trains per weekday (an increase of nearly three times averaging 47 trains per day in 2005), and 189 trains per weekday through the Cajon Pass (compared to 96 trains for the year 2000).

Growth forecasts are translated into freight and passenger rail traffic based on computer simulations of rail traffic patterns along the Alameda Corridor through 2025, including rail infrastructure improvements needed to accommodate the expected growth. The forecasts indicate the following:

- ◆ Rail-freight traffic experiences an increase of more than 100 percent from 112 in 2000 to 250 by 2025.

- ♦ Passenger train (commuter rail) volumes escalate to 140 by 2025 from 58 in 2000, an increase of one-and-half times, or 150 percent.
- ♦ Total trains volume increases to more than double from 170 in 2000 to 390 by 2025, or by over 100 percent.

The rail segments that experience significant increase in train volumes by 2025 are as follows.

- ♦ Freight trains passing through the segments from Barstow to San Bernardino, San Bernardino to Colton, Colton to West Riverside, and Fullerton to Hobart and through the Cajon Pass would be between the ranges of 161 to 212 trains per day.
- ♦ Commuter rail between Fullerton to Hobart, Hobart to Redondo, and Orange to San Diego via Irvine and Oceanside would range between 93 to 120 trains per day.
- ♦ Total trains (freight and passenger) on the segments from West Riverside to Atwood, Fullerton to Hobart, Hobart to Redondo Junction and through the Cajon Pass would have to accommodate 163 to 255 trains per day.

Figure 14 on the following page shows the Year 2025 forecast for freight and passenger train volumes within the study region.

Within the study area rail lines, increased freight volumes to and from the Ports of Los Angeles and Long Beach combined with increased passenger rail service along already congested lines will lead to further delays along the rail network. The delays would increase on the BNSF freight line from 32 minutes in 2000 to 206 minutes by 2010 and on the UP freight line from 30 minutes in 2000 to 197 minutes by 2010 per train. These delays will impact both passenger service and freight supply chains. There are also capacity constraints in terms of the number of tracks available and the demand for both passenger and freight service along shared lines.

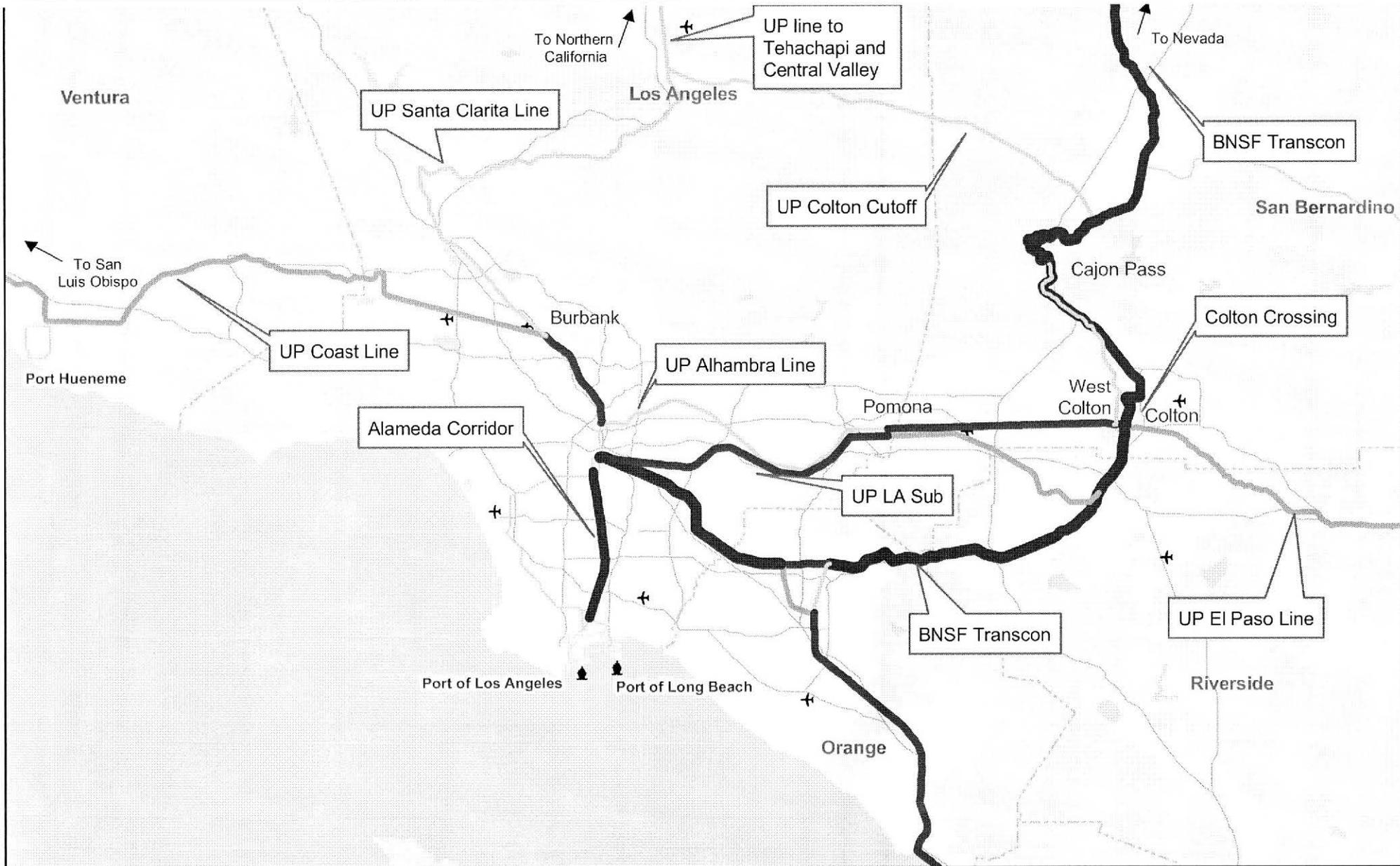
Intermodal Rail Forecasts

There are three distinct intermodal rail market components (1) international on-dock and off-dock, (2) transload intermodal (which is international cargo converted into domestic containers), and (3) exclusive domestic intermodal. All are expected to grow significantly through 2030. Table 15 contains a summary of the rail intermodal forecasts. As a whole, the study area is expected to generate roughly 13.5 million intermodal lifts by 2030, a threefold increase from 2005 levels. Approximately, 68 percent of the intermodal market is expected to be direct marine intermodal transfers, 14 percent is expected to be transloaded marine cargo, and 18 percent is expected to be exclusively domestic.

**Table 15
Summary of Intermodal Forecasts
Millions of Containers/Lifts**

	2010	2020	2030
Int'l Intermodal	4.259	7.827	9.189
Transload Intermodal	0.871	1.601	1.879
Domestic Intermodal	1.428	1.863	2.430
Total	6.558	11.291	13.498

Source: Wilbur Smith Associates, 2006



Legend
Volumes (Trains/Day)

- 27 - 49
- 50 - 81
- 82 - 130
- 131 - 162
- 163 - 255

- Water
- Urban Areas
- County Boundary
- Freeways
- Ports
- Airports

Year 2025 Forecast of Freight and Passenger Rail Volumes on the Study Area Mainlines

Source: Wilbur Smith Associates, 2006
TeleAtlas StreetMap USA

0 2.5 5 10 15 20 Miles



Figure 14

Truck Flow Forecasts

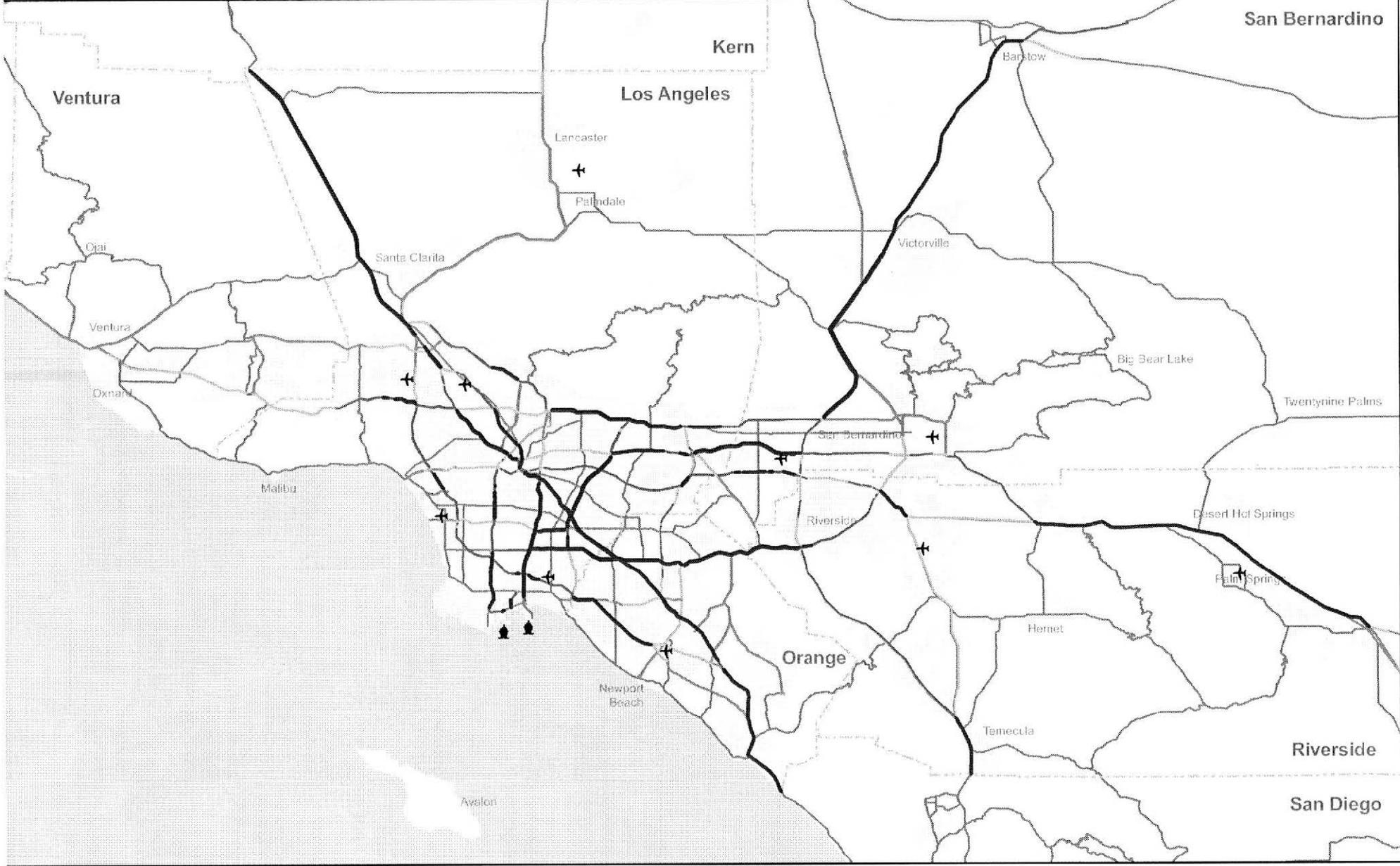
Despite projected growth in intermodal rail volume, which assumes an aggressive on-dock rail expansion program, truck traffic throughout the region is expected to increase substantially through 2030. The SCAG Heavy Duty Truck model projects truck vehicle miles of travel (VMT) will increase by over 110 percent by 2030, growing from a level of 22.4 million VMT in 2000 to 48.4 million VMT by 2030. Some freeways in the region currently handle up to 40,000 trucks per day, and by 2025, these freeways may need to handle up to 80,000 trucks per day⁵. As a result of the growth in passenger and truck traffic, the highway system's performance will deteriorate significantly. Average speeds will drop from 35.9 mph in 2005 to 31.9 mph by 2030, causing an average of 5.4 million hours of delay daily for all traffic and 242,000 hours of delay for heavy duty trucks⁶. Areas in the vicinity of freight corridors and facilities (e.g., seaports, warehouses, etc.) will continue to experience significant impacts due to truck traffic. While the share of automobile and truck traffic at the San Pedro Bay Ports was relatively balanced between the two ports in 2000, truck volumes are expected to be 50 percent higher than automobile traffic by 2027. While several highway routes serve as key transportation corridors for freight movements, the I-710 and I-110 corridors are expected to experience the most significant increases in peak-hour port truck volumes by 2025⁸.

Travel demand forecasts for the study area were prepared using the Southern California Association of Governments (SCAG) Draft 2030 Air Quality Management Plan (AQMP) Baseline model. For instance, the forecast truck volumes for the Year 2030 indicate the following:

- ◆ US-101 will experience significant increase in truck volumes between I-110 to SR-170 from 7,000 to 35,000 by 2030 and between SR-170 to I-405 from 8,000 to 26,000, an increase of more than 300 percent and 200 percent, respectively, when compared to 2003.
- ◆ I-605 between SR-91 and I-105 shows an increase from 11,000 in 2003 to almost 29,000 by 2030, an approximately 150 percent increase in daily volumes.
- ◆ SR-60 from its terminus to I-710 shows an increase of approximately 110 percent from 10,000 in 2003 to more than 21,000 daily volumes by 2030.
- ◆ Truck volumes on I-405 between I-110 and SR-91 escalate from 11,000 to more than 24,000 by 2030, an increase of more than 100 percent.
- ◆ The section of I-15 between I-210 to I-215 will experience an increase of more than 100 percent truck volumes from 17,000 in 2003 to 36,000 by 2030.
- ◆ Truck volumes on a section of I-110 between I-105 and I-10 increase from 15,000 to almost 30,000 by 2030, an increase of more than 100 percent.
- ◆ Truck volumes on I-710 between I-5 and SR-60 increase to more than 70 percent from 11,000 in 2003 to 19,000 by 2030.
- ◆ On I-10, the section between I-405 and I-110 shows an increase of 60 percent from 10,000 in 2003 to more than 16,000 truck volumes by the year 2030.
- ◆ SR-91 will experience an increase in truck volumes by about 60 percent between I-710 and I-605 from 25,000 in 2003 to 40,000 by 2030.
- ◆ The daily truck volumes on I-5 between SR-55 and SR-57 show an increase of more than 50 percent from a little more than 20,000 in 2003 to about 34,000.

Figures 15, 16, 17, 18, and 19 on the following pages depict Year 2030 forecast volumes on the roadways for the five counties within the SCAG region (e.g. Los Angeles, Orange, Riverside, San Bernardino and Ventura). Figure 15 shows the Year 2030 ADT volumes for trucks, while Figure 16 shows the Year 2030 ADT volumes for vehicles. Figures 17, 18 and 19 show the range for port-related ADT volumes for trucks, external (through the region) ADT volumes for trucks, and internal (within the region, not port-related or external) ADT volumes for

trucks, respectively. Figures 20 and 21 shows the mobility problems that occur on the highway system during peak hours. The high volume-to-capacity ratios are concentrated in along corridors that currently and in the future will continue to be major connectors that feed the Los Angeles central business district, other industrial and warehouse centers, residential areas, and other employment centers. (The volume-to-capacity ratios compare daily roadway capacity to average daily traffic volumes and therefore may be lower than if the ratios were computed for peak-hour conditions.)



Year 2030 System Performance

Forecast ADT on SCAG Region Highways Trucks



- 0
 - 1 - 7409
 - 7410 - 11632
 - 11633 - 15561
 - 15562 - 36515
- Water
 - Urban Areas
 - County Boundary
 - Other Highways
 - Ports
 - Airports

0 5 10 20 30 40 Miles

Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

10/18/06

Figure 15



Year 2030 System Performance

Forecast ADT on SCAG Region Highways

Vehicles



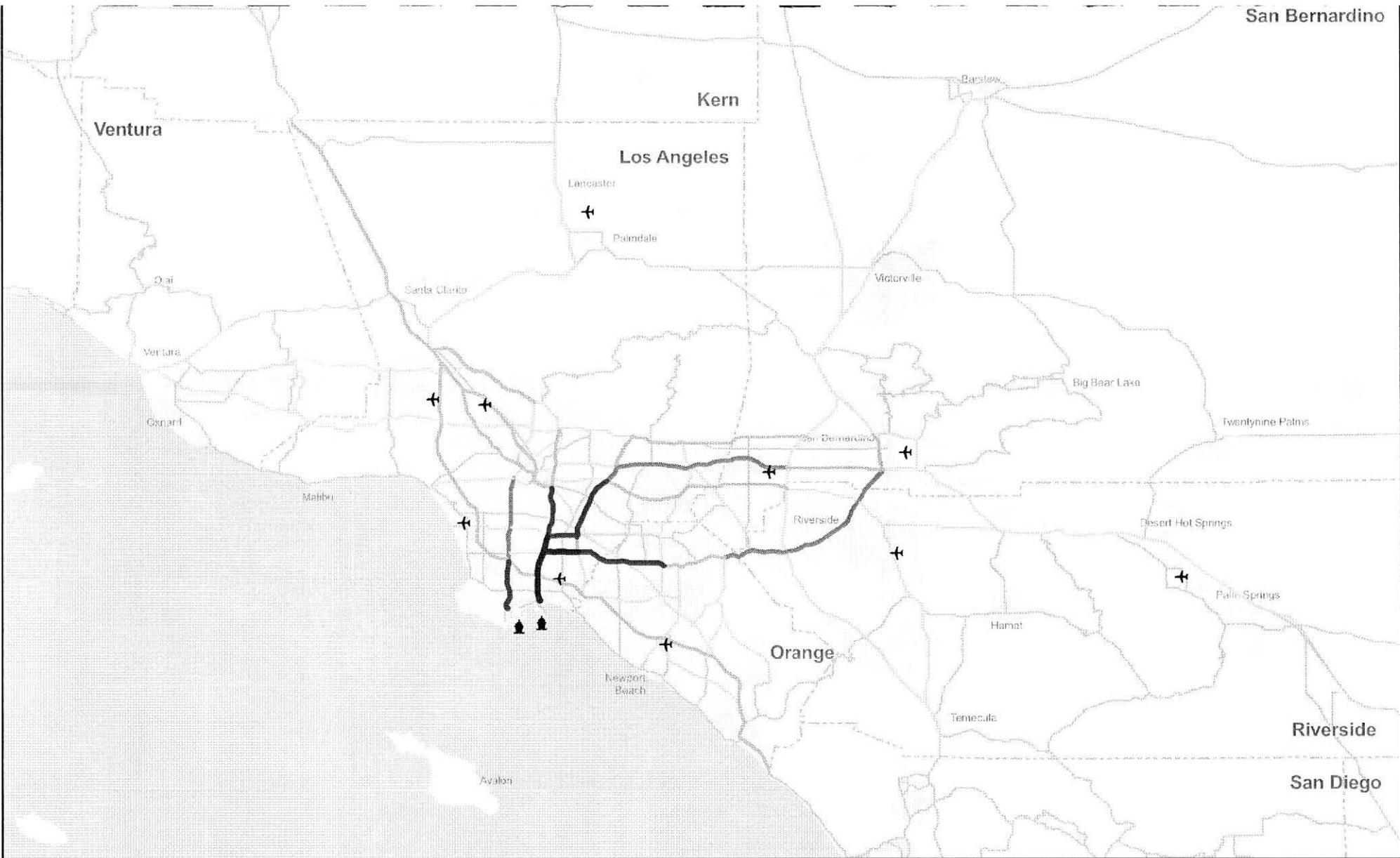
Source: SCAG Draft 2030 AOMP
 Travel Demand Model Baseline
 TeleAtlas StreetMap USA

- 85 - 28143
 - 28144 - 56634
 - 56635 - 99072
 - 99073 - 126304
 - 126305 - 268315
- Water
 - Urban Areas
 - County Boundary
 - Other Highways
 - Ports
 - Airports



10/18/06

Figure 16



Truck Volume

- 0 - 1000
- 1000 - 5000
- 5000 - 10000
- 10000 - 20000
- greater than 20000

- Water
- Urban Areas
- County Boundary
- Other Highways
- Ports
- Airports

Year 2030 Heavy Truck Volume Port Origin/Destination

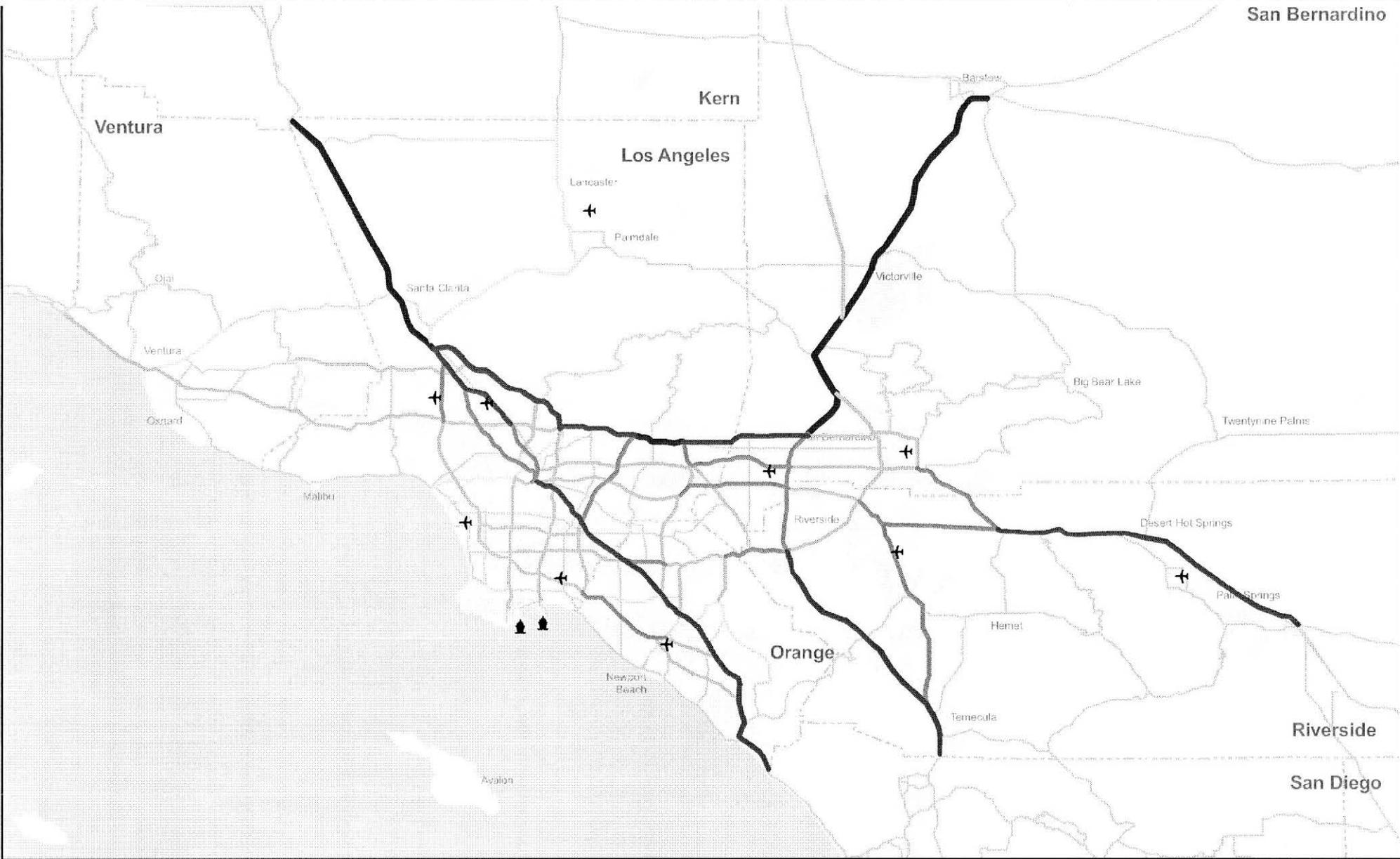
0 5 10 20 30 40 Miles



Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

02/19/07

Figure 17



Truck Volume

- 0 - 1000
- 1000 - 5000
- 5000 - 10000
- 10000 - 20000
- greater than 20000

- Water
- Urban Areas
- County Boundary
- Other Highways
- Ports
- Airports

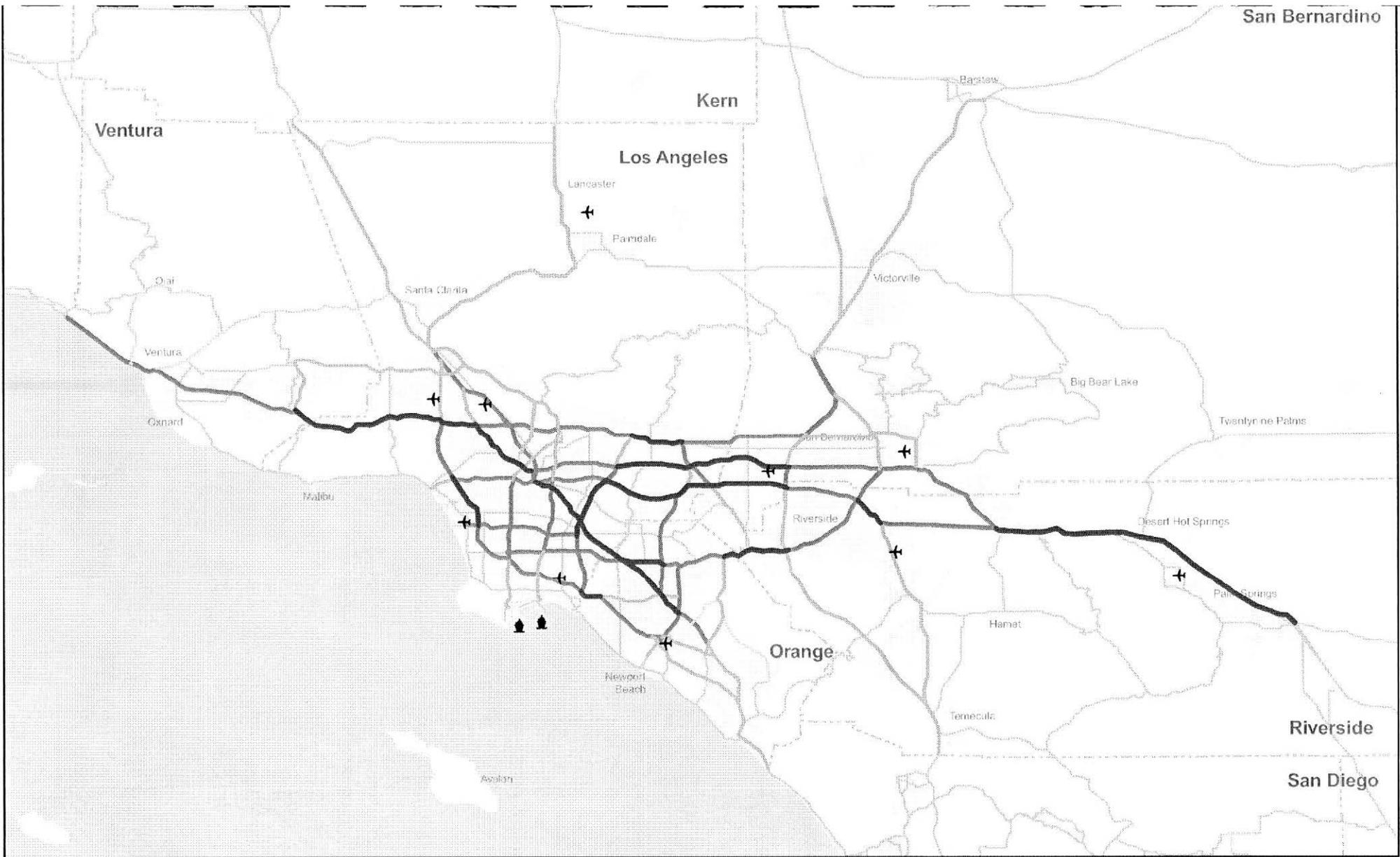
Year 2030 Heavy Truck Volume External (Outside the Region) Origin/Destination



0 5 10 20 30 40 Miles

Figure 18

Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA



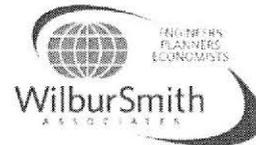
Truck Volume

- 0 - 1000
- 1000 - 5000
- 5000 - 10000
- 10000 - 20000
- greater than 20000

- Water
- Urban Areas
- County Boundary
- Other Highways
- Ports
- Airports

Year 2030 Heavy Truck Volume Internal (Inside the Region) Origin/Destination

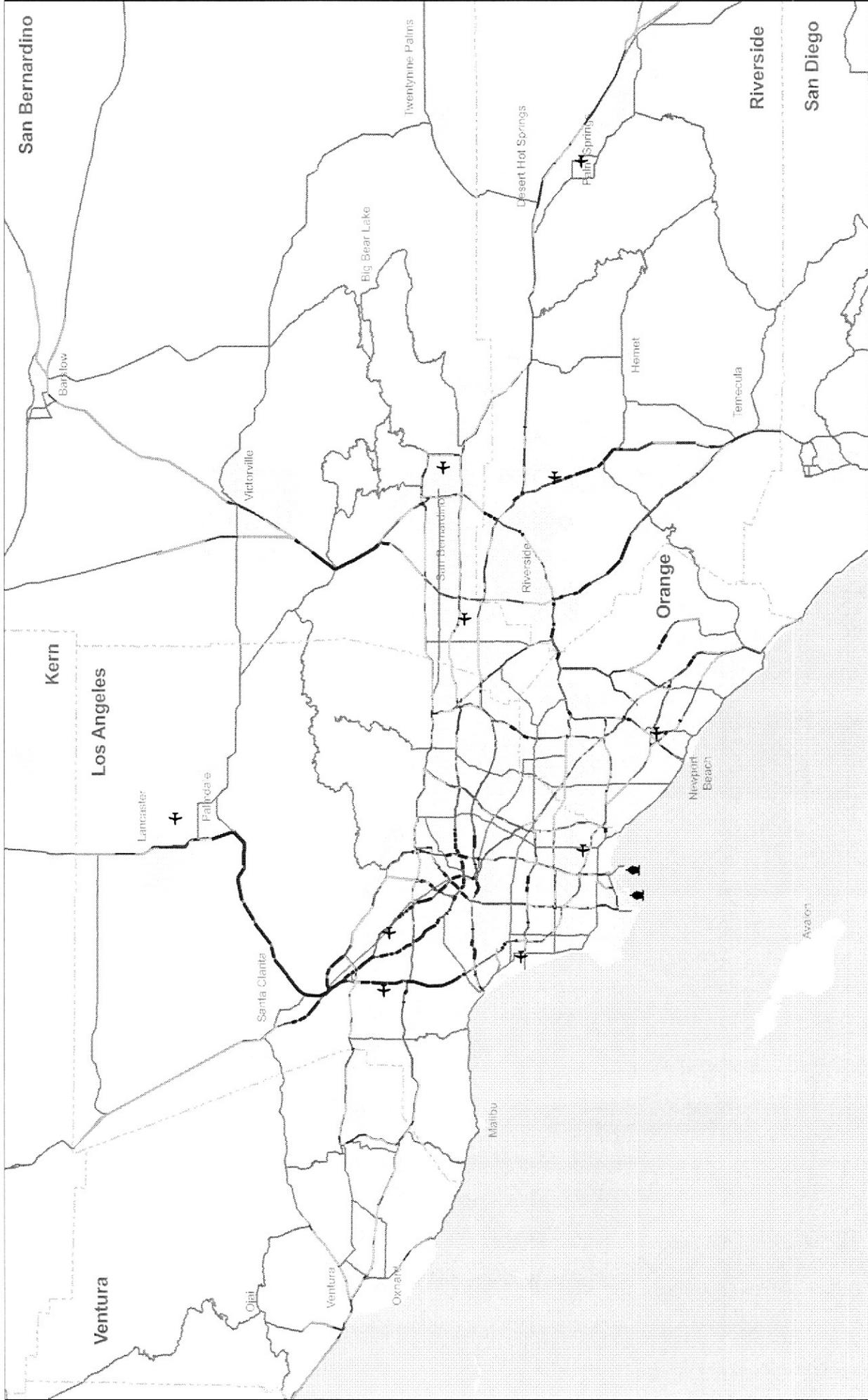
0 5 10 20 30 40 Miles



Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

02/19/07

Figure 19



Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

Year 2030 System Performance

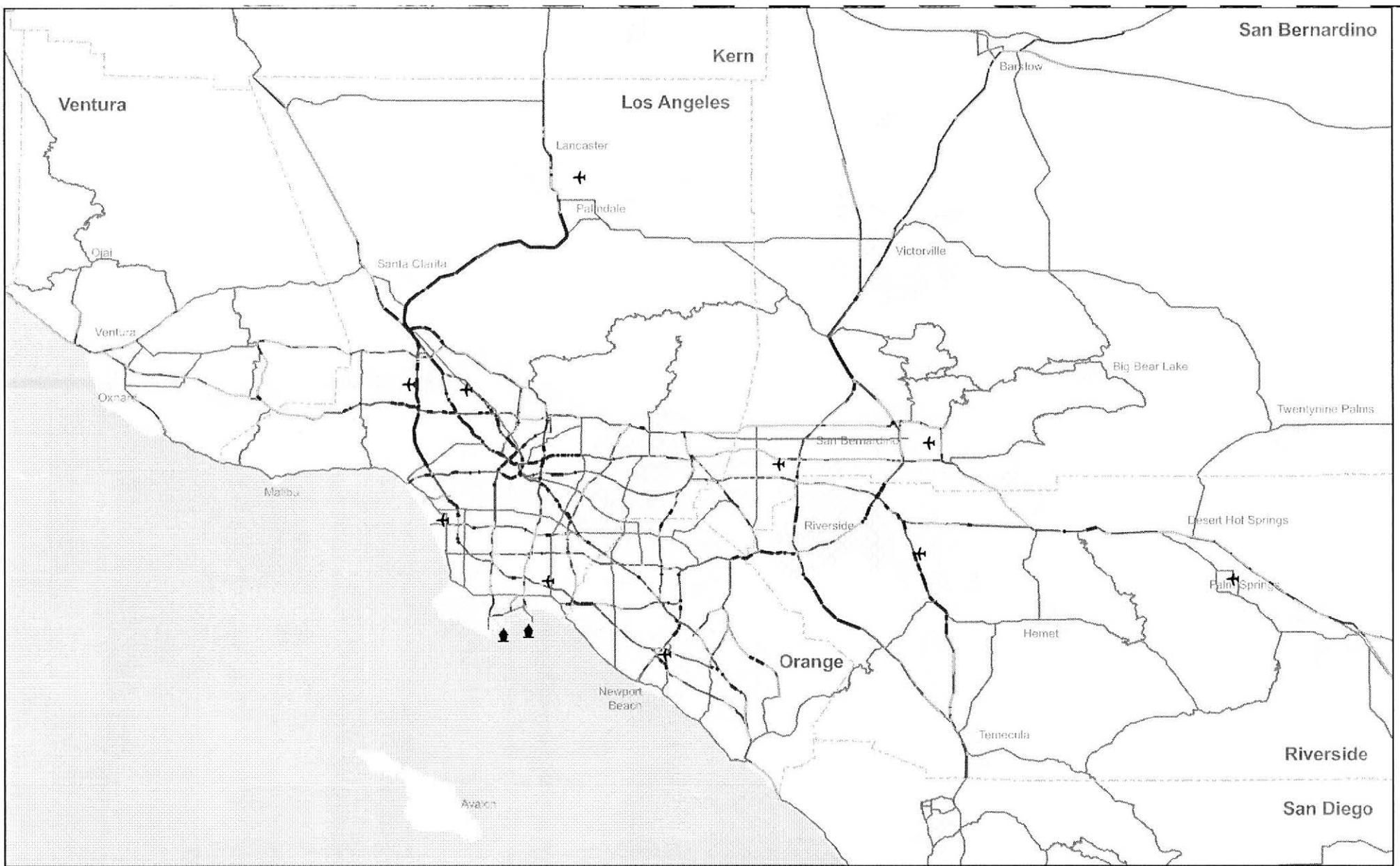
Forecast V/C Ratios on SCAG Region Highways AM Peak



- VOLUME / CAPACITY**
- 0.00 - 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- 1.00 - 1.20
- > 1.20
- Water
- Urban Areas
- County Boundary
- Other Highways
- Ports
- Airports

10/18/06

Figure 20



10/18/06

VOLUME / CAPACITY

- 0.00 - 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- 1.00 - 1.20
- > 1.20

- Water
- Urban Areas
- County Boundary
- Other Highways
- Ports
- Airports

Year 2030 System Performance

Forecast V/C Ratios on SCAG Region Highways PM Peak

0 5 10 20 30 40 Miles



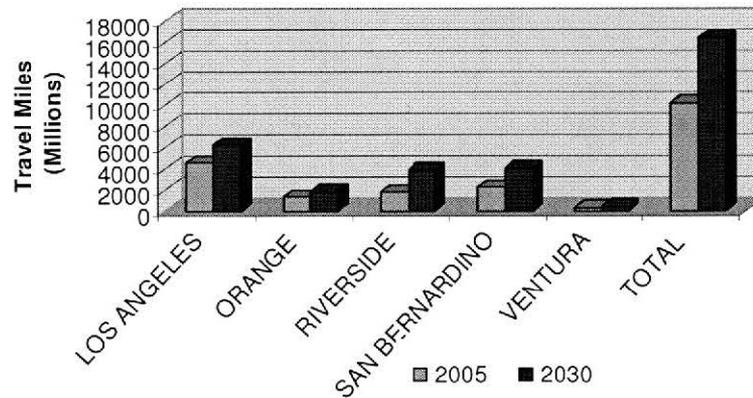
Figure 21



Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

Figure 22 shows the distribution of Year 2030 forecast annual truck VMT for the five (5) counties in the SCAG region. The greatest percentage increases in truck VMT are anticipated to occur in Riverside and San Bernardino Counties, although total truck vehicle miles traveled will remain highest in Los Angeles County.

Figure 22
2030 Annual Statewide Truck Mile Travel Distribution by County



Source: SCAG Regional Transportation Plan, 2004

Table 16 presents the comparison of traffic volumes between the SCAG Model 2030 and post-processed traffic volumes. The post-processed volumes are the adjusted Year 2030 volumes that are based on the calculated difference in forecast volumes for the base year (Year 2003) compared to available existing traffic counts. Table 16 shows how the difference in existing counts versus model forecasted base year counts affects the Year 2030 forecasted volumes.

Table 16
Traffic Volume Comparison Year 2030

Route	SCAG Model 2030 -Vehicle	SCAG Model 2030 -Truck	Post-Processed Year 2030- Vehicle	Post-Processed Year 2030- Truck
I-10	242,869	21,637	254,027	20,647
I-101	303,189	29,322	283,225	17,171
I-105	184,343	17,945	198,677	18,570
I-110	241,419	23,953	221,046	20,745
I-15	203,135	27,211	236,353	29,602
I-210	208,177	29,969	244,391	24,701
I-215	193,798	18,178	136,286	17,844
I-405	275,257	24,102	289,072	16,943
I-5	285,731	34,129	290,342	28,885
I-605	235,981	30,664	216,554	29,698
I-710	209,074	35,766	192,984	37,134
SR-134	222,726	18,311	222,433	12,232
SR-55	234,364	15,433	272,124	18,984
SR-57	229,542	18,485	254,649	20,902
SR-60	248,431	24,011	223,096	23,794
SR-91	249,855	35,301	283,066	34,160
SR-118	207,214	13,400	268,083	29,544
SR-170	257,239	22,007	211,122	14,197

Source: SCAG 2030 Draft Air Quality Management Plan (AQMP) Baseline model

Figure 23 illustrates that the SCAG model estimated higher truck volumes on I-10, I-101, I-110, I-210, SR-60, and SR-91 than the post-processed traffic volumes. Figure 24 shows estimated higher vehicle volumes in 2030 on I-101, I-110, I-605, I-710, and SR-60 based on the SCAG model. This indicates that SCAG's forecasts predicted more vehicles on these freeways under existing conditions than actually present. Figure 25 shows estimated higher truck and vehicle volumes on I-101, I-110, I-605, SR-134, and SR-60 based on the SCAG model in 2030, while post-processing results in higher truck and vehicle volume on I-15, SR-55, and SR-57 in 2030. This indicates that SCAG's forecasts predicted more trucks on these freeways under existing conditions than were actually present.

Figure 23
Total Truck Volume Comparison Year 2030

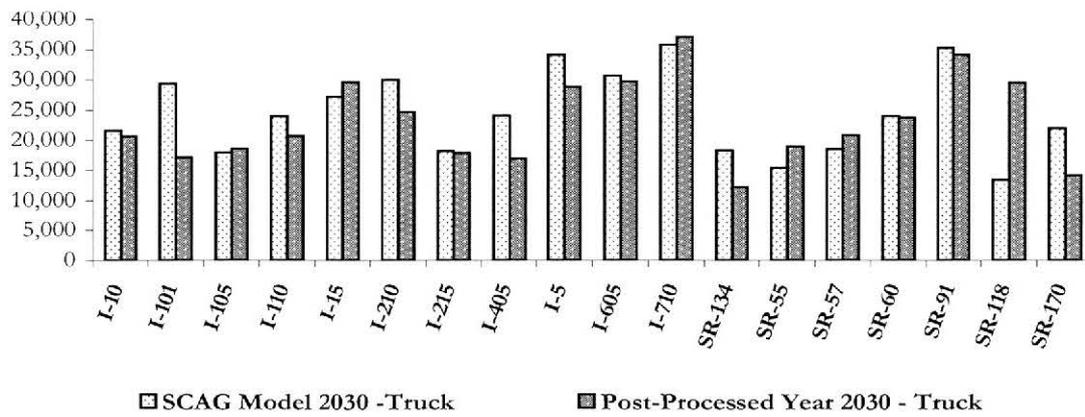


Figure 24
Total Vehicle Volume Comparison Year 2030

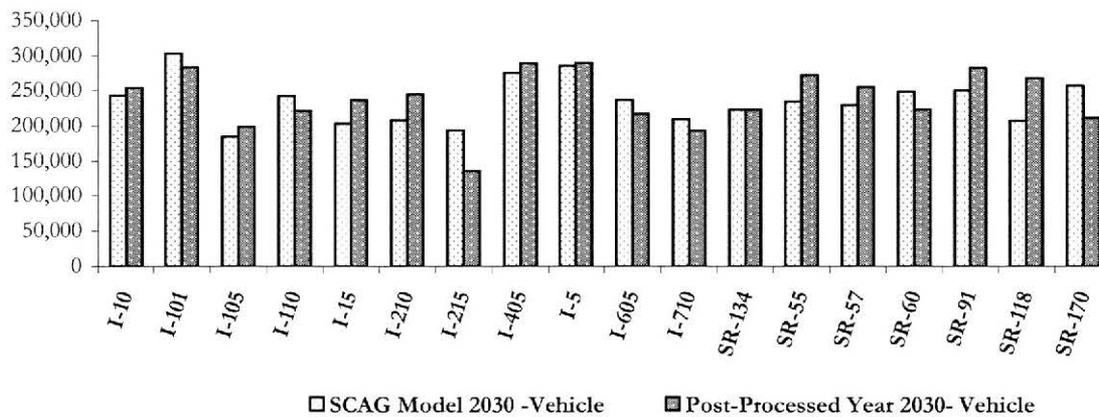
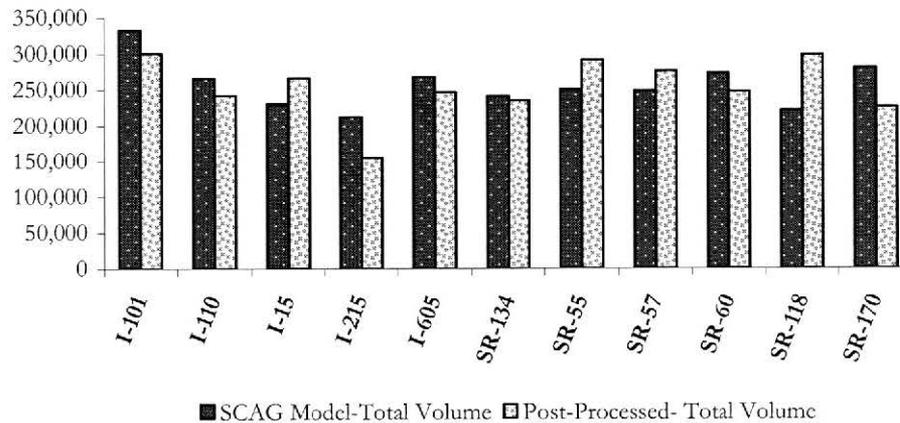


Figure 25
Total Traffic Volume Comparison Year 2030



Warehousing and Distribution Center Forecasts

Forecasts of warehousing and distribution centers starts with establishing current conditions and then projecting total future square footage, allocating growth based on site development constraints and location preferences. The warehouse sector is expected to grow from approximately 1.5 billion square feet of warehouse floor space in 2005 to over 4.5 billion square feet by 2030. This tripling of warehouse space needs is driven by a tripling of international trade through the San Pedro Bay Ports. Based on the findings of Tech Memo 4a, fifty percent of the new warehouse space is expected to be constructed in San Bernardino and Riverside Counties, while 20 percent, 8 percent, 8 percent, and 5 percent are expected to be constructed in Los Angeles, Imperial, Orange and Ventura Counties, respectively. Warehouse growth forecasts were calculated based on projected growth of container volumes through the San Pedro Bay Ports of Los Angeles and Long Beach, as it is for the best indicator for forecasting future warehouse needs.

Also, the regional outlook for warehouses and distribution centers will remain strong in all Southern California subregions. The location of warehouses has shifted north and east to the high deserts of Los Angeles County and further east into the Inland Empire and beyond. This is driven primarily by the limited available land for new development close to the ports (i.e., Los Angeles and Orange Counties). As the location of warehouse and distribution facilities move farther east to the high desert and Inland Empire, the length of truck trips will increase. This will result in more truck vehicle miles of travel and increases in associated environmental and community impacts (e.g., emissions, noise).

Potential Freight Growth Scenarios

Four scenarios were developed to evaluate the impacts of future growth coupled with various infrastructure investment levels assumed in the SCAG 2004 Regional Transportation Plan (RTP). These scenarios were also developed to assist in making strategic decisions about a wide range of possibilities and potential outcomes in terms of projected freight growth and levels of investment in transportation infrastructure.

The following four scenarios are discussed further in Chapter 6:

- ◆ Scenario 1 – High Growth - Current Investment Levels
- ◆ Scenario 2 – Low Growth - Current Investment Levels
- ◆ Scenario 3 – Moderate Growth - Current Investment Levels
- ◆ Scenario 4 – High Growth - Full Investment Levels

Scenario 1 – The purpose of this status quo landside infrastructure scenario is to evaluate the impact of continued growth in goods movement and passenger traffic without the requisite investment in landside improvements. This scenario assumes that the container volume growth projected by the Ports of Los Angeles and Long Beach of 42.5 million TEUs come to fruition without the requisite investments in highway and rail infrastructure. The following is also assumed:

- ◆ Port throughput will increase as currently projected; and
- ◆ International trade forecast of 42.5 million TEUs annually in 2030.

Scenario 2 – The purpose of this scenario is to evaluate the impact given a lower international trade forecast. This scenario assumes that port container volume will be limited to 33 percent of projected growth, which results in approximately 24 million TEUs. The resulting 24 million TEUs are calculated as follows:

- ◆ The net change between the 2005 level of 14.2 million TEUs and the base case forecast of 42.5 million TEUs is 28.3 million TEUs (or $42.5 - 14.2 = 28.3$);
- ◆ 33 percent of 28.3 million TEUs is 9.3 million TEUs; and
- ◆ 9.3 million added to 14.2 million is 23.5 million TEUs ($9.3 + 14.2 = 23.5$), or 24 million TEUs (rounded to the nearest million).

Scenario 3 - The purpose of this scenario is to evaluate the impact of lower than expected levels of international trade. It assumes growth will be limited to 66 percent of projected growth, which results in a lower forecast for 2030 of approximately 33 million TEUs for 2030. This figure represents the maximum container volume the Ports estimate can be handled without expanding current physical capacity at the ports. The resulting 33 million TEUs (in 2030) is calculated as follows:

- ◆ The net change between the 2005 level of 14.2 million TEUs and projected growth of 42.5 million TEUs is 28.3 million TEUs (or $42.5 - 14.2 = 28.3$);
- ◆ 66 percent of 28.3 million TEUs is 18.7 million TEUs; and
- ◆ 18.7 million added to 14.2 million is 32.9 million TEUs ($18.7 + 14.2 = 32.9$), or 33 million TEUs (rounded to the nearest million).

Scenario 4 –This scenario evaluates the impact of maintaining the maximum amount of growth in trade that is expected through the study area's gateways, while concurrently investing in the study area's landside

infrastructure and mitigating the impact associated with goods movement. Projects and strategies contained in Chapter 6 are evaluated under Scenario 4. The following is also assumed under this scenario:

- ◆ Port throughput will increase as currently projected;
- ◆ 42.5 million TEUs annually in 2030; and
- ◆ “Full investment levels” would require additional investment beyond the existing committed funding plans (i.e., the constrained project lists in the 2004 SCAG Regional Transportation Plan) of the project partners, the state, the ports, railroads and others.

Chapter 5 – Economic and Environmental Issues and Constraints

This chapter describes the logistics industry's role in generating jobs and economic activity within the study region and identifies the environmental and community impacts associated with goods movement. This chapter also includes current efforts that are underway to address environmental impacts. More information about these topics are included in Tech Memos 5a (Economic Benefits and Costs of Growth in Goods Movement) and 5b (Environmental and Community Impacts).

Economic Effects

To estimate the total volume of economic activity generated by the logistics sector throughout the study region, the total economic activity (or spending), total value added (or gross domestic product), total jobs (e.g., wages and salary, income or spending power generated by this industry and indirect business taxes property taxes, fees, licenses and excise taxes paid to the government) have to be examined. For example, Southern California's goods movement sectors create considerable positive affects on the regional and national economy due to the variety of activities involved in moving goods. In particular, all subsectors within the logistics industry (e.g., wholesale trade, trucking, supply management, warehousing, couriers, air, sea, and rail transportation) grew from 1990 to 2005 by 103,400 jobs (18.4 percent) and are competitively situated to continue to grow. In addition, Southern California's burgeoning population requires a logistics sector that matches its size and growth. The rapid growth of e-commerce and associated "just-in-time" delivery is adding to this pressure and a major difficulty for the logistics sector is the fact that it is straining the facilities and supporting infrastructure needed to accommodate the increased velocity, decreased shelf time, and anticipated growth in trade. Further, environmental and community impacts have economic costs (e.g., public health care) that have to be considered. These costs must ultimately be weighed against the benefits associated with goods movement. Environmental and community impacts are discussed in the next section.

As shown in Tech Memo 5a, in 2005, the Ports of Los Angeles and Long Beach were ranked second and third in their dollar volume of U.S. international trade and Los Angeles International Airport (LAX) was ranked seventh. In container terms, these ports, in combination with the Port of San Diego and Port Hueneme, handled 41.8 percent of 2005 U.S. imports and 68.4 percent of all containers reach the West Coast (including Vancouver).

The direct economic impact of logistics activities within the study region includes:

- ◆ \$90.7 billion, or 6.6 percent, of the total \$1,375 billion in economic activity.
- ◆ \$63.6 billion, or 7.8 percent, of the total \$812.6 billion in economic value created.
- ◆ 687,837, or 6.1 percent, of the total 11,321,518 people employed.
- ◆ \$52.6 billion, or 7.0 percent, of the total \$750.6 billion earned income.
- ◆ \$11.1 billion, or 17.8 percent, of the total \$62.0 billion in sales taxes, property taxes, fees, licenses, and excise taxes paid to government.

The indirect and induced impact of logistics activities within the study region (due to activities in other sectors and throughout the economy) include:

- ◆ \$170.4 billion, or 12.4 percent, of the total \$1,375 billion in economic activity.
- ◆ \$113.2 billion, or 13.9 percent, of the total \$812.6 billion in economic value created.
- ◆ 1,441,016, or 12.7 percent, of the total 11,321,518 people employed.
- ◆ \$98.6 billion, or 13.1 percent, of the total \$750.6 billion earned income.

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- ◆ \$14.6 billion, or 23.5 percent, of the total \$62.0 billion in tax and fee revenues to government.
- ◆ Each new logistics job supports a total of 2.19 new jobs in the economy.
- ◆ A \$1.00 increase in logistics activity initiates a total of 1.97 times that amount in the local economy.

Also, Table 17 shows a surplus of \$176.5 billion in international trade through California, which exceeds the amount of shipments destined for California handled by other states. This table highlights the disproportionate role of California as a gateway for international trade.

Table 17
California's Aggregate International Trade-Related Shipping Services Surplus, 2000

	Shipments for California Through Other States ^a	Shipments for Other States Through California ^b	Shipping Services Surplus
Billion dollars			
Exports	29.1	49.4	20.3
Imports	91.8	248.0	156.2
Total	120.9	297.4	176.5
Billion kg			
Exports	9.9	20.5	10.6
Imports	68.2	90.0	21.8
Total	78.1	110.5	32.4

^aThese figures include both imports for Californians that arrive on U.S. shores in other states and California exports that depart from U.S. shores via port facilities in other states.

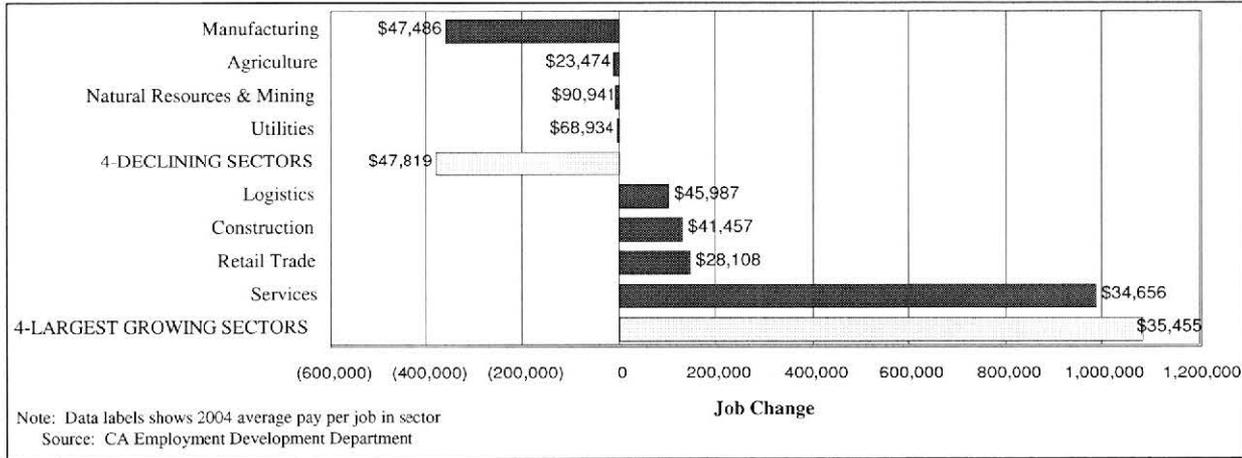
^bSimilarly, the figures in this column also account for both imports arriving in California and exports departing through California ports.

Source: California's Global Gateways: Trends and Issues; Haveman & Hummels, 2004.

As of 2006, 21.3 million people live in the six county study area and Imperial County, of which approximately 43.8 percent have no formal college training. By 2030, forecasters expect this number to increase to 26.8 million. Historically the manufacturing industry provided good entry-level pay and job ladders that allowed many people to eventually earn middle class wages. Middle class is defined as the income range containing the 12.5 percent of Southern California's households below (\$37,163) and above (\$66,099) its 2004 median income of \$49,435.

With average manufacturing pay at \$47,486 per job in 2004, the manufacturing sector has been largely responsible for the vast majority of jobs lost in Southern California's four major declining sectors, removing 381,000 jobs with an average pay of \$47,819, as shown in Figure 26. Furthermore, from 1990-2005, the four sectors (logistics, construction, retail trade, and services) adding the most new jobs to Southern California's economy, grew by 1,083,000 positions. However, in 2004, the average pay for these sectors was only \$35,455. There has been a \$12,000 difference between the pay in shrinking sectors versus that in the four fastest-growing sectors due to the prevalence of lower paying retail trade (\$28,108) and the full range of service sectors (\$35,455) in the region's job growth. This is likely a major contributing factor for Southern California's falling per capita income ranking.

Figure 26
Major Gaining & Losing Sectors, Southern California
Size of Job Change, 1990-2005 Average Pay



The logistics industry has the potential to replace manufacturing in its role of providing good entry-level pay and job ladders for people without advanced schooling because it offers a median beginning pay at 32.1 percent above the minimum wage (\$8.91 or \$18,542 per year) and it has defined paths by which workers can graduate to median pay levels that exceed \$40,000 per year. Moreover, the average pay for all logistics jobs in 2005 was \$47,411 per year, just 2 percent below all manufacturing jobs (\$48,397).

In addition, the overall pay in logistics subsectors appear to run 12.5 percent to 14.4 percent above that derived from the general occupational pay scales used to calculate incomes. For example, in the wholesale trade subsectors, 80.6 percent of the jobs require no advanced schooling and another 5.7 percent require either trade or community college training. In transportation and warehousing subsectors, 92.9 percent of the jobs require no advanced schooling and another 1.1 percent requires trade school training. Lastly, the entry pay of the logistics subsectors are very competitive when compared to alternative sectors without educational barriers such as:

- ♦ Retail trade (\$28,840)
- ♦ Gaming (\$28,385)
- ♦ Accommodation (\$24,019)
- ♦ Agriculture (\$22,793)
- ♦ Other services (automotive, household and electric repair and maintenance, personal care, laundry, member associations, household workers) (\$22,340),
- ♦ Eating and drinking (\$15,132)

Table 18 shows “multipliers” or the extent to which increases in logistics activity, caused by money entering the region from elsewhere, will impact the full economy. The analysis found that each new logistics job supports a total of 2.19 new jobs in the economy. A \$1.00 increase in logistics activity sets off a total of 1.97 times that amount in the local economy. Similar ratios were determined for the impact of additional jobs or activity in each of the major subsectors of logistics listed in Table 18.

**Table 18
Logistics Subsectors Output and Employment Multipliers**

Logistics Sector		Direct Impact	Indirect Impact	Induced Impact	Total Impact	Total Multiplier
Wholesale	\$	\$1,000,000,000	\$239,235,367	\$712,566,964	\$1,951,802,331	1.95
Trade Only	Jobs	7,166	2,009	7,211	16,386	2.29
Air	\$	\$1,000,000,000	\$509,515,482	\$540,084,339	\$2,049,599,821	2.05
Transportation	Jobs	4,541	3,765	5,241	13,547	2.98
Rail	\$	\$1,000,000,000	\$307,172,558	\$510,291,441	\$1,817,463,999	1.82
Transportation	Jobs	3,943	2,283	4,885	11,111	2.82
Water	\$	\$1,000,000,000	\$380,790,248	\$472,802,455	\$1,853,592,703	1.85
Transportation	Jobs	2,147	5,417	4,601	12,165	5.67
Truck	\$	\$1,000,000,000	\$520,062,441	\$592,974,407	\$2,113,036,848	2.11
Transportation	Jobs	9,280	3,630	5,659	18,569	2.00
Couriers	\$	\$1,000,000,000	\$293,998,557	\$591,121,230	\$1,885,119,787	1.89
	Jobs	15,122	1,988	5,621	22,731	1.50
Warehousing & Storage	\$	\$1,000,000,000	\$244,287,506	\$597,373,127	\$1,841,660,633	1.84
	Jobs	11,204	1,763	5,652	18,619	1.66

Source: IMPLAN Model Used with \$1,000,000,000 assumption for each logistics subsector

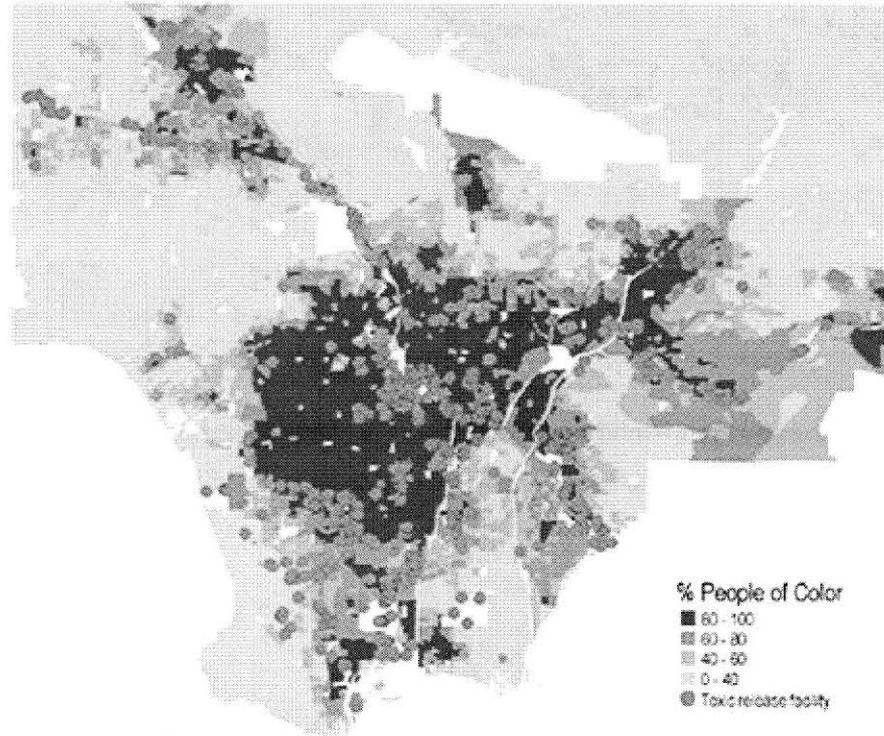
Environmental and Community Impacts

While specific environmental and community impacts and mitigation measures are numerous, vary widely, and require more detailed analysis that is beyond the scope of this multi-county study, there are common issues and concerns that resonant throughout the study region worth noting. These include, but are not limited to, air quality, health, noise, light, visual (e.g., stacked containers), vibration, safety, water quality, quality of life, traffic congestion, and environmental justice issues .

Emerging health problems and environmental justice issues linked to goods movement are of particular concern to community groups given the mixed land uses in many lower-income Southern California neighborhoods. Environmental justice is of particular concern for communities in proximity to the ports (Long Beach, Los Angeles, Hueneme, and San Diego), major goods movement corridors, facilities, equipment, and industrial operations. Environmental justice is defined by state law as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” Figure 27 illustrates the racial/ethnic composition of the neighborhoods in Los Angeles County in 1996.

Figure 27

Toxic Release Facilities Relative to Racial/Ethnic Composition of Neighborhoods, Los Angeles, 1996



Reproduced with permission from Communities for a Better Environment, "Holding Our Breath", 1998

A significant percentage of residents in neighborhoods adjacent to the study region's ports are ethnic minorities and/or live below the poverty line. According to the 2000 census, approximately 23 percent of the population in the City of Long Beach was below the poverty line, and approximately 67 percent of the population was defined as a minority group. In the City of Port Hueneme, the 2000 census identified approximately 12 percent of the population living below the poverty line and approximately 43 percent of the population was defined as a minority group. Of the City of Los Angeles' 3.9 million residents, 70,000 live in San Pedro, a working class community where about two-thirds of residents are Latino, and 22 percent live below the poverty line.¹ Additionally, in the Barrio Logan neighborhoods surrounding the Port of San Diego, the 1990 census reported approximately 41 percent of the population living below the poverty line and approximately 93 percent of the population was defined as a minority group.

In addition, environmental and community health impacts are felt throughout the study region. For example, a recent University of Southern California publication has shown decreased lung capacity among residents living near goods movement facilities and major highway corridors. The document revealed that "children who lived within 500 meters of a freeway, or approximately a third of a mile, since age 10 had substantial deficits in lung function by the age of 18, compared to children living at least 1,500 meters, or approximately one mile, away."

The impacts of goods movement on the environment and community result in increased health care costs and greater health risks to specific populations. As shown in Figure 28, there are high costs associated with

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environmental impacts of goods movement which in turn impacts the region's economy. Figure 29 highlights the increased cancer risk for populations living in Los Angeles and the vicinity. It also shows cancer risks are elevated near goods movement facilities and major highway corridors. Figure 30 shows the increased cancer risk for populations living within the South Coast Air Basin.

Figure 28

Annual (2005) Health Effects of PM and Ozone Pollution from Freight Transport in California ⁹⁵		
Health Outcome ^a	Cases per Year	2005 Valuation (\$ Millions)
Premature Death ^b	2,400	19,000
Hospital Admissions (respiratory causes)	2,000	67
Hospital Admissions (cardiovascular causes)	830	34
Asthma and Other Lower Respiratory Symptoms	62,000	1.1
Acute Bronchitis	5,100	2.2
Work Loss Days	360,000	65
Minor Restricted Activity Days	3,900,000	230
School Absence Days	1,100,000	100
Total	NA	19,499

Source: California Air Resources Board, March 2006

- A. Does not include the contributions from particle sulfate formed from SO_x emissions, which is being addressed with several ongoing emissions, measurement, and modeling studies.
- B. Includes cardiopulmonary- and lung cancer-related deaths.

According to CARB, carcinogenic risk refers to the increased probability that an individual exposed to an average air concentration of a chemical will develop cancer when exposed over a 70-year period. Cancer risks are expressed on a per-million basis for comparative purposes. According to the SCAQMD Multiple Air Toxics Exposure (MATES-II) Study, diesel particulates account for 71 percent of the cancer risks (1,400 in one million) relating to pollutants in the South Coast Air Basin. According to the MATES-II study, individuals in areas of maximum risk are 14 times more likely to contract cancer due to diesel emissions. Figure 30 displays the cancer risk from airborne toxics including diesel emissions for the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura.²

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Figure 29
Cancer Risk
Los Angeles and Vicinity

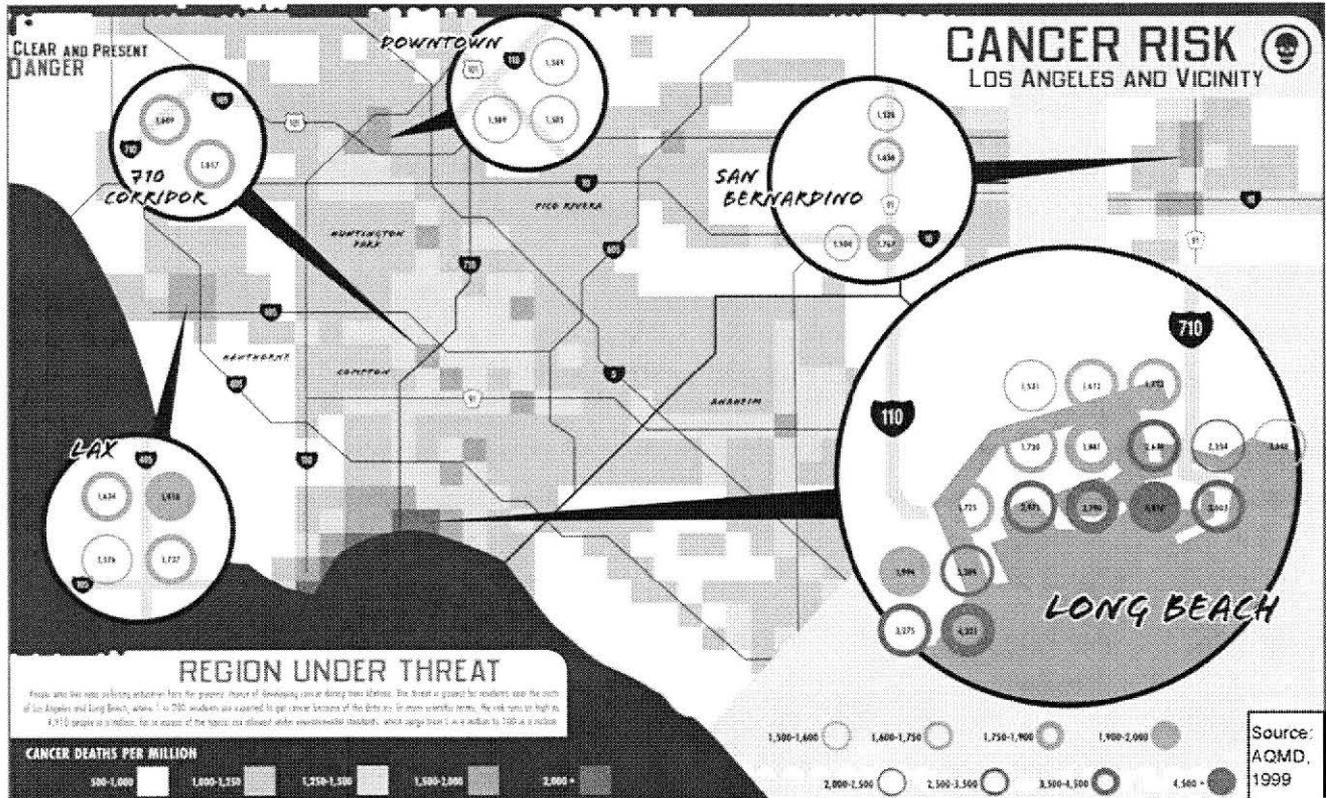
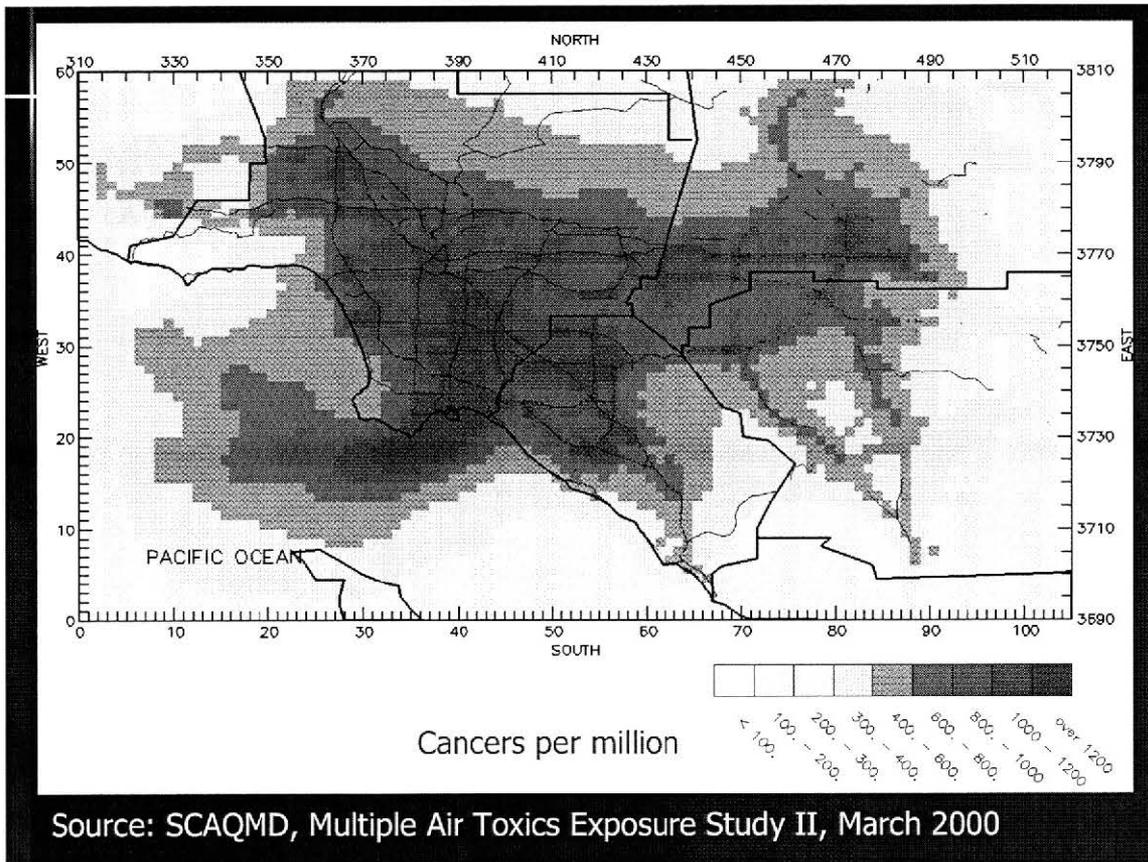


Figure 30
Estimated Risk of Cancer from All Toxics: All Emission Sources



To date there have been landmark environmental mitigation plans, described later in this section, targeting air pollution and diesel emissions from goods movement sources to protect public health and improve air quality. As an example, the 2007 South Coast Air Quality Management District's Air Quality Management Plan (AQMP) proposes broad control measures for key goods movement pollutants (e.g., diesel particulates, sulfur oxides and nitrogen oxides) to attain federal annual PM_{2.5} and 8 hour ozone ambient air quality standards by applicable deadlines (2015 and 2023, respectively) and to reduce local toxic risks.

A standard establishes the concentrations above which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. An ambient air quality standard is the definition of "clean air." Area designations for federal ambient air quality standards for each of the MCGMAP counties are summarized in Table 19. The federal nonattainment designations shown in the table are ranked in decreasing order of severity as Extreme, Severe 17, Severe 15, Serious, Moderate, and Marginal. San Diego County is ranked as Basic (Subpart 1), which means it is an area that was previously reaching attainment status before changes to the 8-hour Ozone standard and is on a less-prescriptive timeline than the other attainment designations. As shown in Table 19, much of the study area is in nonattainment for ozone and particulate matter.

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**Table 19
Federal Nonattainment Designations per Criteria Pollutants**

County ^a	POLLUTANT ^b					
	Ozone (8 Hr.)	PM10	PM2.5	NO ₂	SO ₂	CO
Los Angeles	Severe 17 ^c / Moderate	Serious	Nonattainment	-	-	-
Orange	Severe 17 ^c	Serious	Nonattainment	-	-	-
Riverside	Severe 17 ^{cd} / Serious	Serious	Nonattainment	-	-	-
San Bernardino	Severe 17 ^c / Moderate	Serious / Moderate	Nonattainment	-	-	-
Ventura	Moderate	-	-	-	-	-
Imperial	Marginal ^e	Serious	-	-	-	-
San Diego	Basic (Subpart 1)	-	-	-	-	-

Notes:

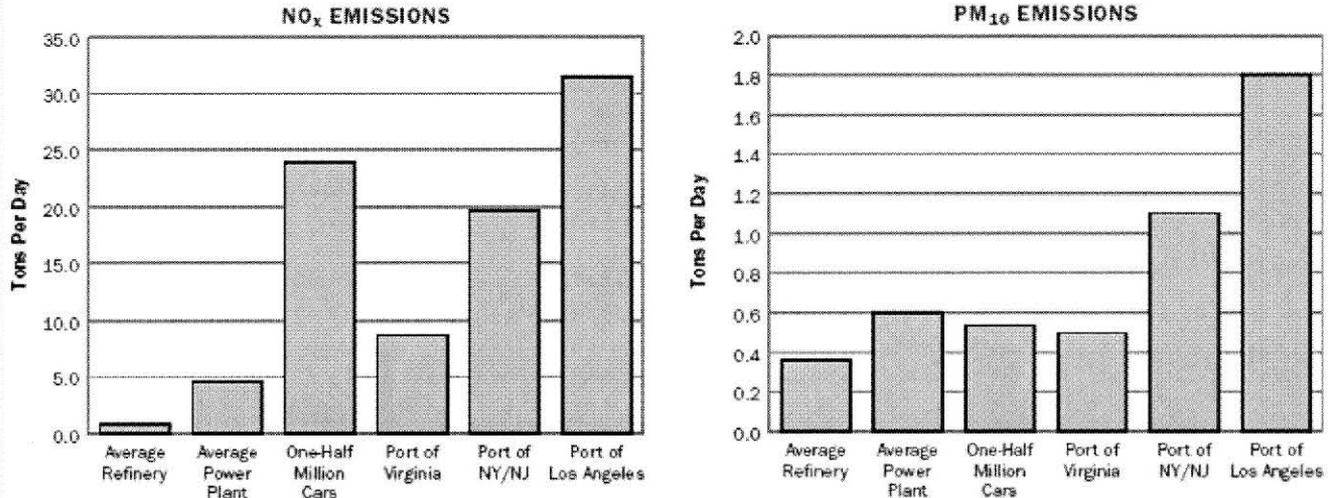
- ^a Some designations only apply to portions of counties and vary by basin, hence multiple designations.
- ^b Current EPA Nonattainment Designations for All Criteria Pollutants Accessed July 13, 2007 at <http://www.epa.gov/oar/oaqps/greenbk/ancl.html> .
- ^c The SCAQMD has requested this designation for the portions in the South Coast Air Basin be redesignated Extreme.
- ^d The SCAQMD has requested this designation for portions of the Salton Sea Air Basin in the Coachella Valley be designated Severe-15.
- ^e Imperial county did not attain the 8-hour ozone attainment standard of June 15, 2007. This designation will be reclassified by EPA as Moderate when its findings are finalized.

Source: Wilbur Smith Associates, 2007.

Figure 31 shows that toxic air contaminants and other emissions are generated in a much larger percentage near the Ports of Los Angeles and Long Beach as compared to other national port facilities, refineries, power plants, and cars.

Figure 31

Nitrogen Oxides (NO_x) and Particulate Matter (PM₁₀) Pollution from Ports Compared to Refineries, Power Plants, and Cars

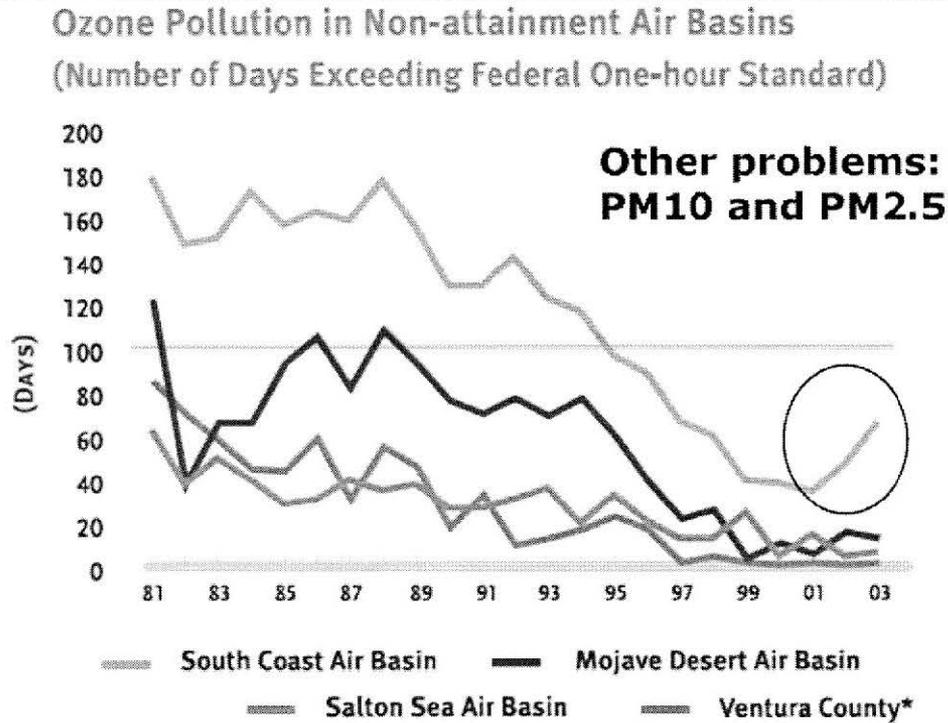


Sources: Seaports of the Americas, American Association of Port Authorities Directory (2002): 127. U.S. EPA, National Emission Trends, Average Annual Emissions, All Criteria Pollutants, 1970–2001, August 13, 2003. Energy Information Administration, Petroleum Supply Annual 1982, Volume 1, DOE/EIA-0340(82)/1 (June 1983, Washington, DC), pp. 97-103 and Petroleum Supply Annual 2000, Volume 1, DOE/EIA-0340(2000)/1 (Washington, DC, June 2001), Table 40. Energy Information Administration, Form EIA-861, "Annual Electric Utility Report." As posted at www.eia.doe.gov/oneaf/electricity/public/t01p01.txt, U.S. Dept of Transportation, Federal Highway Administration, 2000 Highway Statistics, State Motor-Vehicle Registrations.

Figure 32 highlights the following issues:

- ◆ Ozone pollution is again on the rise, most likely due to NOx precursor emissions from diesel emissions.
- ◆ Although PM10 is a concern, the current health focus is on PM2.5 and ultrafine particulates.

Figure 32

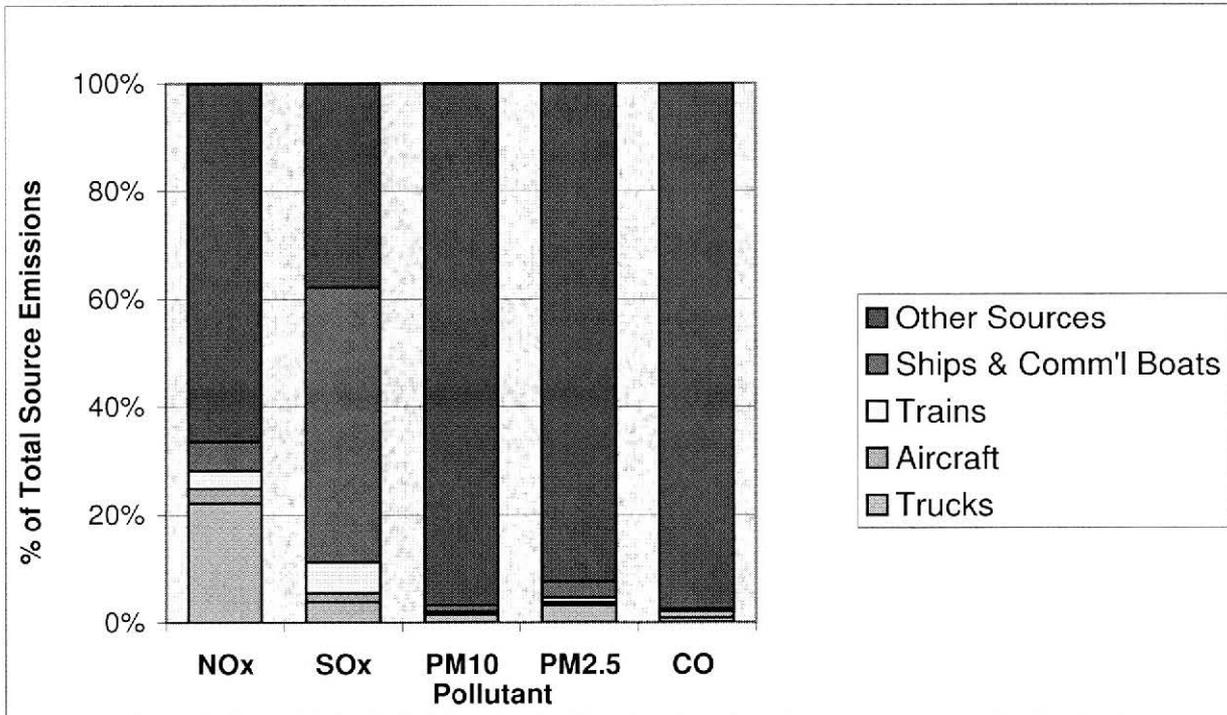


* Ventura County is part of the South Central Coast Air Basin

Source: California Air Resources Board and South Coast Air Quality Management District

Figure 33 shows the estimated emission sources for the Year 2005 which includes the goods movement industry.

Figure 33
2005 Estimated Annual Average Emissions in South Coast Air Basin



Source: Final 2003 Air Quality Management Plan. South Coast Air Quality Management District.

As referenced earlier and indicated in Figure 33, the goods movement industry is a major contributor to the South Coast Air Basin (SCAB) emissions, especially nitrogen oxide (NOx) and sulfur oxide (SOx). Other emission sources contributing to the basin's degraded air quality, as reported by the South Coast Air Quality Management District (SCAQMD) include:

- ◆ On-Road Mobile – automobiles and lighter duty trucks. (Excludes heavy, heavy duty (HHD) trucks accounted for in goods movement truck category.)
- ◆ Other Mobile – off road sources, such as recreational boats, off-road recreational vehicles, and farm equipment. (Excludes goods movement categories of aircraft, trains, and ships.)
- ◆ Stationary and Area – numerous sources, such as utilities, oil and gas production, waste disposal, cleaning and surface coating, industrial processes (e.g., food and agriculture, electronics, and wood and paper), and solvent evaporation.

The percentage contribution of these emission sources in comparison to the goods movement industry is presented in Table 20. The table indicates trucks account for over 20 percent of the NOx emissions. Ships and commercial boats account for over 50 percent of the SOx emissions.

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Table 20
2005 Estimated Annual Average Emissions in South Coast Air Basin
(Percent of Total)

SOURCE	POLLUTANT				
	NOx	SOx	PM10	PM2.5	CO
Goods Movement	33.5%	62.2%	3.3%	7.6%	2.4%
On-Road Mobile	37.3%	4.3%	5.1%	8.4%	65.1%
Other Mobile	19.1%	0.9%	5.3%	12.0%	27.4%
Stationary & Area	10.0%	32.6%	86.3%	72.1%	5.1%

Source: Final 2003 Air Quality Management Plan. South Coast Air Quality Management District.

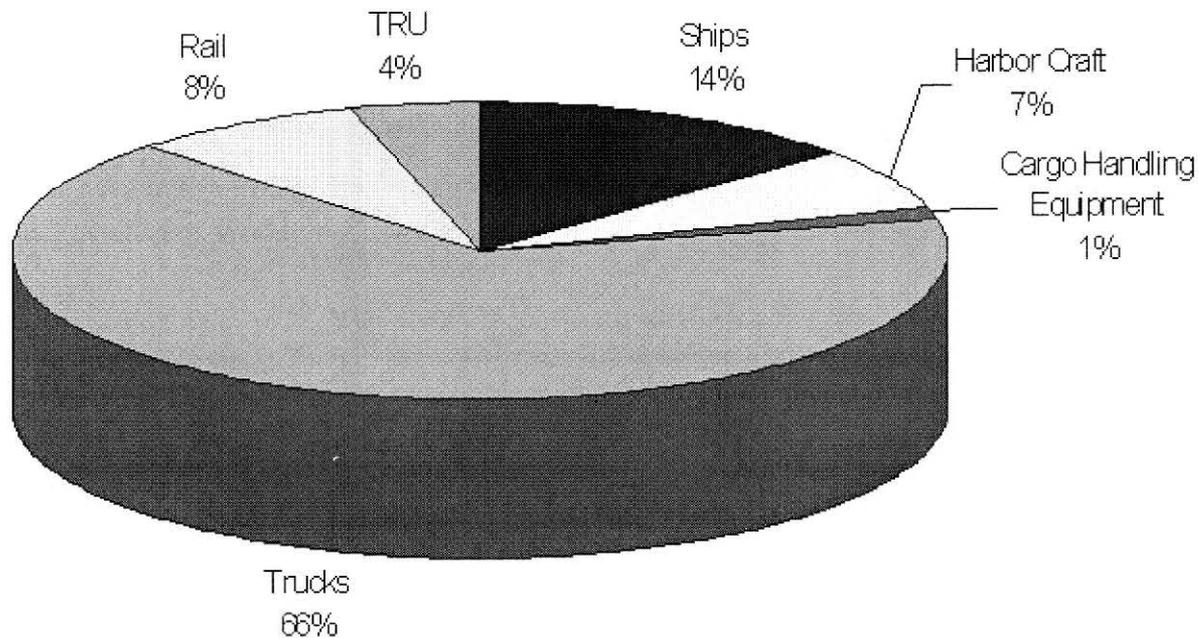
As shown in Figure 34, statewide 2001 diesel PM emissions inventory from ports and goods movement were approximately 57 tons per day, with modal contributions as follows: 66 percent truck emissions, 8 percent rail, 14 percent ships, 7 percent harbor craft, 4 percent transport refrigeration units (TRU), and 1 percent cargo handling equipment.³

The counties within the MCGMAP region are actively trying to identify the sources for air quality impacts and develop plans to reduce the air quality impacts of goods movement. The San Diego 8-Hour Ozone Plan was approved by the California Air Resources Board (CARB) on May 24, 2007 and was sent to the Environmental Protection Agency (EPA) for approval. This plan revealed that since 2003 transported pollution from the South Coast Air Basin has contributed to the county exceeding its 8-hour ozone standard. San Diego experienced an increase in 2006 of the number of days over the standard even though ozone-forming emissions have declined. The two air basins are intrinsically linked.

The CalEPA and CARB Goods Movement Reduction Plan of March 21, 2006 found that "...goods movement emissions in the South Coast represent about 25 percent of the statewide good movement inventory. Currently trucks are the dominant source of diesel PM and NOx. As adopted regulations continue to be implemented, truck emissions are projected to decrease. Ship emissions are projected to increase by a factor of three, based on projected container growth at the Ports of Los Angeles and Long Beach. Truck and other categories will still generate significant emissions in 2020".

The significance of diesel particulate matter relating to health is firmly established. Diesel particulate matter is a cause for special concern to human health because 50 to 90 percent of the particles are very small (i.e., ultrafine⁴) and can readily enter into and deposit within the lungs and pass through the bloodstream to the cellular level. However, it should be noted that ultrafine particulate matter is not exclusive to diesel emissions – ultrafine particles originate from any combustion process using any fuel, including gasoline, compressed natural gas (CNG), and liquid natural gas (LNG). Combustion sources other than mobile sources include stationary, industrial, occupational, and atmospheric conversion.⁵ Independently published research reinforces the emissions health risks by establishing a diesel exhaust-cancer connection. In more than 35 studies involving railroad workers exposed to occupational diesel exhaust, the excess risk of lung cancer is consistently elevated by 20 to 50 percent.⁶

Figure 34
Diesel PM Statewide 2001 Emissions from Ports and Goods Movement

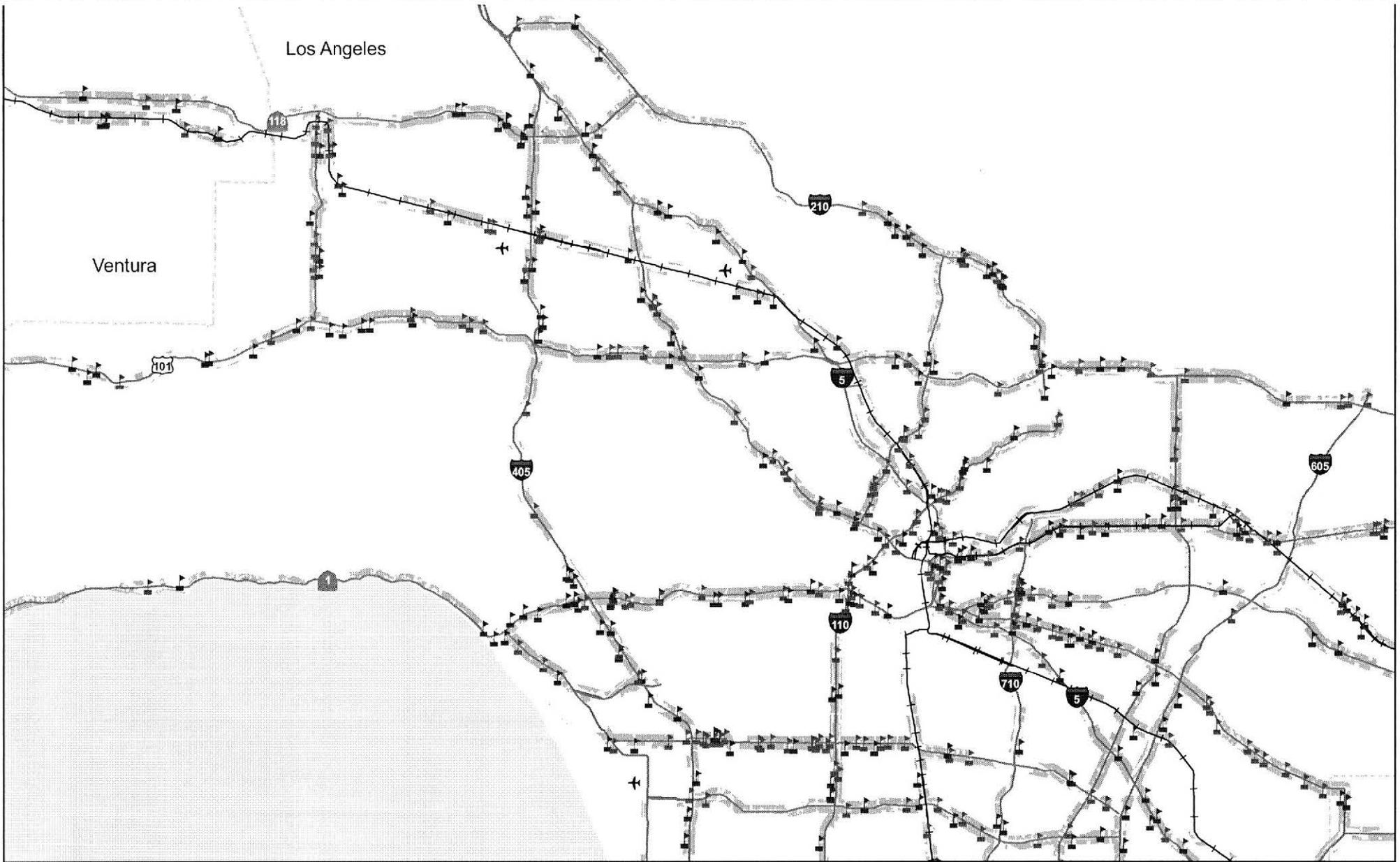


Source: Emission Reduction Plan for Ports and Goods Movement in California. California EPA and California Air Resources Board. March 21, 2006.

Further, according to research compiled by the Keck School of Medicine of USC⁷ health effects are attributable to diesel particulate matter and increased incidences of:

- ◆ Asthma
- ◆ Preterm and low birth weight babies
- ◆ Cardiac birth defects
- ◆ Thickening of arterial walls
- ◆ Oropharyngeal (mouth and throat) cancer
- ◆ Slowed lung development in children

As referenced earlier, this is of particular concern when goods movement facilities and corridors are located near homes and schools. Figures 35-37 show schools and residential land uses along goods movement corridors throughout the study area. Additionally, recent CARB analysis reveal that there have been 2,400 premature deaths (defined as up to 14 years premature of average mortality rate) statewide, with 1,200 each year in the South Coast Air Basin due to PM_{2.5} pollution. CARB previously estimated that 2,400 people die prematurely each year due to PM_{2.5} exposure in the South Coast Air Basin.



- Schools
- ▲ 0 - 150 meters
- ▲ 150 - 300 meters
- Residential Land within 1/4 mile
- ✈ Ports
- ✈ Airports
- Major highways
- +— Railroads
- County

Transportation Facility Corridors

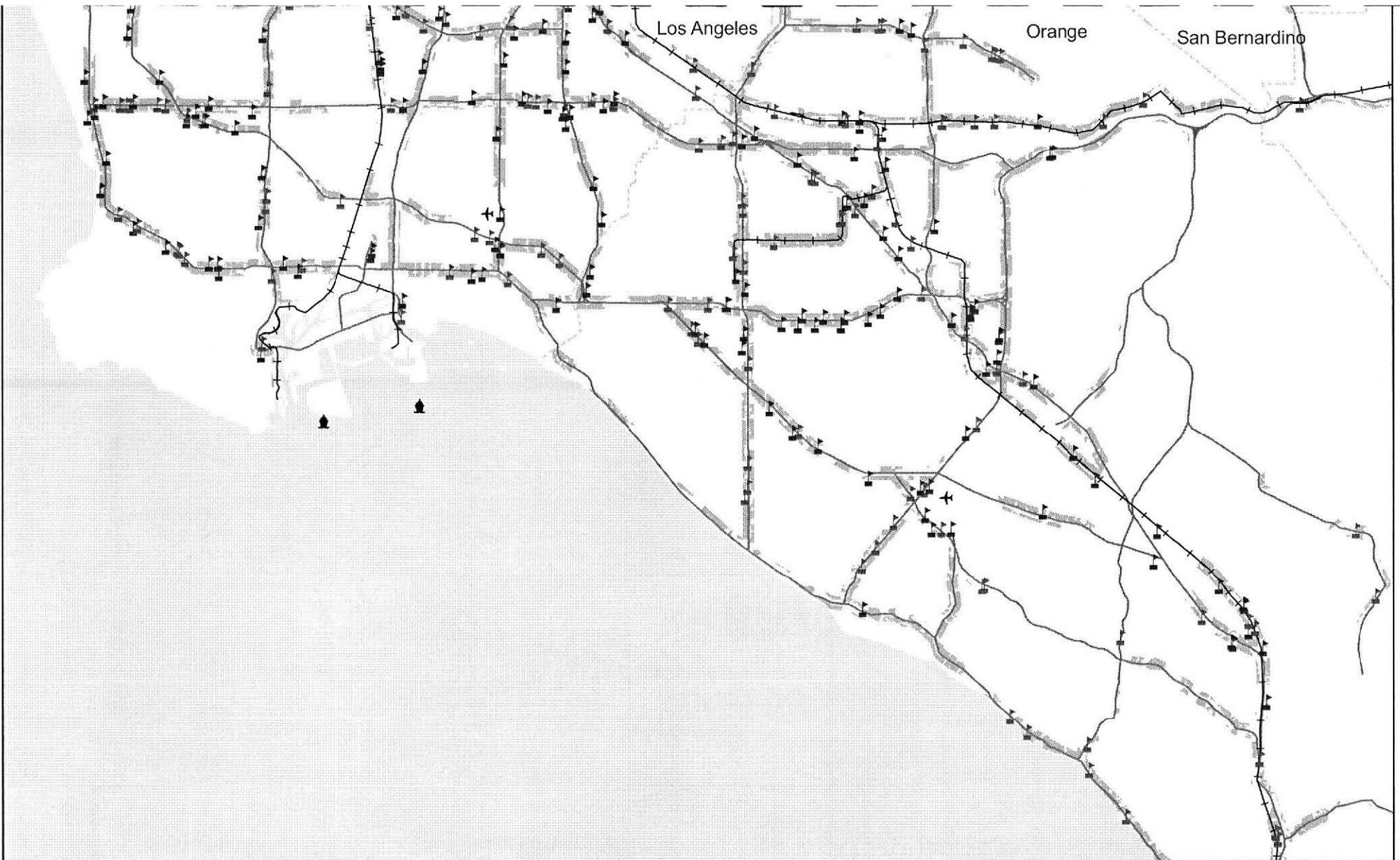
Schools and Residential Landuse Central Los Angeles County

0 2 4 8 Miles



Figure 35

Source: TeleAtlas StreetMap USA
SCAG 2000 Land Use



- Schools
- ▣ 0 - 150 meters
- ▣ 150 - 300 meters
- ▨ Residential Land within 1/4 mile
- ⚓ Ports
- ✈ Airports
- Major highways
- +— Railroads
- County

Transportation Facility Corridors

Schools and Residential Landuse

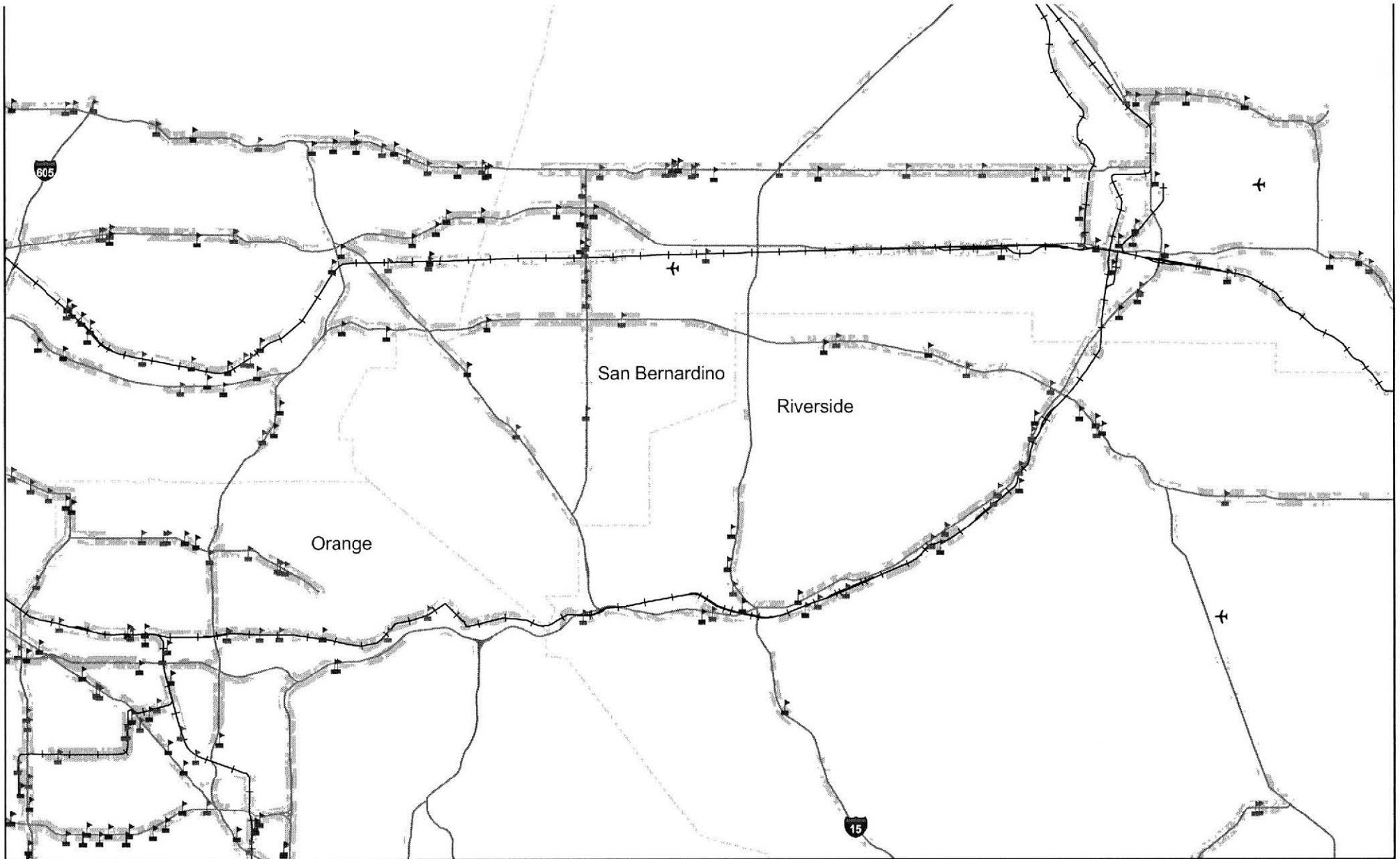
Orange County

0 2 4 8 Miles

Figure 36



Source: TeleAtlas StreetMap USA
SCAG 2000 Land Use



- Schools
 - ▣ 0 - 150 meters
 - ▣ 150 - 300 meters
- ▨ Residential Land within 1/4 mile
- ✈ Ports
- ✈ Airports
- Major highways
- +— Railroads
- - - County

Transportation Facility Corridors

Schools and Residential Landuse Western San Bernardino and Riverside



Figure 37

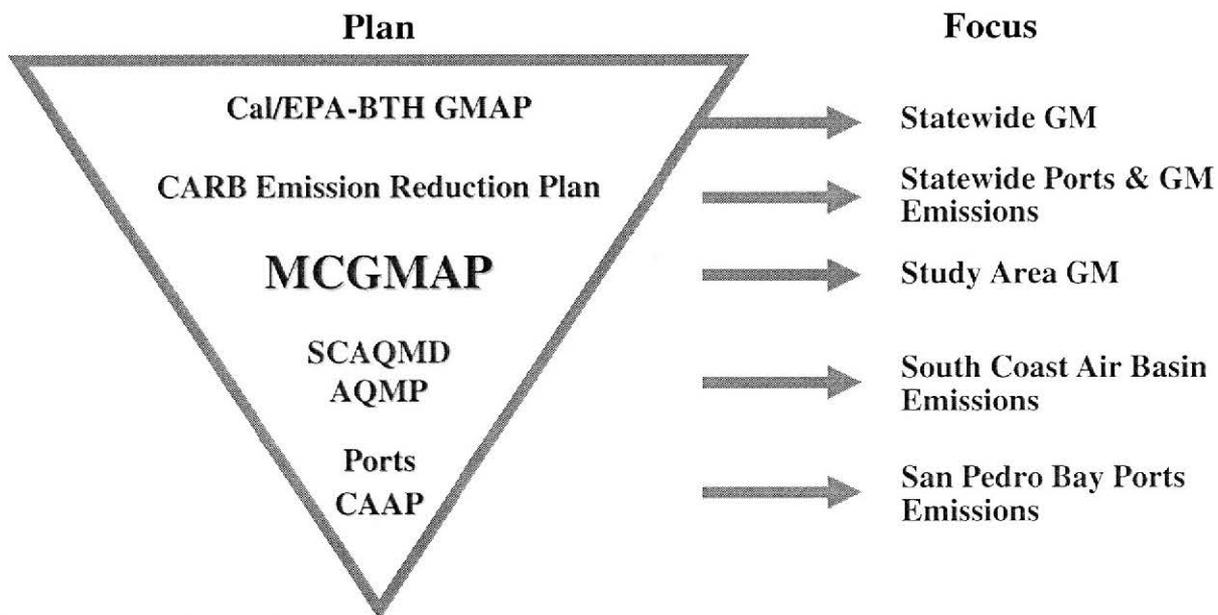
Source: TeleAtlas StreetMap USA
SCAG 2000 Land Use

Current Environmental Protection Efforts

The study area covers a large geographic area that contains a wide variety of topography, air, water, and other environmental characteristics. Due to its unique geographic location, the state's environmental quality and control is shared by international treaties, federal, state, and regional agencies. There are approximately 30 agencies with jurisdiction over a broad range of environmental impacts. Landmark environmental legislation includes the Clean Air Act, Clean Water Act, and Noise Control Act; however, it is the reduction of air pollutants via cleaner fuels, operational changes, and technological improvements that has received the primary focus. A comprehensive list of regulatory agencies, jurisdictions, and responsibilities are included in Table 1 of Appendix B. The six county study area (and Imperial County) encompasses four of California's 15 air basins and four of California's 35 Air Quality Management Districts as described in Table 2 of Appendix B.

California transportation agencies are aggressively addressing goods movement emissions. Four landmark plans are currently shaping and influencing the goods movement industry within the study area as follows: (1) California EPA (Cal/EPA) and the Business, Transportation, and Housing Agency (BTH) *Goods Movement Action Plan Phase II Progress Report: Draft Framework for Action* (March 2006), (2) CARB *Emission Reduction Plan for Ports and Goods Movement in California* (March 2006), (3) SCAQMD *2003 Air Quality Management Plan*, and (4) the Ports of Long Beach and Los Angeles *San Pedro Bay Ports Clean Air Action Plan* (Draft – June 2006). The Action Plan is intended to supplement the above referenced plans. The focus for each agency's plan is presented in Figure 38. Note that as of the date of completion of the final MCGMAP, many of these Draft plans have been finalized by the respective agencies.

**Figure 38
Focus of Agency Plans**



Source: Jones & Stokes, 2006.

An overview of some of the plans within the study area follows:

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1-The California Environmental Protection Agency (Cal/EPA) and Business Transportation and Housing Agency (BTH) Goods Movement Action Plan is a statewide goods movement action plan proposed by the governor to generate jobs, increase mobility and relieve traffic congestion, improve air quality and to protect public health, enhance public and port safety, and improve California's quality of life. The plan addresses goods movement infrastructure and operations, as well as air quality emission reduction efforts. The state's action plan is based upon CARB's Emission Reduction Plan and, establishes the following goals:

- ◆ Reduce emissions to Year 2001 levels by 2010.
- ◆ Continue reducing emissions past Year 2001 levels until attainment of applicable standards is achieved.
- ◆ Reduce diesel-related health risks by 85 percent by Year 2020.
- ◆ Ensure sufficient localized air toxics risk reductions in each affected community.

Funding of the state's estimated fifteen billion dollar (\$15 billion) action plan is proposed to include: \$1.95 billion in previously committed public funding; a proposed bond (S.B. 1266 – Highway Safety, Traffic Reduction, Air Quality, & Port Security Bond Act of 2006) encompassing \$2 billion for trade corridor improvement projects with 1:1 matching, plus \$1 billion for air quality improvements (no matching requirement); and suggested funding strategies (regulations, incentives, federal funding, user-based fees, and market-based approaches). A key component of the plan is the simultaneous and continuous improvement in infrastructure and mitigation. As defined by the state of California, "the total cost of a goods movement related infrastructure project should include the cost of required project-specific mitigation and the combined cost should be funded as the cost of the project". A preliminary working list of candidate projects has been developed based on criteria. Examples of goods movement infrastructure projects include dock-rail facilities, the Alameda Corridor East and rail capacity improvements (Table 3 of Appendix B).

2-The California Air Resources Board (CARB) Emission Reduction Plan focuses on statewide emission reductions specifically from ports and the goods movement industry. Whereas the Cal/EPA-BTH action plan addresses both infrastructure projects and air quality projects, CARB's plan focuses solely on air quality per their legislative purview. While the plans are consistent with one another, the Emission Reduction Plan is broader in terms of air quality efforts. Overall goals of the CARB plan include:

- ◆ Reduce total statewide international and domestic goods movement emissions back to Year 2001 levels or below by Year 2010.
- ◆ Reduce statewide diesel particulate matter health risk from goods movement by 85 percent by Year 2020.
- ◆ Reduce NOx emissions from international goods movement in the South Coast by 30 percent from projected Year 2015 levels, and 50 percent from projected Year 2020 levels (based on preliminary targets for attaining federal air quality standards).
- ◆ Apply plan strategies statewide to aid all regions in attaining air quality standards.

To meet these goals, the plan's regulatory strategies include several measures, including:

- ◆ More stringent emissions standards
- ◆ Cleaner fuels
- ◆ Shore power
- ◆ Speed reduction of ships
- ◆ Engine upgrades and retrofits
- ◆ Emissions control devices

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Implementation of the Emission Reduction Plan is estimated to cost \$6 to \$10 billion over 15 years. CARB estimates that the economic benefits in terms of the savings via the avoidance of adverse health impacts over the same time period are \$34 to \$47 billion. Funding of the plan assumes all industries involved must share in investment costs, and is generally unfunded by CARB itself. The agency, however, does acknowledge that incentives are critical to some sectors, and has also proposed the creation of a special \$5 million annual fund for goods movement demonstration projects. In addition to incentives, possible funding strategies include the state's proposed bond (S.B. 1266), container fees, federal funding, other user fees, and market-based approaches.

3-The Southern California Air Quality Management District 2003 Air Quality Management Plan (AQMP) is a mandated document that develops emissions budgets for the State Implementation Plan (SIP) conformity with state and national ambient air quality standards. The SIP is ultimately approved by the U.S. EPA to satisfy requirements of the federal Clean Air Act following approval by CARB. One of the Air Resources Board (ARB) responsibilities is to propose the state and federal strategy for the SIP to reach the federal standards. The SIP is a comprehensive strategy designed to attain federal air quality standards as quickly as possible through a combination of technologically feasible and cost-effective measures. It outlines ARB staff's assessment of how far adopted regulations will take us towards attainment of federal standards, what new actions could be taken, how the timing of new technology and incentive funds comes into play, and what the earliest feasible timeframes for meeting standards is likely to be in each region.⁸ Goods movement-related [mobile source] emissions projections are integral to the AQMP. SCAQMD's air pollution control strategy focuses on controlling man-made sources through technologies and management practices, and relies on mobile source control measures developed by CARB.

SCAQMD acknowledges the importance of a multi-agency approach in addressing long-term air quality improvements. The SCAQMD reports "to ultimately achieve ambient air quality standards and demonstrate attainment, additional long-term emission reductions will be necessary from sources including those primary under the jurisdiction of California Air Resource Board (e.g., on-road motor vehicles, off-road equipment, and consumer products) and U.S. Environmental Protection Agency (e.g., aircraft, ships, trains, and pre-empted off-road equipment.) Without adequate and fair share level of reductions from all sources, the emission reduction burden would unfairly be shifted to sources that have otherwise done their part for clean air."⁹

Clean air progress is a challenging task that must account for complex interactions between emissions and resulting air quality, but also to pursue the most effective possible set of air quality improvement strategies while maintaining a healthy economy.¹⁰ To ensure continued progress toward clean air and compliance with state and federal requirements, the AQMP is developed by SCAQMD in conjunction with CARB, SCAG, and the U.S. EPA. Every three years, AQMD revises the AQMP for air quality improvement. Each iteration of the plan is an update of the previous plan and has a 20-year horizon. The previous 2003 AQMP focuses on demonstrating attainment with the federal PM10 ambient air quality standard by 2006 and with the federal 1-hour ozone standard in Year 2010 while making notable progress toward attainment of state standards and upcoming new federal standards. The 2007 Plan was in progress during the analysis and research for this plan. The 2007 Plan was completed on June 1, 2007. Its focus, in part, is new federal 8-hour ozone and PM2.5 standards.

4-The San Pedro Bay Ports Clean Air Action Plan (CAAP) is the most recently developed plan to target goods movement emissions at the San Pedro Bay Ports of Los Angeles and Long Beach. Jointly developed with the SCAQMD, the Ports released the draft plan in June 2006, which is expected to be approved by the Ports' governing boards in September of the same year. Excerpts of the CAAP can be found in Table 4 of Appendix B

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The CAAP established attainment standards on three levels: San Pedro Bay standards, project specific standards, and source specific performance standards. Trucks, ships (ocean going vessels), rail, harbor craft, and cargo handling equipment are targeted for various control measure and initiatives, including:

- ◆ Improvements to engine performance standards, alternate fuels and power, and emission reductions
- ◆ Technology Advancement Program
- ◆ Infrastructure and operational efficiency improvements
- ◆ Tracking and monitoring

Several implementation strategies are outlined in the CAAP:

- ◆ Lease requirements
- ◆ Tariff charges
- ◆ CEQA mitigations
- ◆ Incentives
- ◆ Voluntary measures
- ◆ Credit trading
- ◆ Capital lease backs
- ◆ Government-backed loan guarantees for trucks

The CAAP targets the annual reduction of specific pollutants. For example, the plan anticipates a reduction in NOx by 13,090 tons per year (TPY), diesel particulate matter by 1,242 TPY, and SOx by 2,721 TPY. To accomplish these goals, the CAAP encompasses a 5-year program at an estimated cost of \$1.98 billion.¹¹ Initially committed funding to be provided by the ports and SCAQMD totals \$394.4 million, resulting in a potential shortfall of approximately \$1.6 billion. This shortfall may be addressed in part by the state's trade corridor improvement fund component of Prop 1B.

Chapter 6 – Projects and Strategies to Improve the Movement of Goods

This chapter summarizes the work done under Task 6 to build the Action Plan, that is described further in Tech Memos 6a (Evaluation of Initial Goods Movement Strategies) and 6b (Evaluations of Detailed Goods Movement Strategies). Task 6 included substantial qualitative evaluations and limited modeling to explore a wide range of transportation options that may address the issues and challenges described in Chapters 3, 4 and 5. This chapter provides an analysis of the growth scenarios defined in Chapter 4 and outlines the screening and evaluation process for a broad range of projects and strategies that are under consideration throughout the study region. This chapter also offers insight into the feasibility of dedicated freight facilities and the potential of revenue sources with the understanding that a more detailed analysis of corridors and local community impacts, beyond the scope of this effort, is required.

As defined in Chapter 4, four growth scenarios- Scenario 1: High Growth - Current Investment Level, Scenario 2: Low Growth – Current Investment Levels, Scenario 3: Moderate Growth - Current Investment Levels and Scenario 4: High Growth - Full Investment Levels were analyzed to determine mobility and economic impacts throughout the region. The “current investment levels” specified under Scenarios 1, 2, and 3 represent committed funding plans of the project partners. Under the four scenarios, the study region’s infrastructure and goods movement system would perform differently. When the existing system performance is reviewed, it performs at constrained levels under significant daily and peak hour congestion. If “current investment levels” are maintained, any additional growth in highway and rail volumes will further degrade the system and increase existing environmental and community impacts. Also, if the significant growth in international container cargo is diverted to other Ports or offset by other factors (e.g., changes in trade policy, global unrest), there would still be demand for goods in Southern California given the region’s population and the fact that it is one of the largest consumer markets in the nation..

As discussed in Chapter 3, the volume of containers moving through the Ports of Los Angeles and Long Beach, as well as domestic trade within the region, affects traffic, the economy, the environment, and the overall quality of life of residents throughout the study region. A change to any one component of the supply chain causes a ripple effect that may impact mobility, the economy, and the environment within the study region. For example, Figure 39 provides a summary of the employment impacts of each scenario. As shown, there is a clear relationship between the volume of goods through the ports to the number of jobs created in the region. Therefore, a reduction in trade volume through the ports results in a reduction in jobs created. As noted in Tech Memo 5a, each logistics sector job creates 2.2 new jobs. Therefore, the reduction in employment due to a reduced volume of goods through the port would have indirect and induced impacts on other jobs in the region. Other effects of changes in container volumes through the Ports are more difficult to quantify, given the limitations of existing analytical tools. For instance, goods carried in forty-foot international containers may be brought from the Ports to inland warehousing and/or distribution centers (transloaded intermodal goods) to be separated and moved through the supply chain by rail, truck, or a combination of the two. Trips leaving warehouses or distribution centers can also be called secondary or tertiary truck trips. The exact number and relationship of these “secondary” and “tertiary” trips for each international container is not quantifiable given the current modeling tools. Therefore, there is no way to analyze the full ripple effect caused by changes to Port trade forecasts. For the purposes of this study, the travel demand model used to analyze the impacts of goods movement on the regional transportation system is based on the Port’s growth forecast of 42.5 million TEUs by the Year 2030 (as defined by Scenarios 1 and 4). The model results for Scenarios 1 and 4 are presented later in this chapter.

**Figure 39
Freight Growth Scenarios**

Scenario	Assumptions	2030 Employment impact (number of jobs)	Change relative to Scenario 1
1	San Pedro Bay port growth of 42.5 million TEUs by 2030; SCAG 2004 Regional Transportation Plan baseline implementation	1,601,476	-
2	San Pedro Bay port growth of 24 million TEUs by 2030; SCAG 2004 Regional Transportation Plan baseline implementation	1,013,101	-36.7%
3	San Pedro Bay port growth of 33 million TEUs by 2030; SCAG 2004 Regional Transportation Plan baseline implementation	1,303,490	-18.6%
4	San Pedro Bay port growth of 42.5 million TEUs by 2030; SCAG 2004 Regional Transportation Plan baseline implementation supplemented by additional projects and private investment sources and fees	1,601,476	0.0%

Evaluation of Goods Movement Projects and Strategies

A qualitative evaluation of goods movement projects/strategies was initially conducted. It was assumed that the projects and strategies set forth in this chapter would require applicable (1) environmental mitigation measures, (2) local support through an EIR/EIS and community participation process, and (3) detailed feasibility studies, as the projects and strategies are in various stages in the project development process.

An initial list of high priority goods movement projects and strategies obtained from the project partners was expanded to include railroad and port projects, intermodal connectors and other short- and near-term projects included in county and regional planning and programming documents, and other projects contained in the California Marine Intermodal Transportation System Advisory Council (CALMITSAC) and the State's Goods Movement Action Plan. This resulted in a broad list of financially unconstrained projects and strategies.

Using the following screening criteria, this list was reduced to a comprehensive list of 249 projects and strategies, shown in Table 7 of Appendix B:

1. Is the project or strategy related to goods movement?
 - a. Does it address a direct or indirect component of the goods movement system?
2. Is the project or strategy fully funded and programmed for short- or near-term implementation?
3. Is the project or strategy duplicated or a part of a similar project or strategy?

The comprehensive list of 249 projects and strategies was grouped into 15 categories of projects ranging from increased highway and rail capacity improvements to changes in operational and institutional practices, as shown below.

1. On-Dock Rail Improvements at Ports (projects outside of terminals)
2. Intermodal Facilities / Yards (includes Ports and rail yards)
3. Shuttle Trains / Alternative Technologies to Additional Intermodal Terminals
4. Mainline Rail Capacity Improvements
5. Modification of Port Hours of Operation
6. Modification of Delivery Hours
7. Construction of Dedicated Truck Lanes/Facilities

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8. Use of Longer Combination Vehicles (LCVs) on Dedicated Facilities
9. Rail Grade Separations and Grade Crossing Safety Upgrades
10. Application of ITS Technology for Vehicle Management and Routing
11. Operational Techniques Employed by Private or Public Sector to Optimize Freight Travel
12. Data and Analytical Methods
13. Institutional Changes to Improve Feasibility of Large Scale/Mega Projects
14. Construction of Additional Freeway Lanes/Capacity
15. Freeway Operational/Safety Improvements

Data availability and analytical methods is not a specific type of project, but is included in this evaluation to document the need for more data related to the supply chain and the diverse impacts associated with all aspects of goods movement. As stated earlier, the ripple effect of changes in the volume of international goods moving through the Ports of Los Angeles and Long Beach cannot be fully analyzed until there is more data collected for secondary and tertiary trips resulting from each forty-foot international container.

An evaluation criterion was developed for the 15 categories of projects to provide decision-makers with enough information to compare different levels of desired transportation benefits and other relevant factors (e.g., mitigation measures, cost, economic opportunities, etc.). However, this evaluation process was not intended to produce results or draw conclusions about project-specific environmental impacts or cost-benefit analyses.

The 15 categories of projects and strategies were evaluated based on the following 26 criteria:

1. Modal Diversion
2. Highway Congestion/Delay
3. Rail Congestion/Delay
4. Travel Time/Reliability
5. Freight Trip Times - Specific Trade Lanes/Corridors
6. Truck Trips - Transport Corridors
7. Truck Trips - Ports/Intermodal/Warehouse Facilities
8. Truck Traffic Peak/Off-Peak Shares - Transport Corridors
9. Truck Traffic Peak/Off-Peak Shares - Ports/Intermodal/Warehouse Facilities
10. Regional Vehicle Miles of Travel
11. Regional Vehicle Hours of Travel
12. Impact on Adjacent Corridors/Regional Balance
13. Overall Emissions - Transport Corridors:
14. Overall Emissions - Ports/Intermodal/Warehouse Facilities
15. PM Emissions - Transport Corridors
16. PM Emissions - Ports/Intermodal/Warehouse Facilities
17. Health Effects - Transport Corridors
18. Health Effects - Ports/Intermodal/Warehouse Facilities
19. Community Impacts - Transport Corridors
20. Community Impacts - Ports/Intermodal/Warehouse Facilities
21. Land Use Impacts - Transport Corridors
22. Land Use Impacts - Ports/Intermodal/Warehouse Facilities
23. Project Revenue/User Fees:
24. Regional Economic Output/Competitiveness
25. Jobs/Economic Opportunity
26. Cost

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To compare how well the categories of projects meet the criteria, a consumer report evaluation was used to differentiate between the categories. In the analysis, circles denoting a range from "least" likely to "most" likely were used to indicate the degree by which the criteria were attained. Table 21 contains a summary of this qualitative evaluation and a description of each evaluation criteria, including a discussion of the "least" and "most" rated projects or strategies.

Each project category was evaluated individually and was assumed to be independent of other categories. Since many of the projects or strategies within the categories complement each other, the cumulative effects of various categories is not shown.

Table 21
Summary of Qualitative Evaluations (Chart 1 of 5)

Project Category						Improvement of Freight Trip Times - Specific Trade Lanes / Corridors	Change in Truck Trips - Transport Corridors
	Modal Diversion	Reduction of Highway Congestion / Delay	Reduction of Rail Congestion / Delay	Improvement of Travel Time / Reliability			
On-Dock Rail Improvements at Ports (projects outside of terminals)	●	○	○	○	○	●	○
Intermodal Facilities / Yards	○	○	○	○	○	●	○
Shuttle Trains / Alternative Technologies to Additional Intermodal Terminals	○	○	○	○	○	●	○
Mainline Rail Capacity Improvements	○	○	●	●	○	○	○
Modification of Port Hours of Operation	○	○	○	○	○	○	○
Modification of Delivery Hours	○	○	○	○	○	○	○
Truck Lanes/Facilities	○	○	○	○	○	●	●
Use of LCVs on Dedicated Facilities	○	○	○	○	○	○	○
Rail Grade Separations and Grade Crossing Safety Upgrades	○	○	○	○	○	○	○
Application of ITS Technology for Vehicle Management and Routing	○	○	○	○	○	○	○
Operational Techniques Employed by Private or Public Sector to Optimize Freight Travel	○	○	○	○	○	○	○
Data and Analytical Methods	○	○	○	○	○	○	○
Institutional Changes to Improve Feasibility of Large Scale/Mega Projects	○	●	●	○	○	○	●
Construction of Additional Freeway Lanes/Capacity	○	○	○	○	○	●	●
Freeway Operational/Safety Improvements	○	○	○	○	○	○	○

Table 21
Summary of Qualitative Evaluations (Chart 2 of 5)

 <p>Least ← → Most</p> <p>Project Category</p>	<p>Change in Truck Trips - Ports / Intermodal / Warehouse Facilities</p>	<p>Change in Truck Traffic Peak / Off-Peak Shares - Transport Corridors</p>	<p>Change in Truck Traffic Peak / Off-Peak Shares - Ports / Intermodal / Warehouse Facilities</p>	<p>Reduction of Regional Vehicle Miles of Travel</p>	<p>Reduction of Regional Vehicle Hours of Travel</p>
On-Dock Rail Improvements at Ports (projects outside of terminals)	○	○	○	○	○
Intermodal Facilities / Yards	●	○	○	○	○
Shuttle Trains / Alternative Technologies to Additional Intermodal Terminals	○	○	○	●	●
Mainline Rail Capacity Improvements	○	○	○	○	○
Modification of Port Hours of Operation	○	●	●	○	○
Modification of Delivery Hours	○	●	●	○	○
Truck Lanes/Facilities	●	●	●	●	●
Use of LCVs on Dedicated Facilities	○	●	●	●	●
Rail Grade Separations and Grade Crossing Safety Upgrades	○	○	○	○	○
Application of ITS Technology for Vehicle Management and Routing	○	○	○	○	○
Operational Techniques Employed by Private or Public Sector to Optimize Freight Travel	○	○	○	○	○
Data and Analytical Methods	○	○	○	○	○
Institutional Changes to Improve Feasibility of Large Scale/Mega Projects	●	○	○	●	●
Construction of Additional Freeway Lanes/Capacity	●	○	○	●	●
Freeway Operational/Safety Improvements	○	○	○	○	○

Table 21
Summary of Qualitative Evaluations (Chart 3 of 5)

Project Category						
	Impact on Adjacent Corridors / Regional Balance	Reduction of Overall Emissions - Transport Corridors	Reduction of Overall Emissions - Ports / Intermodal / Warehouse Facilities	Reduction of PM Emissions - Transport Corridors	Reduction of PM Emissions - Ports / Intermodal / Warehouse Facilities	Improved Health Effects - Transport Corridors
On-Dock Rail Improvements at Ports (projects outside of terminals)	○	●	●	○	●	○
Intermodal Facilities / Yards	○	○	●	○	●	○
Shuttle Trains / Alternative Technologies to Additional Intermodal Terminals	●	●	●	●	●	●
Mainline Rail Capacity Improvements	○	●	○	●	○	●
Modification of Port Hours of Operation	○	○	○	○	○	○
Modification of Delivery Hours	○	○	○	○	○	○
Truck Lanes/Facilities	●	●	●	●	●	●
Use of LCVs on Dedicated Facilities	●	●	●	●	●	●
Rail Grade Separations and Grade Crossing Safety Upgrades	○	○	○	○	○	○
Application of ITS Technology for Vehicle Management and Routing	○	○	○	○	○	○
Operational Techniques Employed by Private or Public Sector to Optimize Freight Travel	○	○	○	○	○	○
Data and Analytical Methods	○	○	○	○	○	○
Institutional Changes to Improve Feasibility of Large Scale/Mega Projects	●	●	●	●	●	●
Construction of Additional Freeway Lanes/Capacity	○	○	○	○	○	○
Freeway Operational/Safety Improvements	○	○	○	○	○	○

Table 21
Summary of Qualitative Evaluations (Chart 4 of 5)

 <p>Least ← → Most</p> <p>Project Category</p>	Improved Health Effects - Ports / Intermodal / Warehouse Facilities	Reduction of Community Impacts - Transport Corridors	Reduction of Community Impacts - Ports / Intermodal / Warehouse Facilities	Reduction of Land Use Impacts - Transport Corridors	Reduction of Land Use Impacts - Ports / Intermodal / Warehouse Facilities
On-Dock Rail Improvements at Ports (projects outside of terminals)	●	●	●	●	●
Intermodal Facilities / Yards	●	○	●	○	●
Shuttle Trains / Alternative Technologies to Additional Intermodal Terminals	●	●	●	●	●
Mainline Rail Capacity Improvements	○	●	●	●	●
Modification of Port Hours of Operation	○	○	○	○	○
Modification of Delivery Hours	○	○	○	○	○
Truck Lanes/Facilities	●	●	●	●	●
Use of LCVs on Dedicated Facilities	●	●	●	●	●
Rail Grade Separations and Grade Crossing Safety Upgrades	○	○	○	○	○
Application of ITS Technology for Vehicle Management and Routing	○	○	○	○	○
Operational Techniques Employed by Private or Public Sector to Optimize Freight Travel	○	○	○	○	○
Data and Analytical Methods	○	○	○	○	○
Institutional Changes to Improve Feasibility of Large Scale/Mega Projects	●	●	●	●	●
Construction of Additional Freeway Lanes/Capacity	○	●	○	●	○
Freeway Operational/Safety Improvements	○	●	○	●	○

Table 21
Summary of Qualitative Evaluations (Chart 5 of 5)

 Project Category	Maximization of Project Revenue / User Fees	Improvement of Regional Economic Output / Competitiveness	Increase in Jobs / Economic Opportunity	Cost
On-Dock Rail Improvements at Ports (projects outside of terminals)	●	●	●	●
Intermodal Facilities / Yards	●	●	●	●
Shuttle Trains / Alternative Technologies to Additional Intermodal Terminals	●	●	●	●
Mainline Rail Capacity Improvements	●	●	●	●
Modification of Port Hours of Operation	●	●	●	○
Modification of Delivery Hours	●	●	●	○
Truck Lanes/Facilities	●	●	●	●
Use of LCVs on Dedicated Facilities	●	●	●	○
Rail Grade Separations and Grade Crossing Safety Upgrades	●	●	●	●
Application of ITS Technology for Vehicle Management and Routing	●	●	●	○
Operational Techniques Employed by Private or Public Sector to Optimize Freight Travel	●	●	●	○
Data and Analytical Methods	●	●	●	○
Institutional Changes to Improve Feasibility of Large Scale/Mega Projects	●	●	●	○
Construction of Additional Freeway Lanes/Capacity	●	●	●	●
Freeway Operational/Safety Improvements	●	●	●	●

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SUMMARY OF QUALITATIVE EVALUATION

1. **Modal Diversion:** How much does the project or strategy shift freight from truck to rail?
 - a. The **most** significant modal diversion would occur with increased on-dock rail at the ports, with additional potential to increase modal diversion from improvements linking intermodal and freight yards through capital or operational improvements.
 - b. The **least** significant modal diversion would occur with projects focused on improving the movement of trucks and passenger vehicles.
 - i. The biggest constraint to the movement of goods is intermodal lift capacity. Shifting freight from trucks to rail will require increased capacities and systems to allow more goods to quickly transfer from various modes (intermodal lifts); thereby minimizing the interim drayage truck movements.

2. **Highway Congestion/Delay:** How much will the project or strategy reduce highway congestion and delay for both passenger and freight movement?
 - a. The **most** significant reduction in highway congestion/delay would result from large scale/mega projects (such as a regional dedicated freight guideway system) to link the primary origins and destinations in the goods movement system and separate movements between those locations from other regional travel. Therefore, the institutional changes to allow for large scale/mega projects are shown to have the most reduction.
 - i. It is important to note that these institutional changes alone would not affect highway congestion or delay; however, for the purposes of this study it is assumed that these institutional changes are the necessary first-step towards implementation of these large scale/mega projects. The planning, design, construction, and operation of such large scale/mega projects would not occur without the required institutional changes.
 - b. Minimal reductions in highway congestion/delay would result from smaller scale improvements to the regional highway system (e.g., “spot” fixes instead of a large scale regional system).
 - i. The regional highway system is currently at capacity and is forecast to continue to be capacity constrained. The passenger and freight traffic on the existing system is diffuse and extensive; solutions with the greatest benefit must be large scale and separate the traffic that travels through or leaves the region from the traffic within the region.
 - ii. Truck lanes would provide a medium reduction in highway congestion and delay, with the greatest change evident to the trucks themselves. The changes to congestion and delay for vehicles traveling in the mixed-flow lanes adjacent to the truck lanes would be minimal, as the excess capacity created by the removal of truck traffic would be quickly absorbed by the significant additional vehicle demand along corridors. In addition, the reduction to highway congestion and delays would be limited to areas on or surrounding the designated truck lane corridors; within the MCGMAP region, highway congestion and delay would remain significant due to overwhelming demand.

3. **Rail Congestion/Delay:** How much will the project or strategy reduce rail congestion and delay for both passenger and freight movement?
 - a. The **most** significant reduction in rail congestion/delay would result from mainline rail capacity increases, with additional reduction from large scale/mega projects.
 - b. The **least** significant reduction in rail congestion/delay would result from those projects and strategies that do not affect rail travel.
 - i. Rail capacity is the second largest constraint to the goods movement system. Additional mainline rail is necessary to improve capacity.

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4. **Travel Time/Reliability:** How much will the project or strategy improve travel time and reliability for both passenger and freight movement?
 - a. The **most** significant improvement in travel time/reliability would result from additional mainline rail capacity; both for passenger and goods movement.
 - b. The **least** significant improvement in travel time/reliability would result from improvements to the regional highway system or modifications to operational systems.
 - i. The goods movement network in the region shares capacity with passenger and freight traffic. The sheer demand for passenger service results in a highly constrained system. Although improvements to the regional network would improve travel time and reliability, the improvements may not be as substantial as desired due to the demand on the system from both passengers and freight.
5. **Freight Trip Times - Specific Trade Lanes/Corridors:** How much will the project or strategy improve trip time for freight movement?
 - a. The **most** significant improvement in freight trip times along specific trade lanes/corridors would result from direct capacity enhancements to the specific trade lanes/corridors; with rail representing the area for maximum benefit.
 - b. Limited benefit in freight trip times along specific trade lanes/corridors would result from projects and strategies not directly adding capacity.
 - i. Since the majority of the goods movement within the region moves on a broad and diverse system, the most benefit would occur when improvements are made to specific goods movement corridors. (e.g., rail lines).
 - ii. Corridor improvements will reduce freight trip times along specific corridors, but regionwide changes will be negligible, as corridor improvements also allow for a greater number of vehicle volumes to be served, further constraining capacity and reducing travel times.
6. **Truck Trips - Transport Corridors:** How much will the project or strategy increase truck trips along transport corridors?
 - a. The **most** significant change in truck trips along transport corridors would result from the addition of truck lanes or facilities; with additional potential from the construction of additional mainline freeway capacity.
 - b. Limited change in truck trips along transport corridors would result from projects and strategies not directly adding capacity or those that focus on rail goods movement.
 - i. The region's highway system serves local, regional, and national goods movement via trucks; therefore, improvements to the region's highway system will change truck trips, and the most change would result from a dedicated system serving trucks. The best solutions will most likely require a large scale / mega project.
7. **Truck Trips - Ports/Intermodal/Warehouse Facilities:** How much will the project or strategy increase truck trips between ports, intermodal yards, and warehouse facilities?
 - a. The **most** significant increase in truck trips between ports, intermodal yards, and warehouse facilities would result from the addition of truck lanes or facilities; with additional potential from the construction of additional mainline freeway capacity as well as improvements and increases to intermodal facilities and yards.
 - b. Limited increase in truck trips between ports, intermodal yards, and warehouse facilities would result from projects and strategies not directly adding capacity or those that focus on rail goods movement.
 - i. Similar to transport corridors, the most change to truck trips between ports, intermodal yards, and warehouse facilities would result from a dedicated system serving trucks; improvements to on-dock rail and increases to intermodal facilities and yards would also change truck trips, specifically drayage truck trips associated with transloaded intermodal cargo.

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8. **Truck Traffic Peak/Off-Peak Shares - Transport Corridors:** How much will the project or strategy shift the share of truck traffic from peak to off-peak times along transport corridors?
 - a. The **most** significant shift in the share of truck traffic from peak to off-peak times along transport corridors would result from the addition of truck lanes or facilities; with additional potential benefits from the use of LCVs on dedicated facilities.
 - b. The **least** significant shift in the share of truck traffic from peak to off-peak times along transport corridors would result from any improvements to rail capacity.
 - i. The greatest shift in peak and off-peak truck travel along transport corridors would result from increased opportunities for trucks to either travel during peak hours, congestion on dedicated facilities with limited congestion (e.g., truck lanes), or to allow increased volumes to travel during off-peak times (e.g., changes to operating hours).
9. **Truck Traffic Peak/Off-Peak Shares - Ports/Intermodal/Warehouse Facilities:** How much will the project or strategy shift the share of truck traffic from peak to off-peak times between ports, intermodal yards, and warehouse facilities?
 - a. The **most** significant shift in the share of truck traffic from peak to off-peak times between ports, intermodal yards, and warehouse facilities would result from the addition of truck lanes or facilities; with additional potential benefits from the use of LCVs on dedicated facilities.
 - b. The **least** significant shift in the share of truck traffic from peak to off-peak times between ports, intermodal yards, and warehouse facilities would result from any improvements to rail capacity.
 - i. The greatest shift in peak and off-peak truck travel between ports, intermodal yards, and warehouse facilities would result from increased opportunities for trucks to either travel during peak hours of congestion on dedicated facilities with limited congestion (e.g., truck lanes) or to allow increased volumes to travel during off-peak times (e.g., changes to operating hours).
10. **Regional Vehicle Miles of Travel:** How much will the project or strategy reduce regional vehicle miles of travel?
 - a. The **most** significant reduction in regional VMT would result from the addition of truck lanes or facilities; with additional potential benefit from the addition of mainline freeway capacity.
 - b. Limited reduction in regional VMT would result from any improvements to rail capacity.
 - i. By concentrating truck travel along specific corridors, total congestion could be reduced resulting in changes to travel routes and an overall reduction in VMT; this would occur through capacity enhancements to the region's highway system.
 - ii. Note that the MCGMAP Region's overall VMT will maintain a relatively constant level with any assumed highway or rail projects described in this chapter or Tech Memo 6a. As a function of total lane-miles of roadway and total vehicle volumes on the regional system, total VMT will show minimal changes when considering projects and strategies located along specific routes or corridors. The qualitative evaluations presented above reflect nominal differences between the least and most reduction. The key point of this qualitative evaluation is that the greatest reduction in VMT would occur through enhancements to the highway system that allow for vehicles to utilize the most direct routes between destinations, without selecting routes based on reduced congestion levels (thereby reducing overall miles traveled). Rail capacity improvements would serve a specific segment of the MCGMAP Region's goods moved by truck; however, a greater share of the Region's trucks would not be affected by rail capacity improvements and therefore the reduction in VMT would be limited.

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11. **Regional Vehicle Hours of Travel:** How much will the project or strategy reduce regional vehicle hours of travel?
- The **most** significant reduction in regional VHT would result from the addition of truck lanes or facilities; with additional potential benefit from the addition of mainline freeway capacity.
 - The **least** significant reduction in regional VHT would result from any improvements to rail capacity.
 - By concentrating truck travel along specific corridors, total congestion could be reduced resulting in an overall reduction in VHT; this would occur through capacity enhancements to the region's highway system.
12. **Impact on Adjacent Corridors/Regional Balance:** How much will the project or strategy impact adjacent corridors or change the regional balance of passenger and goods movement?
- The **most** significant impact on adjacent corridors or regional balance would result from projects and strategies that enhance specific goods movement routes or corridors (such as dedicated truck facilities or advanced technologies).
 - Limited impact on adjacent corridors or regional balance would result from operational improvements or location-specific improvements.
 - By providing enhanced capacity along specific goods movement corridors or routes, goods movement traffic would be more likely to shift from adjacent corridors, while non-goods movement traffic may shift to the adjacent corridors; the net result would be noticeable changes to regional balance.
13. **Overall Emissions - Transport Corridors:** How much will the project or strategy reduce overall emissions along transport corridors?
- The **most** significant reduction to overall emissions along transport corridors would result from alternative technologies (e.g., low- or zero-emission technologies) and improvements to the speed and congestion of goods movement throughout the region.
 - The **least** significant reduction to overall emissions along transport corridors would result from those improvements not enhancing capacity, congestion, and travel speeds.
 - The key to reducing overall emissions along transport corridors is either maximizing the volume of low- or zero-emission vehicles (e.g., maximize the volume of goods carried by rail or "clean" emerging technologies) or by reducing congestion and delays throughout the regional system for both passenger and freight travel.
 - Note that the changes to overall emissions would be centered along the specific corridors utilized by the specific project or strategy; within the MCGMAP Region there would still be significant overall emissions related to both goods movement and other sources (e.g., automobiles, stationary sources).
14. **Overall Emissions - Ports/Intermodal/Warehouse Facilities:** How much will the project or strategy reduce overall emissions between ports, intermodal yards, and warehouse facilities?
- The **most** significant reduction to overall emissions between ports, intermodal yards, and warehouse facilities would result from alternative technologies (e.g., non-diesel sources); with additional potential benefits from increased on-dock rail improvements and improvements to the speed and congestion of goods movement throughout the region.
 - The **least** significant reduction to overall emissions between ports, intermodal yards, and warehouse facilities would result from those improvements not enhancing capacity or congestion.
 - Similar to transport corridors, the most reduction to overall emissions between ports, intermodal yards, and warehouse facilities would be through the implementation of a low- or zero-emission technology to move goods between the specific locations; with additional

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benefits from increased on-dock rail at the ports and improvements to intermodal yard efficiency (e.g., reducing wait times and bottlenecks at intermodal yards).

- ii. Also similar to transport corridors, the changes to overall emissions between ports, intermodal yards, and warehouse facilities would be centered on the facilities accessed by the specific project or strategy; within the MCGMAP Region there would still be significant overall emissions related to both goods movement and other sources (e.g., automobiles, stationary sources).
15. **PM Emissions - Transport Corridors:** How much will the project or strategy reduce diesel particulate matter emissions along transport corridors?
- a. The **most** significant reduction to PM emissions along transport corridors would result from alternative technologies (e.g., non-diesel sources) and a shift from truck to rail.
 - b. The **least** significant reduction to PM emissions along transport corridors would result from those improvements not enhancing capacity, congestion, and travel speeds.
 - i. The key to reducing PM emissions along transport corridors is maximizing non-diesel technologies (e.g., maximize the volume of goods carried by rail or “clean” emerging technologies).
 - ii. Note that the changes to PM emissions would be centered along the specific corridors utilized by the specific project or strategy; within the MCGMAP region there would still be significant PM emissions related to goods movement along other routes.
16. **PM Emissions - Ports/Intermodal/Warehouse Facilities:** How much will the project or strategy reduce diesel particulate matter emissions between ports, intermodal yards, and warehouse facilities?
- a. The **most** significant reduction to PM emissions between ports, intermodal yards, and warehouse facilities would result from the use of alternative technologies (e.g., non-diesel sources); with additional potential benefits from increased on-dock rail improvements and improvements to the speed and congestion of goods movement throughout the region.
 - b. The **least** significant reduction to PM emissions between ports, intermodal yards, and warehouse facilities would result from those improvements not enhancing capacity or congestion.
 - i. Similar to transport corridors, the most reduction to PM emissions between ports, intermodal yards, and warehouse facilities would be through the implementation of a low- or zero-emission technology to move goods between the specific locations; with additional benefits from increased on-dock rail at the ports and improvements to intermodal yard efficiency (e.g., reducing wait times and bottlenecks at intermodal yards).
 - ii. Also similar to transport corridors, the changes to PM emissions between ports, intermodal yards, and warehouse facilities would be centered on the facilities accessed by the specific project or strategy; within the MCGMAP Region there would still be significant PM emissions related to goods movement along other routes.
17. **Health Effects - Transport Corridors:** How much will the project or strategy improve health effects (or reduce the current negative health effects) of goods movement along transport corridors?
- a. The **most** significant improvement in health effects (or reduction in current negative health effects) of goods movement along transport corridors would result from the use of alternative technologies (e.g., non-diesel sources); with additional potential benefits from increased on-dock rail improvements and improvements to the speed and congestion of goods movement throughout the region.
 - b. The **least** significant improvement in health effects (or reduction in current negative health effects) of goods movement along transport corridors would result from those improvements not reducing congestion or truck trips.

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- b. The **least** significant reduction in community impacts associated with goods movement between ports, intermodal yards, and warehouse facilities would result from those improvements not enhancing capacity or congestion.
 - i. The most significant reduction in community impacts associated with goods movement between ports, intermodal yards, and warehouse facilities would be through the clear separation of goods movement systems and the local system, thereby reducing truck trips and/or truck congestion.
 - ii. The evaluation assumes that the benefits of separating the goods movement system from the local system will offset the impacts; for example, the benefits due to reduced truck volumes, noise, congestion, and emissions would offset (or outweigh) community impacts associated with separated facilities, such as increased noise and need for additional right-of-way.
 - iii. In addition, the community impacts of goods movement occur along entire routes and are not unique to ports, intermodal yards, and warehouse facilities. Therefore, improvements to the ports, intermodal yards, and warehouse facilities may lessen community impacts in one designated area, while having no effect on, or increasing, community impacts along the corridor. Increased freight volumes along improved separated corridors could also lead to increased community impacts at the end- or mid-points where loading and transloading occur.
21. **Land Use Impacts - Transport Corridors:** How much will the project or strategy reduce land use impacts associated with goods movement along transport corridors?
- a. The **most** significant reduction in land use impacts associated with goods movement along transport corridors would result from those projects that allow for more goods to move on systems separated from communities.
 - b. The **least** significant reduction in land use impacts associated with goods movement along transport corridors would result from those improvements not reducing congestion or truck trips.
 - i. By increasing rail mainline capacity coupled with grade separations, more trucks could be removed from local communities; also, dedicated truck facilities can separate truck traffic from passenger traffic and direct truck traffic to specific routes to separate from local traffic.
22. **Land Use Impacts - Ports/Intermodal/Warehouse Facilities:** How much will the project or strategy reduce land use impacts associated with goods movement between ports, intermodal yards, and warehouse facilities?
- a. The **most** significant reduction in land use impacts between ports, intermodal yards, and warehouse facilities would result from reducing truck trips and/or truck congestion; with additional potential benefits from improved efficiency at the ports and intermodal yards.
 - b. The **least** significant reduction in land use impacts between ports, intermodal yards, and warehouse facilities would result from those improvements not enhancing capacity or congestion.
 - i. The most significant reduction in land use impacts between ports, intermodal yards, and warehouse facilities would be through the clear separation of goods movement systems and the local system, thereby reducing truck trips and/or truck congestion.
23. **Project Revenue/User Fees:** How much will the project or strategy maximize project revenue or user fee generating potential?
- a. The **most** significant project revenue or user fee generating potential would result from those projects and strategies that target specific market segments of the goods movement system (e.g., national distribution).
 - b. The **least** significant project revenue or user fee generating potential would result from those projects and strategies that do not serve a specific market segment or need.

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- i. In order to maximize project revenues and user fees, the users must see a direct benefit in terms of productivity, reliability, efficiency, or another metric of performance.
24. **Regional Economic Output/Competitiveness:** How much will the project or strategy improve the economic output and competitiveness of the region?
 - a. The **most** significant improvement to the economic output and competitiveness of the region would result from projects and strategies that maintain the system for the movement of goods and associated industries throughout the region and state, as well as nationally and internationally.
 - b. The **least** significant improvement to the economic output and competitiveness of the region would result from projects and strategies that do not specifically maintain or enhance the goods movement system.
 - i. In general, the region will maintain its competitive economic edge due to a number of factors (e.g., access to Asian trade, role as international gateway, large manufacturing base, large population base).
25. **Cost:** What is the overall cost of the project or strategy?
 - a. The **most** costly projects and strategies are those that would require large capital expenditures (e.g., right-of-way acquisition, structures) as well as those projects and strategies requiring extensive regional environmental mitigation.
 - b. The **least** costly projects and strategies are those that would not require new capital expenditures.
 - i. The costs for any projects and strategies will be substantial; however, the cost can be offset by improvements in the other 25 categories mentioned above.
 - ii. Note that it is difficult to prepare an equitable assessment of costs between all evaluated projects and strategies. For the purposes of this evaluation, any project or strategy that would require right-of-way acquisition (e.g., along specific transport corridors, around existing facilities) was assumed to have the most cost. Although specific costs will vary between the projects and strategies, and some projects and strategies will be substantially less cost than others or could present opportunities for cost savings (e.g., using existing utility easements for new corridor alignments), all projects or strategies requiring right-of-way acquisition will have high costs.
26. **Jobs/Economic Opportunity:** How much will the project or strategy increase the number of jobs and economic opportunity associated with goods movement in the region?
 - a. The **most** significant increase in the number of jobs and economic opportunity associated with goods movement in the region would result from projects and strategies that maintain the system for the movement of goods and associated industries throughout the region and state, as well as nationally, and internationally.
 - b. The **least** significant increase in the number of jobs and economic opportunity associated with goods movement in the region would result from projects and strategies that do not specifically maintain or enhance the goods movement system.
 - i. In general, the region will maintain its competitive economic edge due to a number of factors (e.g., access to Asian trade, role as international gateway, large manufacturing base, large population base). This will ensure an increase in jobs and economic opportunity; however, the region must ensure that appropriate training and opportunity is continually provided.

Detailed Evaluation of Goods Movement Strategies

In addition to the qualitative evaluations set forth in this chapter, a more detailed analysis was conducted for four of the 15 categories of projects and strategies: 1) construction of dedicated truck lanes/facilities with or without tolls 2) shuttle trains / alternative technologies to additional intermodal terminals, 3) construction of additional freeway lanes, HOV lanes/capacity, and 4) freeway operational/safety improvements. This analysis focused on projects and strategies that would result in changes to regional vehicle and truck travel characteristics. Also, the projects and strategies would have to be quantified and evaluated using analytical tools (such as regional travel demand models, economic models, and GIS tools). In addition, estimates of potential revenue generation from tolls and container fees were developed, and cost estimates were prepared for the construction of dedicated truck lanes. The projects described in this section have not undergone detailed environmental clearance.

Projects and strategies that could be modeled using SCAG's regional travel demand model were grouped into "bundles and summarized below:

1. Lowest investment, consisting of strategic freeway widening, bottleneck relief, auxiliary lanes, interchange improvements on freeways carrying heavy flows of truck traffic.
 - a. Note that the projects included in Bundle 1 are primarily taken from SCAG's 2004 RTP and represent non-truck lane improvements not included under existing committed funding plans. For the purposes of this project, no additional non-truck lane improvements are included in this bundle. Therefore, this bundle is classified as strategic improvements, as they address already identified areas of concern.
2. I-710 (Ports to SR-60), SR-60 (I-710 to I-15), and I-15 (SR-60 to Victorville) dedicated truck lanes (2 lanes in each direction) without tolls.
3. I-710 (Ports to I-10), I-10 (I-710 to I-15), and I-15 (I-10 to Victorville) dedicated truck lanes (2 lanes in each direction) without tolls.
4. I-710 (Ports to SR-91), SR-91 (I-710 to I-15), and I-15 (SR-91 to Victorville) dedicated truck lanes (2 lanes in each direction) without tolls.
5. I-710 (Ports to I-10), two Westbound truck lanes I-10 (I-710 to I-15), two Eastbound truck lanes SR-60 (I-710 to I-15), two Northbound truck lanes I-15 (SR-60 to I-10), I-15 (I-10 to Victorville) dedicated truck lanes (2 lanes in each direction, unless otherwise noted) without tolls.
6. I-710 (Ports to SR-91), SR-91 (I-710 to SR-57), SR-57 (SR-91 to SR-60), SR-60 (SR-57 to I-15), and I-15 (SR-91 to Victorville) dedicated truck lanes (2 lanes in each direction) without tolls.
7. I-710 (Ports to SR-91), SR-91 (I-710 to I-605), I-605 (SR-91 to I-10), I-10 (I-605 to I-15), and I-15 (I-10 to Victorville) dedicated truck lanes (2 lanes in each direction) without tolls.
8. I-5 (I-710 to Kern County) dedicated truck lanes (2 lanes in each direction) without tolls.
9. I-5 (U.S./Mexico Border to Kern County) dedicated truck lanes (2 lanes in each direction) without tolls.
10. Mixed-flow toll expressways (2 lanes in each direction) for autos and light trucks.
11. Alternative technologies (e.g., Shuttle Trains, Maglev) to move goods between POLA/POLB and inland destinations.
12. I-15 (U.S./Mexico Border to Victorville) without tolls.

Model Results

TRAVEL MODEL- Given the congestion of the regional transportation network under Year 2030 baseline conditions, any additional capacity would improve mobility along any route or freeway segment. The application of the travel demand model is consistent with this understanding. For each of the 12 bundles, network improvements were made to the Year 2030 baseline network (representing projects included under the

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committed funding plans of MCGMAP project partners, or Scenarios 1, 2, and 3) consistent with the specific bundles. The SCAG travel demand forecasting model was then used to evaluate system performance under each of the bundles. This included an iterative process of running the travel demand model vehicle assignment mode a number of times.

The truck and vehicle volumes shown in Figures 40 through 51, represent one component of future systems performance under the project bundles. For the purposes of this project, volume data is used as the primary source for comparison of bundles. The travel demand model allocates vehicle and truck volumes along routes based on available capacity and documented regional travel patterns between origins and destinations; changes in volumes are indicative of changes in congestion level and system performance. As shown in Figure 52, each bundle would result in changes to daily hours of delay for all users of the region's transportation network.

LAND USE- A strong link between proximity of schools and residences to goods movement transportation corridors, facilities and operations, and public health has been documented. Therefore, the bundles were evaluated based on (1) the number of schools and amount of residential land uses, (2) the connectivity to regional centers of goods movement activity (e.g., ports, warehouses, and distribution centers), and (3) the amount of warehouse/distribution land uses adjacent to bundle routes.

The land use analysis was performed using GIS tools based on existing land use data for the study region compiled by SCAG. The land use analysis focused on:

Proximity to schools and residential land uses-

- ◆ Number of schools within one third mile (radial) of the bundle route.
- ◆ Acreage of residential land use within one half mile (radius) of the bundle route.
 - These distances are based on recent studies showing increased risk of health effects due to residents and schools adjacent to goods movement corridors.

Connectivity to warehouse/distribution land uses.

- ◆ Acreage of warehouse/distribution land use within one mile (radial) of the bundle route.
 - For the purposes of this analysis, one mile was selected as a reasonable distance for developing direct or limited access routes to the proposed facilities.



San Bernardino

Kern

Ventura

Los Angeles

Lancaster

Palmdale

Victorville

Barstow

Santa Clarita

Big Bear Lake

Ventura

Twentynine Palms

Castroville

San Bernardino

Malibu

Riverside

Desert Hot Springs

Orange

Hemet

Riverside

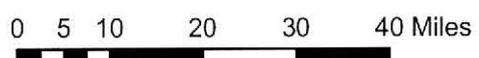
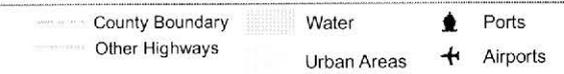
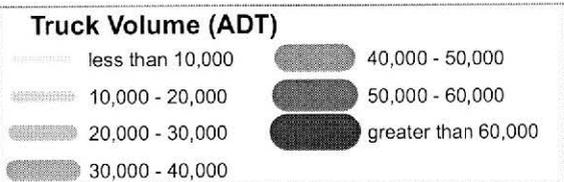
Newport Beach

Temecula

San Diego

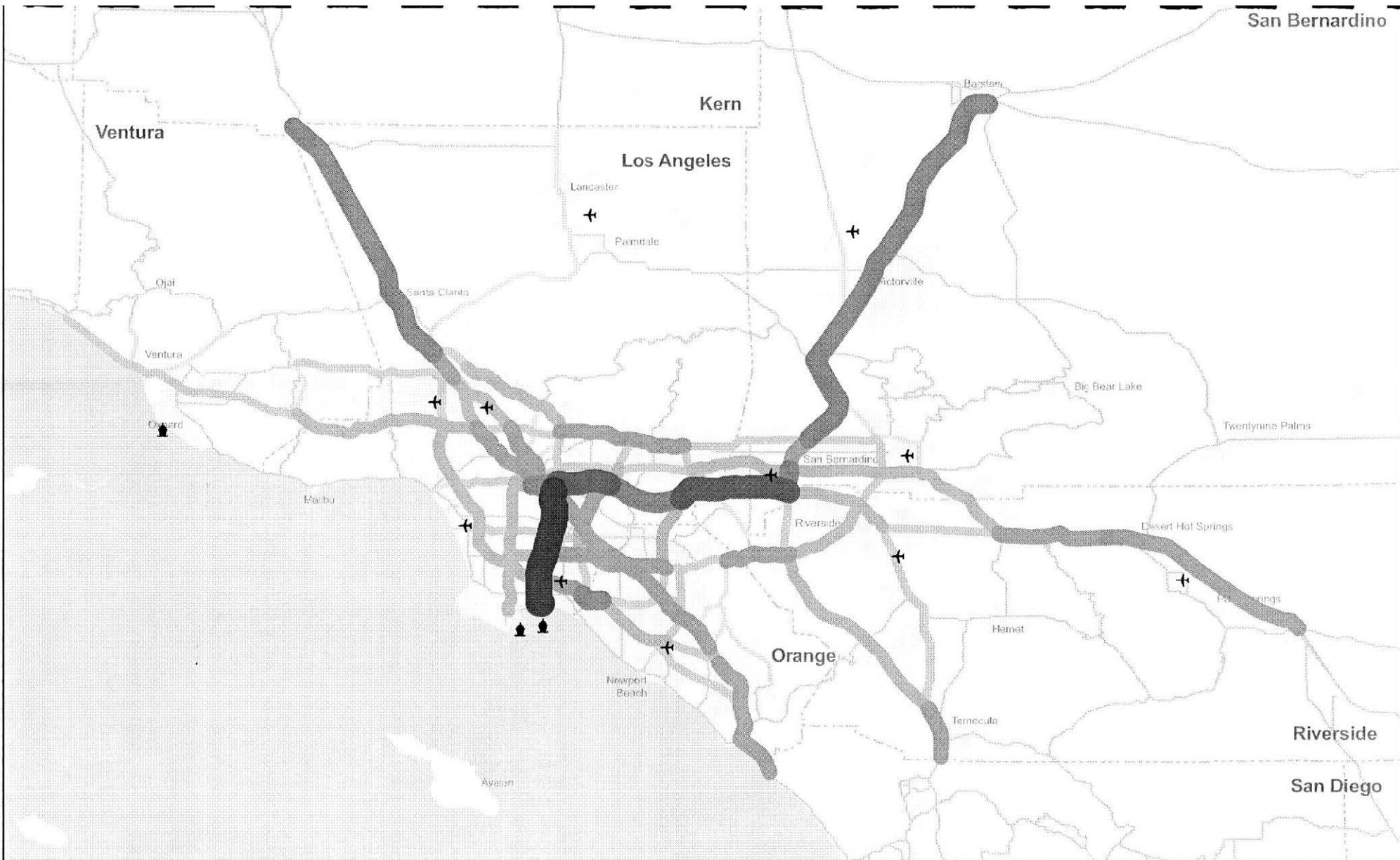
Year 2030 Truck Volumes (Daily) Bundle 1

Lowest Investment/Strategic Improvements



Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

Figure 40



San Bernardino

Kern

Ventura

Los Angeles

Lancaster

+

Palmdale

+

Victorville

Barstow

Ojai

Santa Clarita

Big Bear Lake

Ventura

Oxnard

Twentynine Palms

Maribu

San Bernardino

Desert Hot Springs

+

Riverside

+

Indio

+

Orange

Hemet

Riverside

Newport Beach

Temecula

San Diego

Ayazn

Truck Volume (ADT)

	less than 10,000		40,000 - 50,000
	10,000 - 20,000		50,000 - 60,000
	20,000 - 30,000		greater than 60,000
	30,000 - 40,000		

**Year 2030 Truck Volumes (Daily)
Bundle 2 Truck Lanes**



0 5 10 20 30 40 Miles



Figure 41

Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

County Boundary Water Ports
Other Highways Urban Areas Airports



San Bernardino

Kern

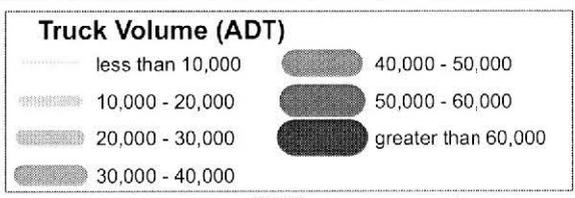
Los Angeles

Ventura

Orange

Riverside

San Diego



Year 2030 Truck Volumes (Daily) Bundle 3 Truck Lanes

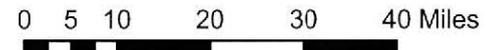
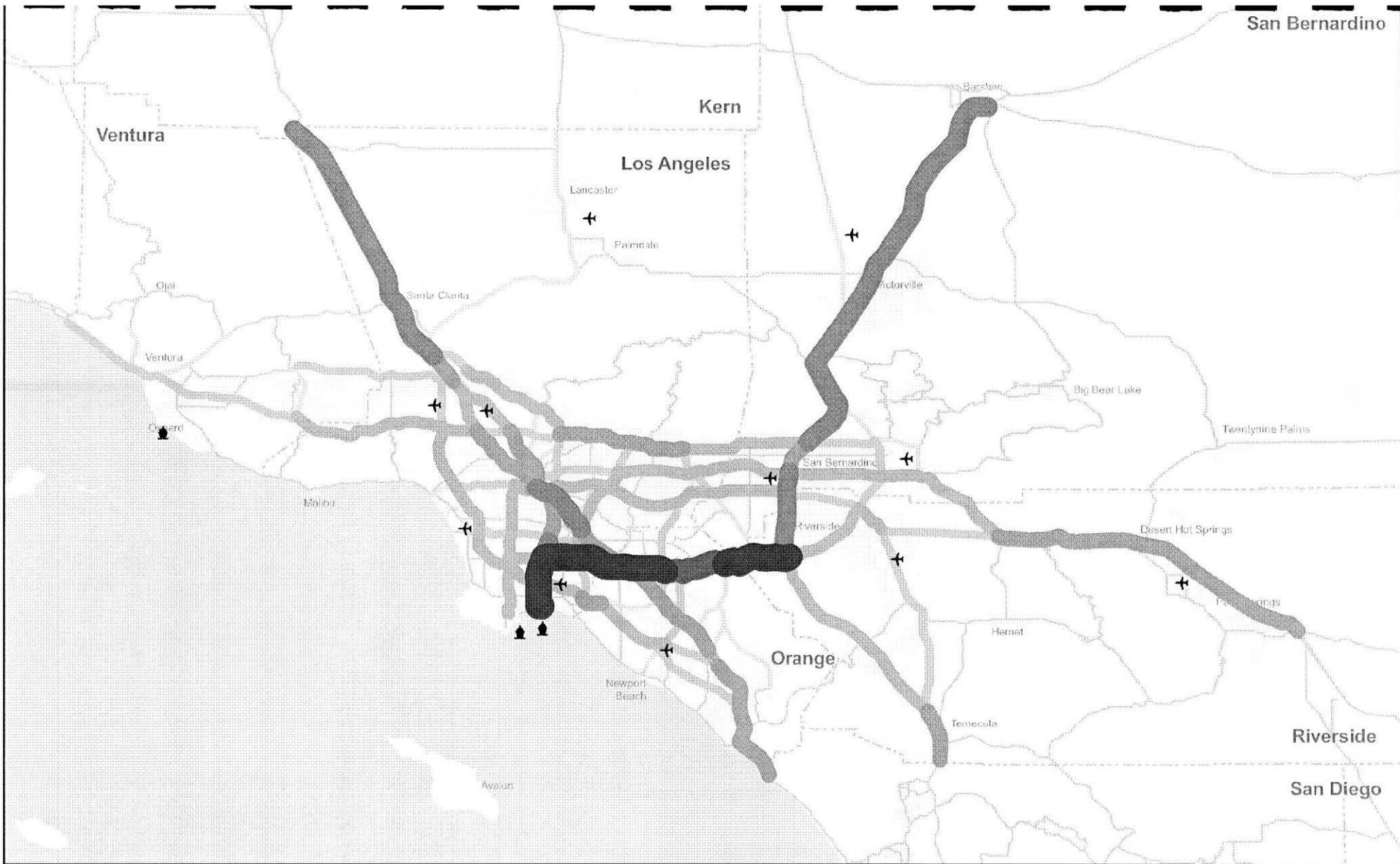


Figure 42

Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA



Year 2030 Truck Volumes (Daily) Bundle 4 Truck Lanes

Truck Volume (ADT)	
	less than 10,000
	10,000 - 20,000
	20,000 - 30,000
	30,000 - 40,000
	40,000 - 50,000
	50,000 - 60,000
	greater than 60,000

	County Boundary		Water		Ports
	Other Highways		Urban Areas		Airports

> >

0 5 10 20 30 40 Miles



Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA

Figure 43



San Bernardino

Kern

Los Angeles

Ventura

Santa Clarita

Lancaster

Palmdale

Barstow

Victorville

Olaj

Ventura

Coalinga

Big Bear Lake

Twentynine Palms

Maribu

San Bernardino

Riverside

Desert Hot Springs

Palmdale

Orange

Hemet

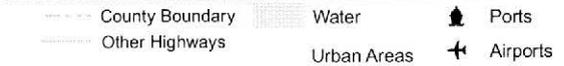
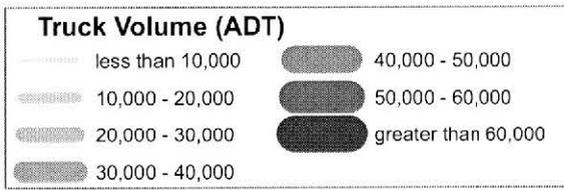
Riverside

San Diego

Newport Beach

Temecula

Avalon



Year 2030 Truck Volumes (Daily)

Bundle 5 Truck Lanes

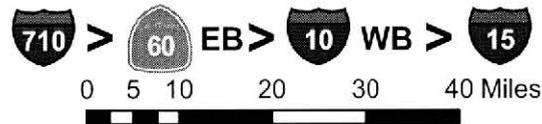
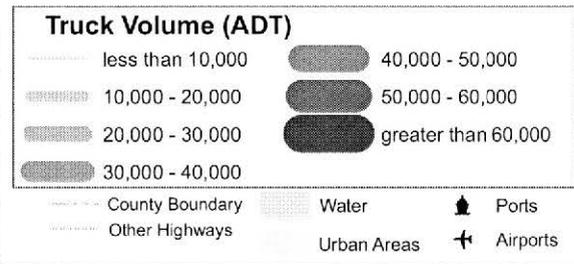
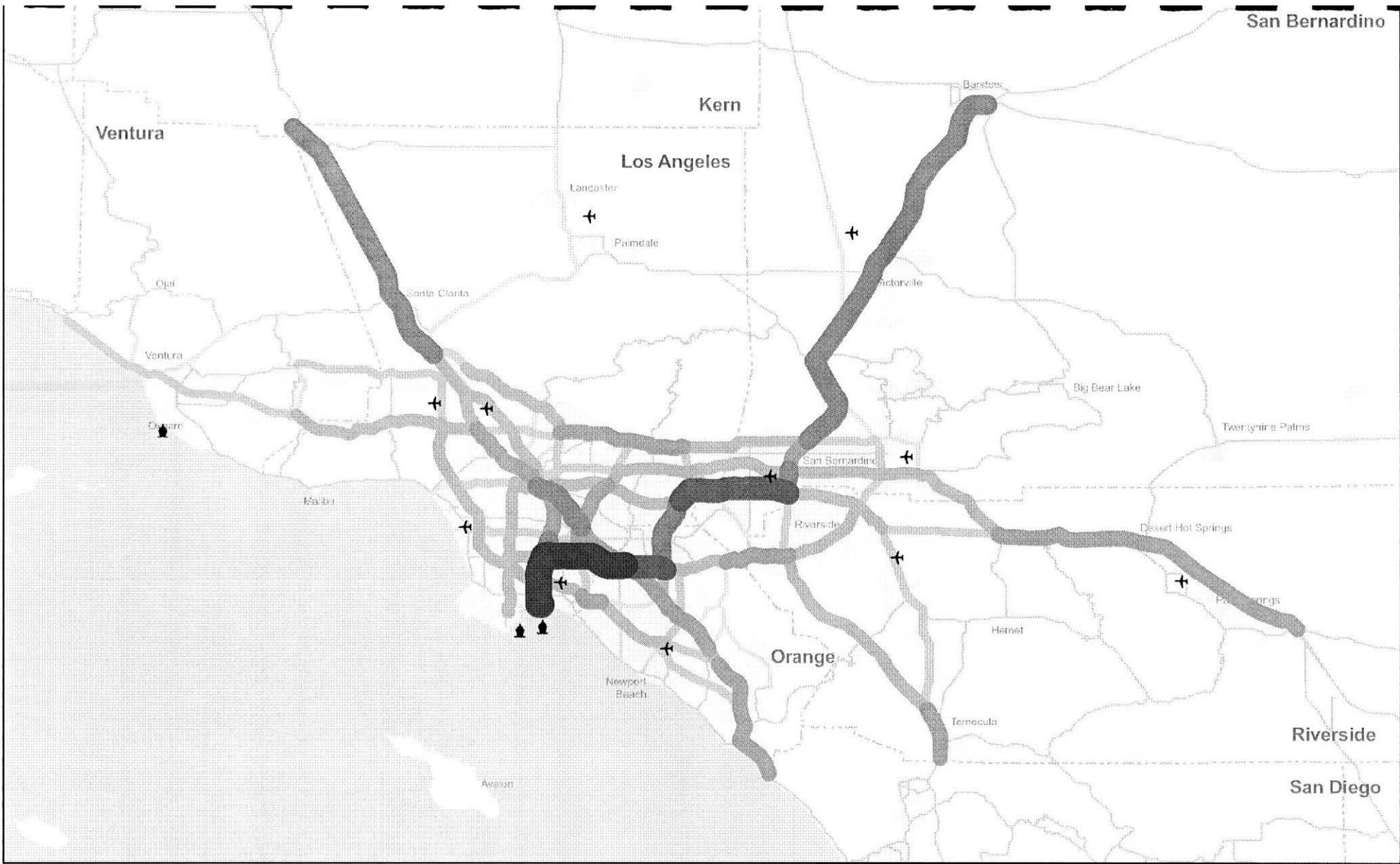


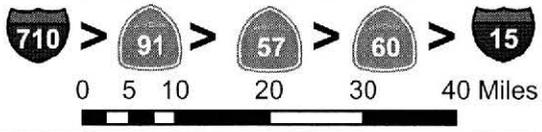
Figure 44

Source: SCAG Draft 2030 AQMP
 Travel Demand Model Baseline
 TeleAtlas StreetMap USA



Year 2030 Truck Volumes (Daily)

Bundle 6 Truck Lanes



Source: SCAG Draft 2030 AQMP
 Travel Demand Model Baseline
 TeleAtlas StreetMap USA

Figure 45

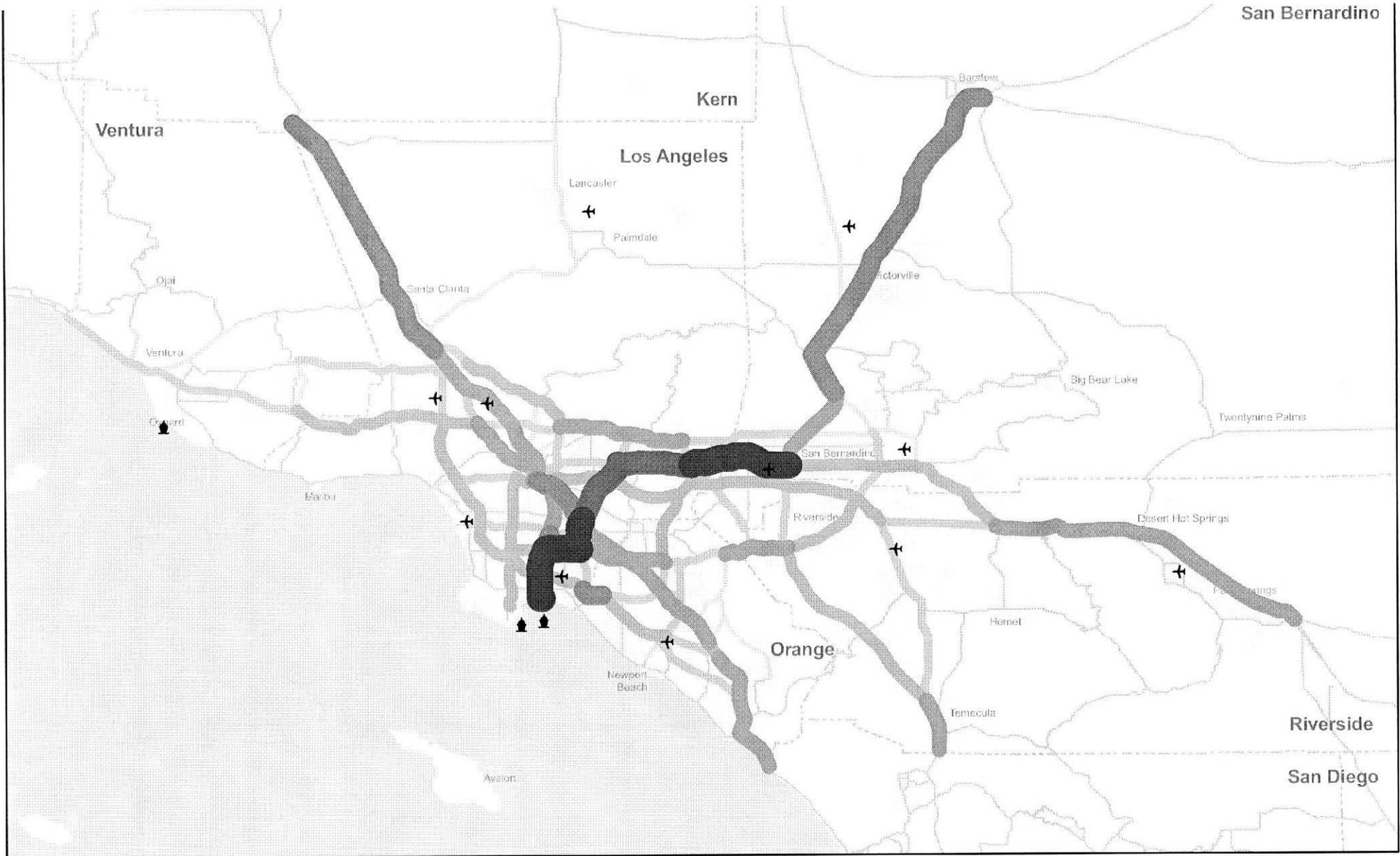
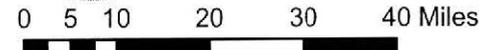


Figure 46

Year 2030 Truck Volumes (Daily)

Bundle 7 Truck Lanes

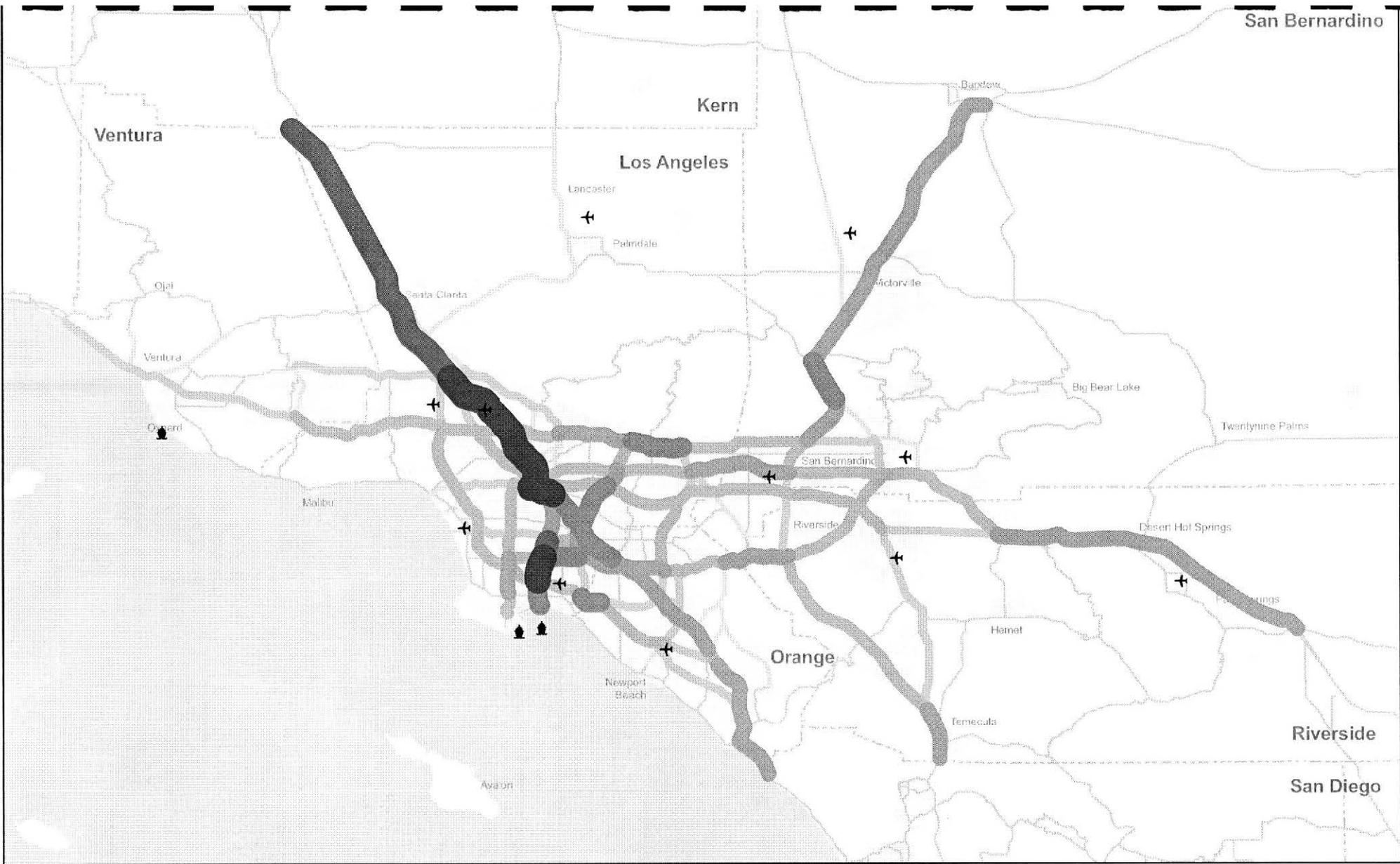


Truck Volume (ADT)	
	less than 10,000
	10,000 - 20,000
	20,000 - 30,000
	30,000 - 40,000
	40,000 - 50,000
	50,000 - 60,000
	greater than 60,000

	County Boundary		Water		Ports
	Other Highways		Urban Areas		Airports



Source: SCAG Draft 2030 AQMP
 Travel Demand Model Baseline
 TeleAtlas StreetMap USA



San Bernardino

Kern

Los Angeles

Ventura

Barstow

Lancaster

Palmdale

+

Victorville

Ojai

Santa Clarita

Big Bear Lake

Ventura

Twentynine Palms

Oxnard

San Bernardino

Malibu

Riverside

Desert Hot Springs

+

+

+

+

Orange

Hemet

Riverside

Newport Beach

Temecula

San Diego

Avalon

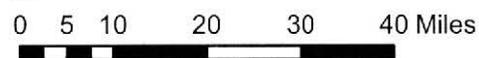
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Truck Volume (ADT)

	less than 10,000		40,000 - 50,000
	10,000 - 20,000		50,000 - 60,000
	20,000 - 30,000		greater than 60,000
	30,000 - 40,000		

**Year 2030 Truck Volumes (Daily)
Bundle 8 Truck Lanes**

I-710 to Kern County

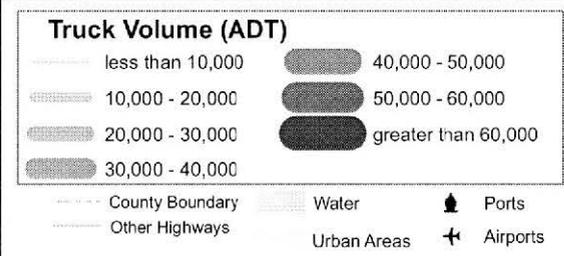
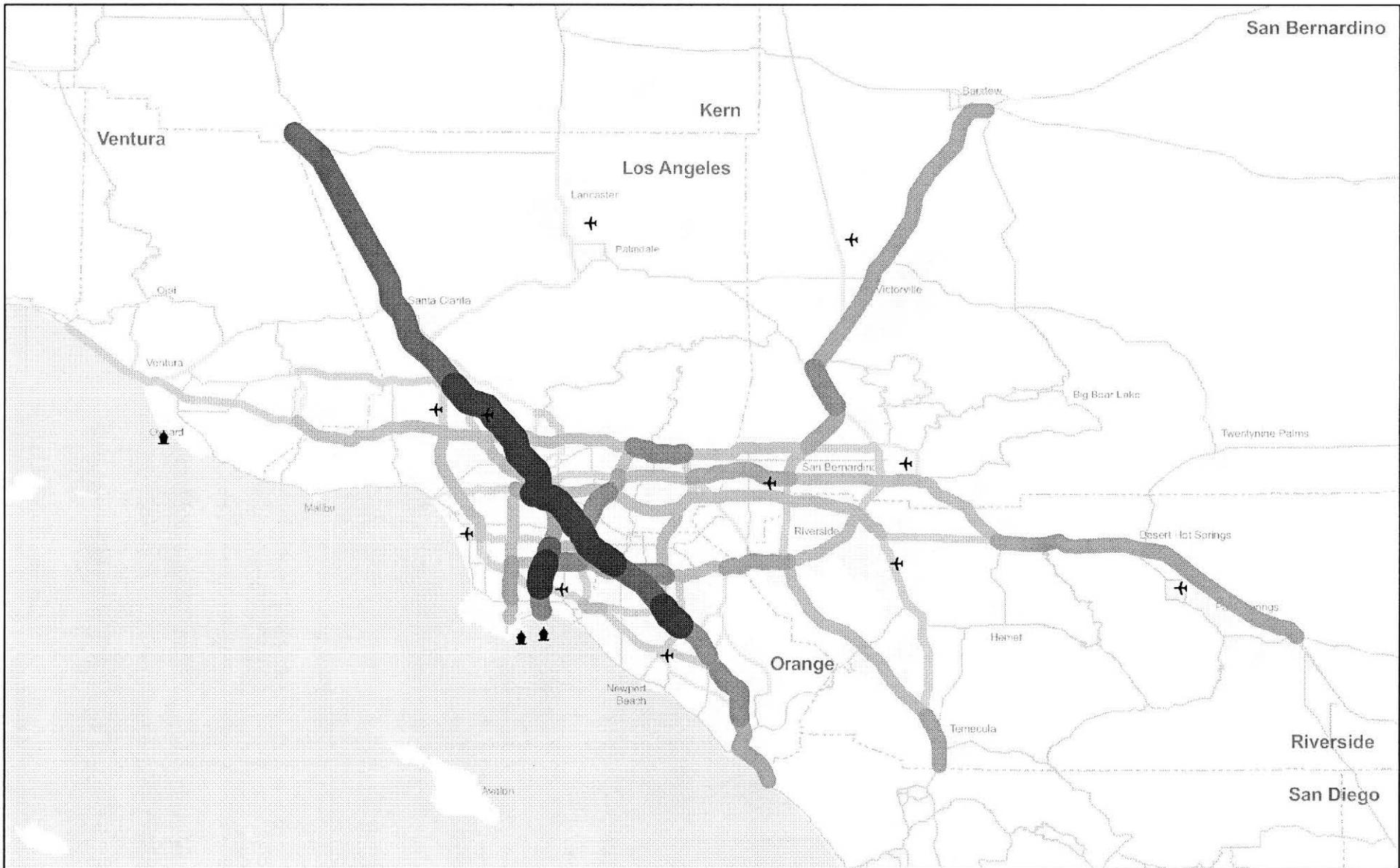


	County Boundary		Water		Ports
	Other Highways		Urban Areas		Airports



Figure 47

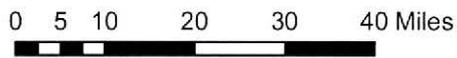
Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA



Year 2030 Truck Volumes (Daily)

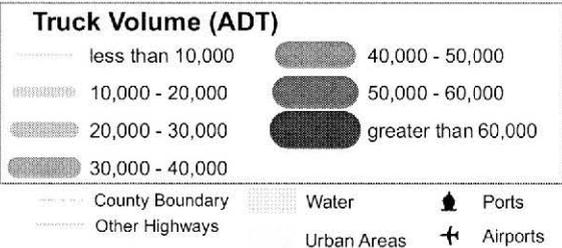
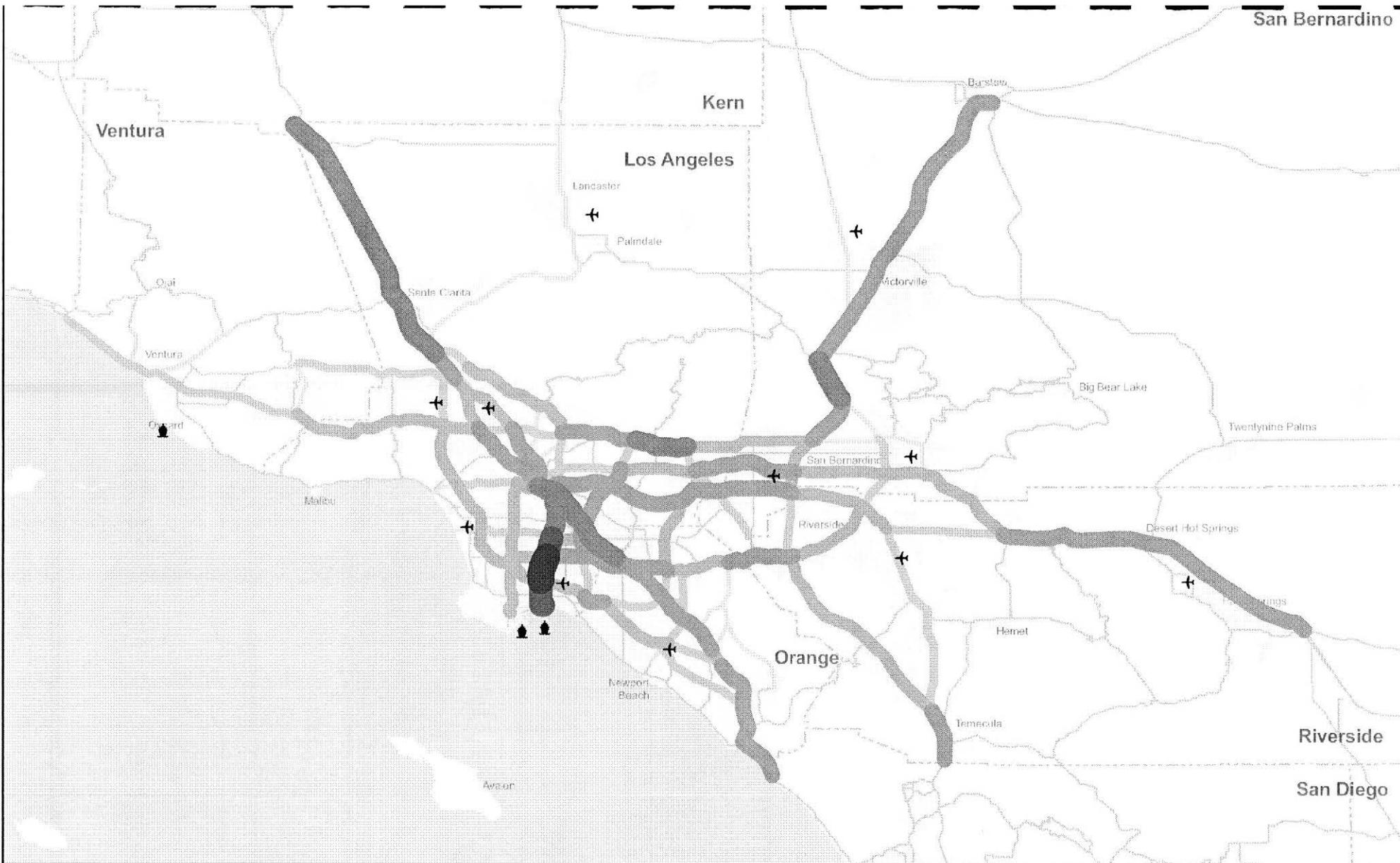
Bundle 9 Truck Lanes

5 Mexico to Kern County



Source: SCAG Draft 2030 AQMP
 Travel Demand Model Baseline
 TeleAtlas StreetMap USA

Figure 48



Year 2030 Truck Volumes (Daily) Bundle 10 Mixed Flow Toll

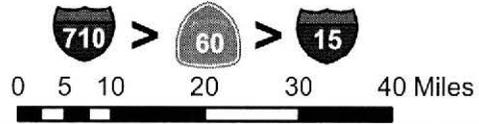


Figure 49

Source: SCAG Draft 2030 AQMP
Travel Demand Model Baseline
TeleAtlas StreetMap USA



San Bernardino

Kern

Ventura

Los Angeles

Barstew

Lancaster

Palmdale

+

Olaj

Santa Clarita

Victorville

Ventura

Big Bear Lake

Oxnard

Twentynine Palms

Malibu

San Bernardino

+

Desert Hot Springs

Riverside

Palmdale

Orange

Hemat

Riverside

San Diego

Newport Beach

Temecula

Avalon

Truck Volume (ADT)

	less than 10,000		40,000 - 50,000
	10,000 - 20,000		50,000 - 60,000
	20,000 - 30,000		greater than 60,000
	30,000 - 40,000		

Year 2030 Truck Volumes (Daily)
Bundle 11 Advanced Technology
Reducing Port Truck Related Volumes

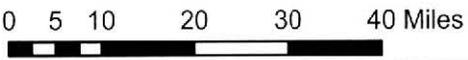
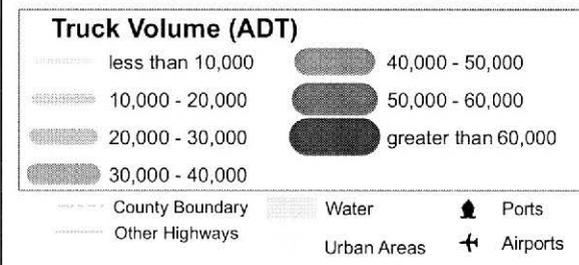
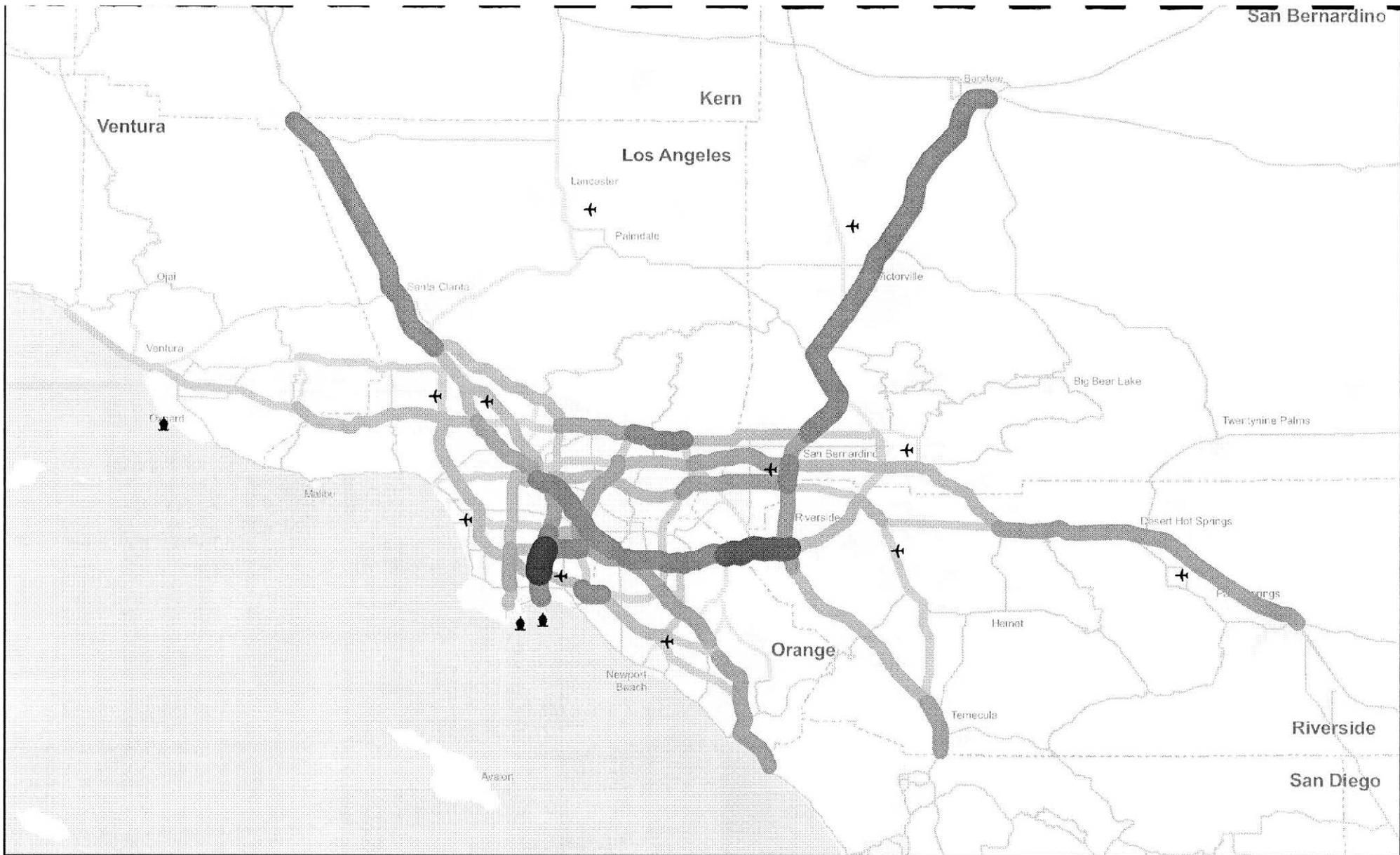


Figure 50

Source: SCAG Draft 2030 AQMP
 Travel Demand Model Baseline
 TeleAtlas StreetMap USA

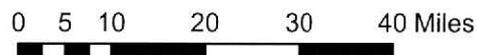
- County Boundary
- Water
- Ports
- Other Highways
- Urban Areas
- Airports



Year 2030 Truck Volumes (Daily)

Bundle 12 Truck Lanes

15 Mexico to Victorville



Source: SCAG Draft 2030 AQMP
 Travel Demand Model Baseline
 TeleAtlas StreetMap USA

Figure 51

2030 Baseline vs. Alternatives Reduction of Hours of Delay

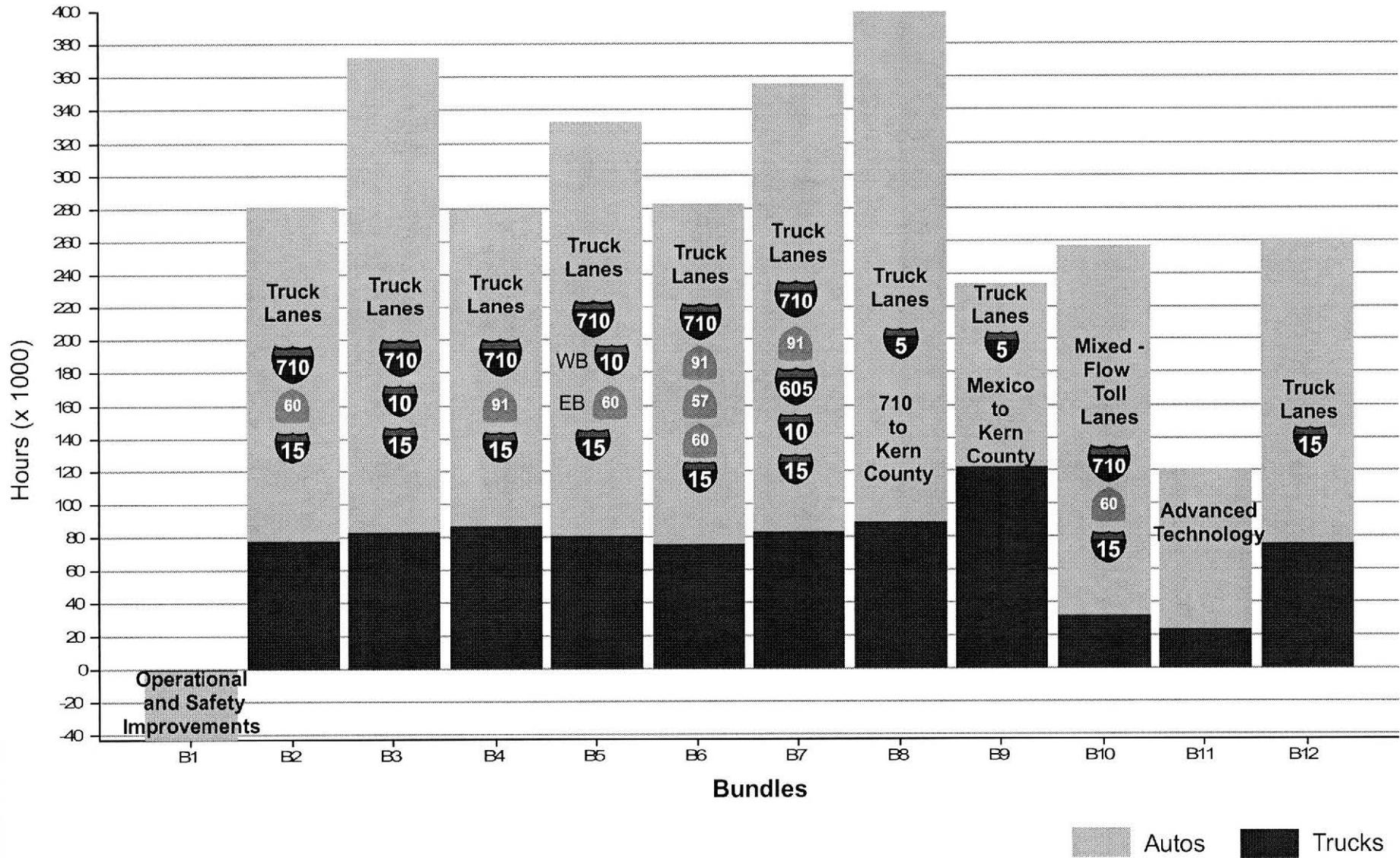


Figure 52

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

CHAPTER 6 – PROJECTS AND STRATEGIES TO IMPROVE THE MOVEMENT OF GOODS

A summary of the results of the bundle analysis is shown in Table 22. When interpreting this table the following items are worth noting again:

- ◆ All bundles were modeled using a container forecast volume of 42.5 million TEUs by 2030, due to the limitations of the analytical tools available,
- ◆ All analyses were completed on a regional scale and future detailed corridor-specific analyses and outreach to affected communities and stakeholders is required prior to project implementation,
- ◆ Future detailed analysis should quantify factors not included in this analysis such as local economic impacts (e.g., related health care costs, lost revenue or tax base), design, right-of-way (e.g., number of displaced properties, impact on commercial properties adjacent to corridors, other incompatible landuse impacts, etc.),
- ◆ The macro-level analysis of dedicated truck lane systems/freight systems, advanced technology and other bundles rendered preliminary information that warrant further investigation and study.

**Table 22
MCGMAP Bundle Analysis Results**

Bundle	Description	Distance (mi)	Reduction of Daily Hours of Delay (vs. 2030 Baseline)		Schools*	Residential* (Acres)	Warehouse* (Acres)
			Autos	Trucks			
1	Operational and safety improvements	N/A	-42,000	-1,000	N/A	N/A	N/A
2	I-710 to SR-60 to I-15	101.5	203,000	78,000	35	9,933	6,290
3	I-710 to I-10 to I-15	98.7	289,000	83,000	60	11,329	3,135
4	I-710 to SR-91 to I-15	87.5	192,000	87,000	48	8,684	4,716
5	I-710 to I-10 (WB) / SR-60 (EB) to I-15	100.1	252,000	81,000	77	16,702	6,767
6	I-710 to SR-91 to SR-57 to SR-60 to I-15	110	207,000	76,000	41	10,533	5,057
7	I-710 to SR-91 to I-605 to I-10 to I-15	96.1	273,000	83,000	57	11,177	2,691
8	I-5 (I-710 to Kern County)	74.6	347,000	89,000	31	4,979	579
9	I-5 (U.S./Mexico Border to Kern County)	204.6	112,000	122,000	78	12,806	3,054
10	Mixed-flow toll expressways: I-710 > SR-60 > I-15	101.5	225,000	32,000	35	9,933	6,290
11	Alternative technologies (e.g., Shuttle Trains, Maglev) between POLA/POLB and inland destinations	N/A	98,000	23,000	N/A	N/A	N/A
12	I-15 (U.S./Mexico Border to Victorville)	161.7	185,000	76,000	23	5,500	3,151

Note: Negative values indicate an increase in hours of delay.

*Data does not include San Diego County information.

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

CHAPTER 6 – PROJECTS AND STRATEGIES TO IMPROVE THE MOVEMENT OF GOODS

Potential Revenue

TOLLING- An analysis of revenue generation potential of a truck lane system that includes an east-west connection between I-710 and I-15 under tolling scenarios was performed. The bundles containing this east-west connection between I-710 and I-15 were selected based on a clear linkage between origins (the Ports) and destinations (Inland warehousing/distribution centers). National experience with tolling systems indicate tolling operations may succeed if there are distinct origins and destinations for toll facility users, and users experience improved operations and system performance. All tolling analyses were performed external to SCAG's travel demand model, so the analysis was not able to evaluate changes in vehicle volumes and trip characteristics (e.g., the output of the tolling analysis could not be input into SCAG's travel demand model and then reevaluated under SCAG's model). As shown on Table 23, the greatest potential for revenue occurs when a toll rate of \$0.20, \$0.40, and \$0.60 per mile is applied to light- (LHDT), medium- (MHDT), and heavy-duty trucks (HHDT), respectively.

Table 23
Potential Toll Revenue Generation Year 2030
for a Truck Lane System that Includes an East-West Connection between I-710 and I-15

Toll Rate (SLHDT / SMHDT / SHHDT)	Annual Revenue (\$millions)					
	Bundle 2	Bundle 3	Bundle 4	Bundle 5	Bundle 6	Bundle 7
.10/.20/.30	199.5	197.8	177.0	199.7	177.9	185.0
.15/.30/.45	240.4	239.4	215.3	241.3	213.6	224.1
.20/.40/.60	255.0	254.3	231.1	256.5	226.5	239.4
.25/.50/.75	253.1	250.5	230.1	253.5	222.3	236.5
.30/.60/.90	245.1	242.6	223.9	242.7	213.5	225.3

An evaluation of the use of longer combination vehicles (LCV) was also conducted as a subset of the toll revenue analysis. The FHWA defines two particular types of LCV configurations: A "Triple Short" and a "Double Long" that could carry 50 percent and 100 percent more tonnage, respectively, than standard truck units. A Triple Short LCV combination consists of a tractor and three trailers in tow, typically three 28 to 28.5 foot trailers. The Double Short (also known as the Turnpike Double) consists of a truck-tractor towing two long trailers of equal length, typically two 48 or 53 foot trailers. A total of 14 states have provisions for LCV use and are included in this study: Alaska, Arizona, Colorado, Idaho, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming¹. LCVs are not permitted in California. There is also significant local opposition to the use of LCV's on local roadways in the study area². This opposition creates barriers for the integration of LCVs on the state highway system, as staging areas would be required to avoid local roads if local opposition or resolutions forbade the use of LCVs on local roadways. Therefore, a potential LCV system would likely require direct dedicated access to staging areas where trucks could be converted to and from LCV configurations.

The purpose of this evaluation is to determine whether toll revenue can be enhanced through productivity gains by allowing LCVs on dedicated facilities to offset the cost of a toll. Two different methods were used to evaluate this potential market. The first approach, which is similar to the approach utilized for the *I-15 Comprehensive Corridor Study* prepared for SCAG, SANBAG and Caltrans (December, 2005), evaluates commodity-specific information to determine the potential LCV market on the premise that only specific commodities would benefit from a longer vehicle combination. The commodity-specific approach is used to identify trips of more than 100

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

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miles to and from the study area and primarily trips defined as domestic, as well as secondary trips in and out of the region. The second approach evaluates the international container market through the ports of Long Beach and Los Angeles, and focuses specifically on the portion of trips that stay within the region, specifically first order trips between the port and staging areas.

CONTAINER FEES- The revenue generation potential of container fees was also investigated. For the purposes of this study, two scenarios for potential bonding capacity were evaluated, each based on container fees per Forty-Foot Equivalent Unit (FEU). The two scenarios evaluated were:

1. Revenue bonding capacity based on container fees levied for all container movement through the San Pedro Bay ports.
2. Bonding capacity based on container fees levied for only those containers that would travel on a separate facility using an alternative technology.

For the first scenario, three forecasts (low or 12.25 million FEUs, medium or 16.65 million FEUs, and high or 21.25 million FEUs) of container cargo through the San Pedro Bay ports were used, along with a series of container fee levels (per FEU) to calculate potential revenue bonding capacity. Container fees of \$10, \$20, \$30, \$40, \$50, \$100, and \$200 per FEU were used.

Key assumptions in the estimates of container fees and associated revenue bonding capacity were:

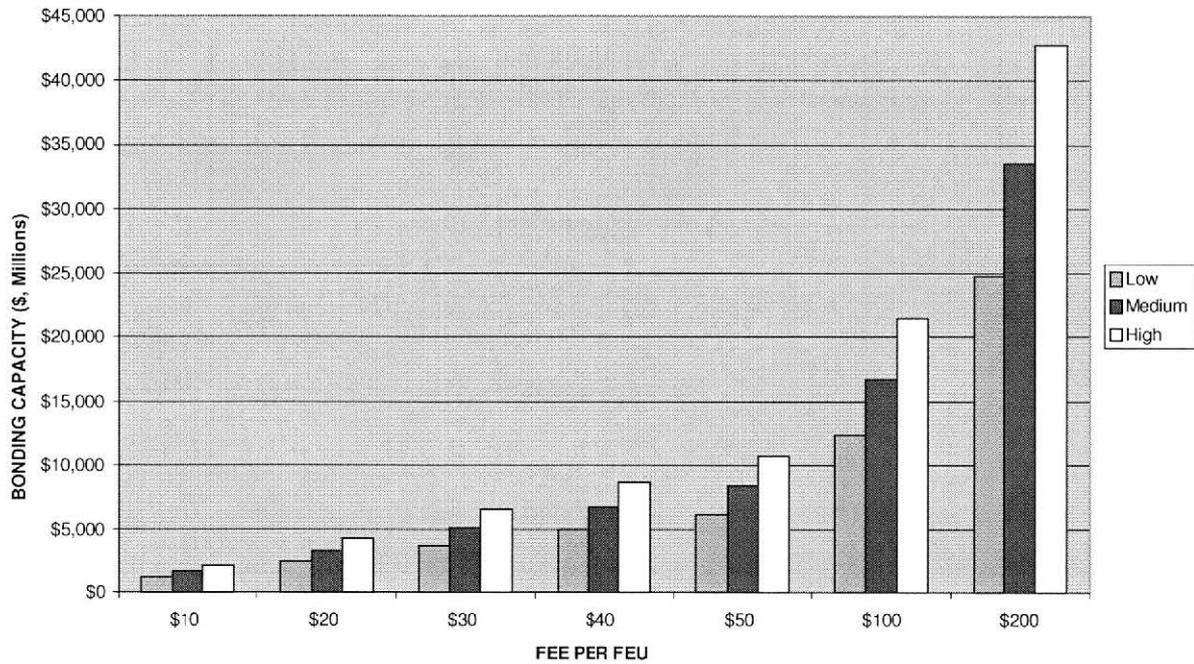
- ◆ A debt coverage rate of 1.4 for all projects;
- ◆ Bonds were issued at an interest rate of 5.75 percent with a 30 year repayment schedule;
- ◆ Transaction fees, debt service costs and debt service reserves were excluded (but would be included in future financial strategy development);
- ◆ The level of bond proceeds that could be issued under the truck toll projects was estimated to be roughly equal to 14 times the net revenue available for payment of debt service, with a 1.4 coverage ratio;
- ◆ In the absence of a real cost or schedule, the analysis was done in constant dollars. Any future financial strategy development would be based on refined project cost estimates and a proposed project implementation schedule and would be based on year of expenditure dollars.

Using the highest container cargo forecast (42.5 million TEUs, or 21.25 million FEUs) and the highest container fee (\$200 per FEU), a bonding capacity of \$42.8 billion was estimated. Using the lowest container cargo forecast (24.5 million TEUs, or 12.25 million FEUs) and the lowest container fee (\$10 per FEU), a bonding capacity of \$1.2 billion was estimated. Figure 53 presents a summary of potential revenue bonding levels and container fees.

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

CHAPTER 6 – PROJECTS AND STRATEGIES TO IMPROVE THE MOVEMENT OF GOODS

Figure 53
POTENTIAL BONDING CAPACITY FROM CONTAINER FEES
RANGE OF CONTAINER (FEU) FEE: \$10 - \$200 PER FEU
2030 PROJECTION OF TOTAL FEU'S TRAVELING THROUGH PORTS OF LOS ANGELES AND
LONG BEACH: LOW, MEDIUM, AND HIGH
(in Millions)

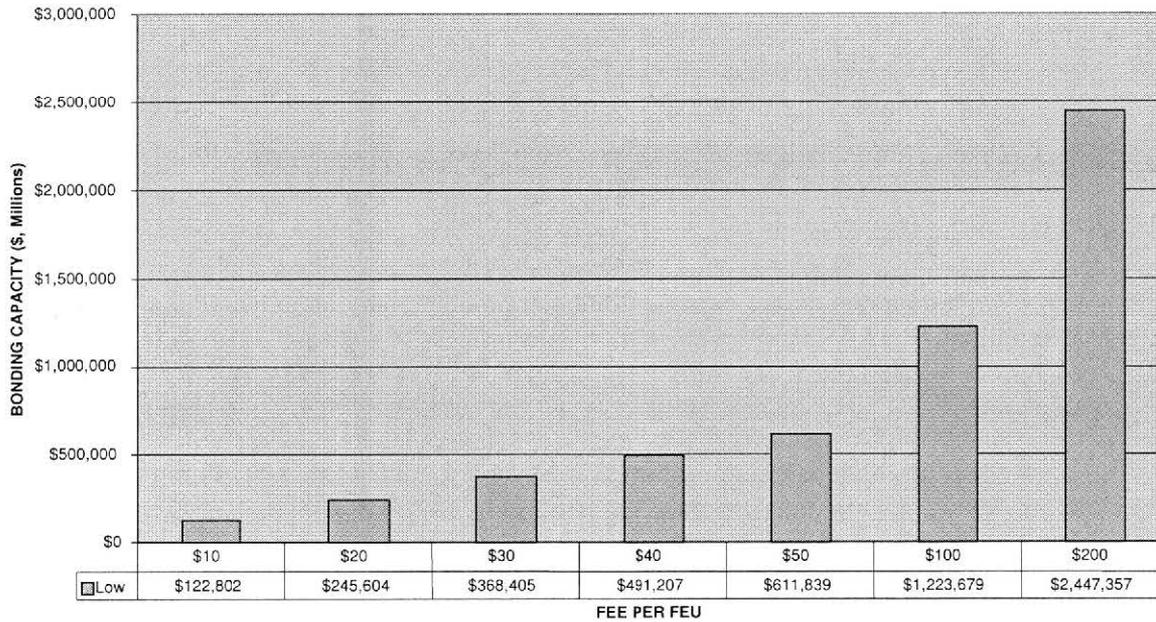


Source: Sharon Greene Associates, 2007

For the second scenario, an alternative technology system connecting the San Pedro Bay ports and an inland staging yard, as described under the modeling of Bundle 11, was used to calculate potential bonding capacity. It was assumed that the alternative technology system would accommodate approximately 1,215,000 FEUs per year (equivalent to the existing Hobart yard). Container fees of \$10, \$20, \$30, \$40, \$50, \$100, and \$200 per FEU were used. The analysis showed a potential bonding capacity between \$122 million and \$2.45 billion, depending on the container fee. Figure 54 presents a summary of bonding capacities and container fees.

Figure 54

POTENTIAL BONDING CAPACITY FROM CONTAINER FEES
RANGE OF FEE PER FEU: \$10 - \$200 PER FEU
PROJECTED FEU'S USING ALTERNATIVE TECHNOLOGY SYSTEM: 1,215,000
(\$, 000)



Source: Sharon Greene Associates, 2007

Note that the current fee program proposed by the San Pedro Bay Ports of Los Angeles and Long Beach involves a “pay-as-you-go” program without the need for borrowing. The advantage of this approach is two-fold. First, the project owner/sponsor can avoid substantial borrowing costs such as interest and other financing fees. Second, the term of the fee is reduced, reducing the burden on the project owner/sponsor and on the fee contributors. This approach is especially possible in this specific port area because of the high volumes of container traffic.

Truck Toll Revenue Conclusions

Based on the evaluation of potential revenue generation by truck lane bundles, the following conclusions are made:

- ◆ The **greatest toll revenue generation potential** (in terms of truck tolls) would result from a truck lane system that includes both SR-60 (in the eastbound direction) and I-10 (in the westbound direction) as an east-west connection between I-710 and I-15 (approximately \$257 million annual toll revenue) allowing for a potential bonding capacity of approximately \$3.5 billion; truck lane systems that include SR-60 or I-10 as an east-west connection between I-710 and I-15 provide nearly an equal amount of revenue generating potential (approximately \$255 million annual toll revenue) allowing for a potential bonding capacity of approximately \$3.5 billion.
- ◆ The use of LCVs on dedicated facilities could increase annual revenue generation to \$308 million, allowing for a potential bonding capacity of more than \$4 billion. Moreover, allowing standard trucks to use the LCV facility will further increase revenues to as much as \$500 million annually. (Note that the modeling

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methodology used to calculate LCV toll revenue potential did not allow for an accurate analysis of additional revenue potential from non-LCVs using the dedicated facilities.) Developing the LCV facilities from the port to as far as Victorville will maximize its revenue potential by optimally targeting three market segments:

- The long haul LCV market.
- The port container LCV market.
- The remaining standard truck market willing to pay tolls.

Container Fee Conclusions

- ◆ Container fees levied on all containers through the San Pedro Bay Ports could allow for a bonding capacity between \$1.2 billion and \$42.8 billion, depending on the volume of containers and the amount of fee.
- ◆ An alternative technology system could impose container fees for those containers using the facility and generate between \$122 million and \$2.45 billion, depending on the amount of fee.

Truck Lane Cost Estimates

The cost of truck lane systems is required to determine if it could be offset by user financing, and to determine the additional revenues or funding sources that would be needed to support dedicated truck lanes. The cost estimates presented in this chapter were prepared on a macro-level and are for comparison only. Detailed engineering cost estimates of specific facilities could show great variation, particularly in terms of right-of-way acquisition costs between urban and suburban/rural areas. In addition, utility relocation costs or other location-specific costs (e.g., environmental or cultural resource impacts) could substantially impact facility costs.

Based on previous studies, a per lane mile cost for new facility construction is estimated to be between \$6.43 million and \$32.44 million, as summarized below. The following costs assume new construction, preliminary studies and right-of-way acquisition:

- ◆ An evaluation of current planned truck lane projects (excluding preliminary cost estimates for truck lanes on I-710), shows an average cost of \$6.43 million per lane-mile.
- ◆ An evaluation of all project costs (including truck lanes and mainline additions) shows an average cost of \$32.44 million per lane-mile.
- ◆ Based on the cost data presented in the Briefing Paper - User-Supported Regional Truckways in Southern California (SCAG, 2004), an average cost of \$28.45 million per lane mile was calculated for the regional truck lane system evaluated along I-710, SR-60, and I-15 (from the San Pedro Bay Ports to Barstow).
- ◆ It is assumed that given current right-of-way acquisition costs in the urban areas of Southern California, costs of \$40 million to \$50 million per lane-mile of a new facility would not be unreasonable; therefore, a cost of \$45 million per lane-mile is taken as a "theoretical maximum" for truck lane construction.

Based on the cost estimates for truck lane systems, the following conclusions are made:

- ◆ The **least costly** truck lane system - I-5 extending from I-710 (near downtown Los Angeles) to the Kern County line.
- ◆ The **most costly** truck lane system- I-5 extending from the U.S./Mexico Border to the Kern County line.
 - For the routes extending from the San Pedro Bay Ports to Victorville, the **least costly** would be a truck lane system that includes SR-91 as an east-west connection between I-710 and I-15.
 - For the routes extending from the San Pedro Bay Ports to Victorville, the **most costly** would be a truck lane system that includes SR-91, SR-57, and SR-60 as east-west connections between I-710 and I-15.

Results of Detailed Evaluation

The results of the detailed evaluations will help indicate whether dedicated freight facilities/truck lanes would make a viable transportation option for the study area. Given that there has been strong opposition to plans for implementing dedicated truck lanes, it is recommended that there be a more detailed assessment of the corridors, community and economic impacts, project costs, right-of-way costs and other environmental impacts. Also, it is recommended that alternate non-highway corridors, utility easements, etc., be examined, in addition to the use of clean advanced technologies to transport goods (all of which are presented in the recommended actions in Chapter 7). As such, the following questions and answers are offered to provide more insight on a very controversial topic, as opposed to drawing conclusions on final route selections, cost effectiveness, etc.

- ◆ To what extent may dedicated truck lanes (continuous or for selected major subsections of freeway) offer sufficient economic and other benefits (improved efficiency, greater safety/reduced accident costs, improved air quality) in relation to their cost? Would it be a cost-effective investment?
 - In terms of economic benefits, it is clear that additional investment in the transportation system beyond current levels will be required in order to accommodate the forecast growth in container cargo volumes through the San Pedro Bay Ports; otherwise, the system will be constrained and will perform at less than optimal levels. The forecast growth in container cargo will result in increased truck traffic on the MCGMAP Region's highway system. Therefore, not accommodating the additional truck traffic could lead to less than expected growth in container cargo, which could lead to the reduced job creation forecasts discussed above and a related economic impact; conversely, accommodating truck traffic will lead to economic benefits.
 - Truck lanes offer sufficient benefits to be a preferable alternative (in terms of system performance) to operational and safety improvements (including mixed-flow lanes).
 - More detailed information and analyses would be required in order to accurately respond to the question, particularly in the area of air quality improvements and associated costs.
 - Therefore, dedicated truck lanes could offer sufficient economic and efficiency (system performance) benefits, however, subject to demonstration of cost-effectiveness and financial feasibility.

- ◆ What portion of dedicated truck lane costs could be offset by user financing, and what additional revenues or funding sources would be needed to support dedicated truck lanes?
 - The response assumes the recommendation of a truck lane system comprised of dedicated truck lanes (2 lanes in each direction) on I-710 (Ports to SR-60), SR-60 (I-710 to I-15), and I-15 (SR-60 to Victorville).
 - Approximately 33 percent to 58 percent of the project cost could be offset by user financing. Container fees could serve as an additional revenue source.

- ◆ What policy changes would facilitate or enhance truck lane feasibility? (e.g., LCVs, mandatory use, etc.)?
 - LCV provisions would increase revenue generation potential and would enhance truck lane feasibility; however, a number of concerns regarding safety, legality, etc. would need to be addressed:
 - California does not allow LCVs on its highways.
 - There is local community resistance to the use of LCVs.
 - A separate truck highway facility will need to be constructed with requisite staging areas to allow trucks to build and breakdown the configurations in order to comply with standards on the general purpose system.

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- The port container LCV market will need further innovation to improve the operations of standard container chassis to operate safely as LCV's.
- ◆ Can dedicated truck lanes offer sufficient benefits to be a preferable alternative to other ways of accommodating increased freight traffic (such as adding mixed-flow lanes, adding rail capacity, etc.)?
 - Operational and safety improvements (including mixed-flow lanes) would not affect a change in truck travel patterns or volumes.
 - Operational and safety improvements (including mixed-flow lanes) tend to accommodate demand rather than induce increased volumes.
 - Approximately 48 percent of containerized goods move through the region on trucks. Even if rail freight is maximized, a large portion of regional goods will move by truck. Therefore, a means to accommodate truck freight is required.
 - Truck lanes offer sufficient benefits to be a preferable alternative to accommodating increased freight traffic (when focusing on the market segment of freight that travels on the regions roadways), as they would affect the most substantial change on truck travel patterns and volumes on the roadways within the MCGMAP region.
 - An advanced technology corridor could be a viable alternative if land use guidelines and policies are strengthened to encourage warehouse clustering near inland staging areas. (It would also be preferred in terms of minimal environmental impacts.)
- ◆ What may be the differential effects of the construction of truck lanes on different freeway segments (i.e. the specific types of benefits and impacts that may occur on different freeway segments, depending on facility location)?
 - The truck lane concepts that include an east-west connection between I-710 and I-15 are the most varied in terms of potential affects on different freeway segments.
 - When examined in terms of some preliminary specific factors (truck volumes, vehicle volumes, changes to congested hours of delay, proximity to schools and residential land uses, and connectivity to warehouse/distribution land uses), a dedicated truck lane system that included SR -60 as an east-west connection between I-710 and I-15 would :
 - Carry the highest truck volumes.
 - Carry very high vehicle volumes
 - Affect the least number of schools
 - Affect the least number of residential land acres
 - Provide the most connectivity to warehouse/distribution land uses.
 - However, no conclusions or recommendations can be drawn regarding a specific route until further analysis that comprehensively evaluates all appropriate factors is conducted.

Note that the analyses and results described in this section were carried out at a regional level. Additional detailed technical analyses at a corridor-level will be required under any formal environmental clearance processes. Therefore, ultimate route selections will depend on subsequent detailed analyses.

Chapter 7 – Recommended Action Plan

The purpose of this chapter is to present the recommended actions developed following the completion of the multi-county goods movement outreach efforts and the project tasks described in Chapter 1 (and summarized in Chapters 2 through 6). The actions presented in this chapter are based on the premise that simultaneous and continuous investment and improvement in the region's infrastructure and the environment are needed to support the region's goods movement system and economic base. Further, it is intended that the actions and strategies contained in this MCGMAP establish a framework for more in-depth analysis of goods movement infrastructure improvements and mitigation measures throughout the study region.

The following sections in this chapter contain information about the simultaneous and continuous plan premise, a market segmentation approach to improving goods movement, recommended action sets and potential barriers to implementing the plan, environmental strategies that support the plan and the potential future goods movement systems map and proposed improvements, potential fund sources, and the next steps. The Next Steps section is followed by Appendices A, B, C and D. Appendix A contains the financial framework for the plan. Appendix B contains information about other agencies efforts underway. In addition, Appendix B contains tables, charts, and short, mid and long term detailed actions and preliminary regional and county specific infrastructure improvements and mitigation measures that support the Action Plan. Appendix C contains a compendium of stakeholder comments on the final Draft Action Plan. Appendix D contains a list of goods movement infrastructure improvements that were recommended for funding under the Trade Corridor Improvement Fund (TCIF) Program. Lastly, this Action Plan concludes with county goods movement action plan chapters for Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura Counties.

Simultaneous and Continuous Implementation

As stated previously, the movement of goods generates significant economic gains for the region as well as disproportionate impacts on many local communities, the environment, and key transportation corridors. The underlying premise of the MCGMAP, similar to that of the State of California's Goods Movement Plan (the "State's GMAP"), suggests that simultaneous and continuous improvement of the region's goods movement system and the environment is necessary. This MCGMAP premise was adopted after extensive outreach indicated that environmental impacts must be mitigated, and macro-level analyses revealed the existing goods movement system is near capacity and that further strain on the system will likely result in more adverse impacts on the environment and local communities. Moreover, some affected communities have stated that mitigation of existing environmental and community impacts should occur prior to making any further investments in the infrastructure, yet funding for mitigation is not readily available. Also, infrastructure improvements cannot be done without investing in the system to maintain gateways that are used to serve markets throughout the nation, state, and region and to preserve jobs and other economic gains associated with the logistics industry.

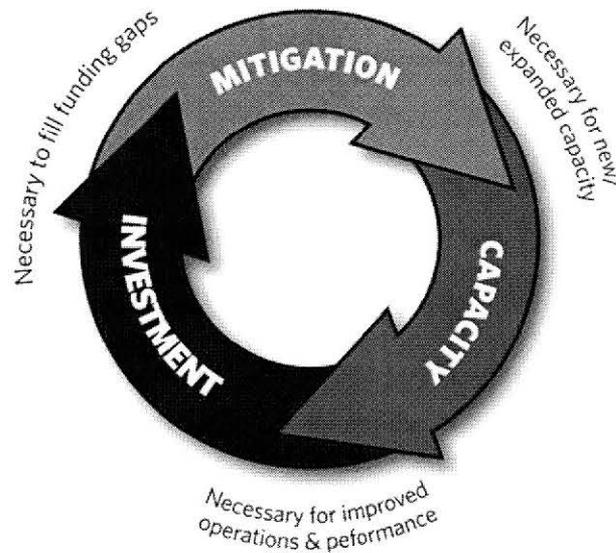
Unfortunately, local impacts cannot be attributed to one single source, which makes it particularly difficult to assign the responsibility to mitigate impacts to those that benefit from goods movement utilizing the regions system. Furthermore, the combined overall effect of the goods movement system and its various components (e.g., modes of transport, distribution facilities, transloading facilities) cause an impact on the region's environment and community that cannot be directly attributed to a single source which also makes it difficult to assign responsibility to mitigate impacts.

Lastly, the actions identified in this plan are consistent with the approach presented in the State's Goods Movement Action Plan (January of 2007) which cites the following: "Right now there are significant challenges requiring action. California's own anticipated population increase, let alone its geographic position as a gateway to the Pacific Rim, are inevitable drivers of goods movement growth. The expansion of trade in California is not a matter of choice. Ignoring this reality is irresponsible. What is responsible is meeting this growing need for infrastructure investment in a manner that addresses critical system improvements and public health and environmental mitigation in a simultaneous and continuous manner."¹ The project description and associated costs contained in this Action Plan are consistent with the State of California's statement that "the total cost of a goods movement related infrastructure project should include the cost of required project-specific mitigation and the combined cost should be funded as the cost of the project".

Figure 55 highlights the cyclical nature of the premise of simultaneous and continuous improvement premise that is summarized and described below in terms of mitigation measures, capacity enhancements, and investments:

1. Mitigation (or reduction/avoidance) of impacts on the environmental and community is necessary to continue to obtain local support for new or expanded capacity of the goods movement system. This includes both project specific (e.g., soundwalls or wetlands mitigation) and broader regional (e.g., air and water quality, public health) mitigation measures.
2. New or expanded capacity infrastructure improvements are needed to maintain Southern California's premier goods movement system of highways and railways as well as the economic vitality of the region. Operational improvements and capacity enhancements that optimize system performance may provide the leverage needed to negotiate shared-funding agreements with the private sector and/or justify additional state and federal funding for the region.
3. Investments from public and private sector fund sources are needed to help pay for mitigation measures and the proposed improvements that are recommended in this Action Plan. The private sector may be more willing to contribute funding if discrete operational and/or performance improvements can be identified.

Figure 55

SIMULTANEOUS AND CONTINUOUS**Market-Segmented Implementation Approach**

The study area's goods movement system is a complex multimodal system that contains elements or market segments that can be targeted for specific improvements and/or fair share funding opportunities. By segmenting the goods movement market (defined as the modal-market, or mode of transport), improvements necessary to enhance the movement of goods for specific markets can result in improved operations and system performance that may generate interest on the part of the private sector to contribute funds for these improvements.

Modal Market Segments

As referenced in Chapter 3, the study region consists of six broad modal segments, as illustrated in the diagram in Figure 56. Each modal market segment presents strategic opportunities for applying specific actions set forth in this chapter. Intermodal rail shipments depicted on the bottom portion of Figure 56 are loaded directly on-dock at the ports without involving trucks on local and regional highways. This mode of transport is indicative of long distance container movements to other parts of the U.S. In contrast, local and regional distribution and delivery shipments, shown on the upper portions of Figure 56, are transported exclusively by trucks on local and regional highways, arterials, and roads. This mode of transport is indicative of how domestic cargo and some local and regional international cargo shipments are typically handled. The market segments in between, on Figure 56, represent cargo that is moved using multiple modes that require staging activities and multiple trips on regional highways before reaching their final destination, which is typically outside of the MCGMAP Region. The following can be concluded from Figure 56:

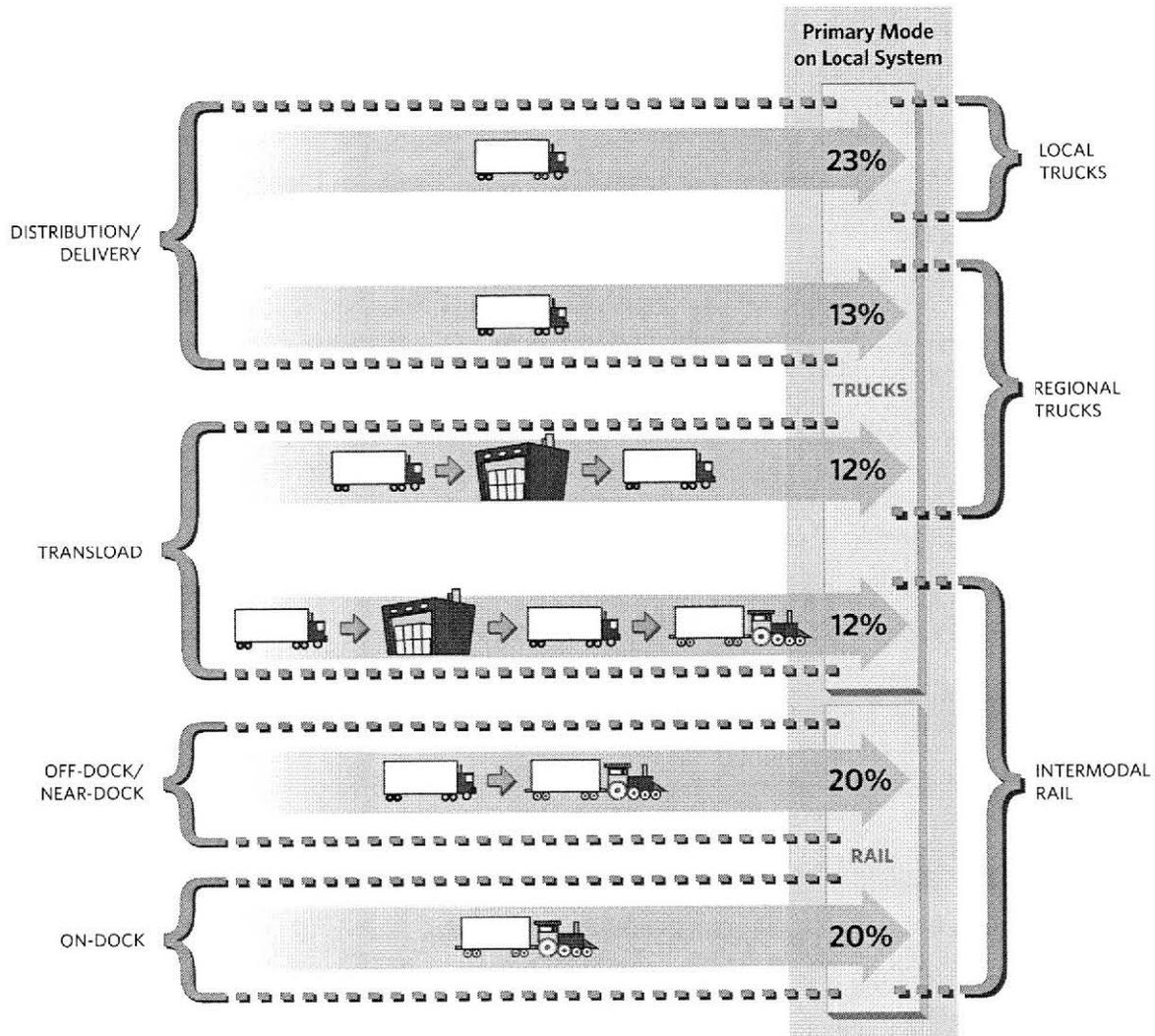
Direct Shipment from on-dock and off-dock/near dock - Approximately **40 percent of containers** passing through the Ports of Los Angeles and Long Beach leave the region by train utilizing either on-dock rail at marine terminals or off-dock/near-dock rail intermodal facilities. These goods, destined for areas outside the MCGMAP region, include the central and eastern parts of the U.S. As a result, funding sources for goods movement can be better targeted since the direct benefits to shippers and the nation can be clearly shown. This includes additional state and federal goods movement funding, as well as container fees levied on shippers who receive direct benefits from improved efficiency of the goods movement system.

Transload - Approximately **37 percent of containers** passing through the Ports of Los Angeles and Long Beach are either trucked directly out of the region or leave the region by truck after an intermediate stop at a warehouse or distribution center. These goods may arrive at the ports in a single container that is transported to an inland distribution center by truck, and broken down into smaller units at a warehouse or distribution center, and then loaded onto either a truck or a train to be moved to their final destinations. Such goods use more specific routes through the MCGMAP region and provide better opportunities for targeting of specific routes, users, or impacts relative to local distribution/delivery. This includes truck replacement/retrofit programs, the development of separated corridors that move between clustered warehouse and distribution centers, and concepts such as inland ports and virtual container yards (yard operations to reduce the number of unproductive container truck trips). Since the routes and/or destinations of some of the carriers within this market segment can be clearly identified, specific improvements and associated funding sources can be targeted.

Distribution/Delivery – Approximately **23 percent of containers** passing through the Ports of Los Angeles and Long Beach stay within the Southern California region. Because the origins and destinations for these goods are as dispersed as the people and communities that rely on them, the trucks transporting these goods use various roadways and routes for travel and blend into all other vehicular traffic within the region. Domestic goods that are moved locally, such as local delivery trucks, construction, manufacturing, and service/utility trucks exhibit similar travel patterns. Because the users and shippers of this modal market are so widely varied, it is difficult to target individual users for funding without ignoring other users. Traditional funding sources for roadway improvements and alternative funding approaches for roadway tolling or congestion pricing will be needed to address this market segment.

However, it is important to note the role of the domestic market. While the region is a major gateway for international container movements, the local and domestic component is dominant and the most intrusive to local residents. The region is the third largest manufacturing center in the United States and is home to almost 20 million residents, all of which results in a high level of demand for local and domestically generated goods movement. The domestic goods movement market segment presents fewer strategic opportunities given its broad and diverse user base that is spread throughout the region. Moreover, the domestic goods movement market utilizes a more dispersed transportation network, compared to the international container market segment which utilizes a more defined transportation network. It is for that reason the international container market presents the greatest strategic opportunity for developing actions that target specific users and beneficiaries of the region's system. Additional data will be required to target specific domestic carriers/users.

Figure 56
International Container Movement Market Segments



* All percentages estimated based on 2005 figures.

Strategic Approach for Improving Goods Movement & Reducing Truck Trips

Trucks and the associated impacts of trucks on the highway system contribute to congestion, diminished air quality due to diesel emissions, and incompatible land uses. These impacts are at the forefront of the goods movement discussions. As referenced earlier, with the exception of on-dock intermodal rail shipments, every other international container shipment involves at least one truck movement. Therefore, the following is proposed to help reduce truck trips:

- ◆ Maximize on-dock rail capacity as well as mainline rail capacity for the international container cargo market.
- ◆ Develop inland staging areas (inland ports) with a dedicated and separated facility connecting the staging areas to the ports (truck only lanes, rail, maglev or other shuttle technologies), utilizing clean fuel and efficient vehicles (LNG trucks, maglev, LNG locomotives) for international and regional transload container cargo markets. Also, establish land use provisions and strategies that facilitate clustering warehouse activities around inland staging areas that are remote from residential and sensitive land uses.

Implementing the proposals described above would affect approximately 75 percent of all truck movements related to the international container market. As the international container market consists of a known quantity of players (shippers) and users, it offers the greatest opportunity to target improvements on the system to obtain better performance thereby creating the potential to leverage additional funding.

Strategic Approach for Mitigating, Reducing, or Avoiding Environmental and Community Impacts

Various modal market segments present opportunities to implement environmental mitigation measures in a simultaneous and continuous manner as described below:

- ◆ Maximizing on-dock rail capacity results in fewer emissions from local truck trips between the ports and off-dock and near-dock intermodal facilities.
- ◆ Developing near-dock intermodal facilities which effectively reduce emissions by reducing the amount of vehicle miles for trucks traveling to more distant off-dock facilities. Near-dock yards create their own set of environmental impacts by increasing truck trips in and around communities located near the ports, requiring a different set of environmental mitigation strategies.
- ◆ Developing separate facilities (low-emission high-tech solutions) to accommodate truck movements associated with transload activities provides opportunities for reducing emissions by utilizing cleaner and more efficient vehicles, as well as reducing congestion on the general purpose highway facilities. However, these separate facilities require their own set of specific mitigating strategies.

By segmenting modal markets in the goods movement supply chain through the study region, the improvements to the goods movement system can be targeted to specific modal markets and the associated environmental and community mitigation measures can be identified by the corresponding modal markets.

Strategic Approach for Investment

The discussions in the previous sections show how a strategic approach for improving goods movement can be applied to mitigating the impact on the environment and community, from a modal-market perspective. In order to achieve the premise of simultaneous and continuous improvement, additional investment and funding is required. This element can also be identified through an evaluation of the modal markets. For example:

- ◆ The maximization of on-dock and near-dock rail is specific to the international container cargo market; therefore, the private sector involved in that market (shippers, terminal operators, railroads) offers a potential source for financing the required projects.
- ◆ Market segmentation also improves the region's chances for competing for state and federal resources, by allowing projects and mitigation measures to be specifically targeted to the international modal market that uses the region's goods movement system to serve out-of-state jurisdictions.

By linking the projects to improve goods movement and the required environmental and community mitigation measures, the strategic approach allows for a clear assignment of responsibility and operational improvement by modal market. This allows for specific modal markets to be isolated in order to contribute their fair share. Further, actions described in the following section target the region's modal market segments. While the region has a broad range of goods movement market segments (e.g., domestic manufacturing, agriculture, and construction), international containers passing through the region's ports and border crossings are the most visible and present the greatest opportunity to achieve desired results (e.g., reduction in truck trips, potential fair share funding sources) when specific actions are applied.

Proposed Goods Movement Action Plan & Recommended Action Sets

The Action Plan is structured around four sets of actions that are related to a component or segment of the goods movement modal market in the study area as described in Figure 56. This approach allows for a more targeted and equitable means of transferring some of the economic and environmental costs associated with goods movement to users and/or consumer markets that are outside of the study area and/or have benefited from the region's extensive goods movement infrastructure (e.g. network of highways and railways and warehouses and distribution centers).

The action sets listed below support the premise of simultaneous and continuous improvement that has been adopted by the project partners. Within these broad action sets are more specific recommendations which outline the steps necessary to assure a balanced approach to resolving goods movement issues.

- ◆ Action Set 1 – Accelerate Regional Environmental Mitigation
- ◆ Action Set 2 – Relieve Congestion and Improve Mobility
- ◆ Action Set 3 – Improve Operational Efficiency
- ◆ Action Set 4 – Develop Equitable Public/Private Funding Strategy

Table 24 describes the action sets in relation to specific modal markets and contains examples of the specific actions that target each modal market. This table is followed by a detailed description of the four action sets. Appendix B, Table 8, contains a list of agency roles and responsibilities sorted by action. Also, a broader list of detailed actions (or tasks) and implementation schedules sorted by action sets and can be found in Appendix B, Table 9.

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**Table 24
Example Actions Targeted by Market Segment**

FREIGHT MODAL MARKET SEGMENTS	ACTION 1 -Accelerate Regional Environmental Mitigation	ACTION 2 - Relieve Congestion and Increase Mobility	ACTION 3 - Improve Operational Efficiency	ACTION 4 – Develop Equitable Public/ Private Funding Strategy
Freight moves destined outside of Southern California (~52%) - No Stops within Region – “ Intermodal Rail”				
Freight loaded onto trains at the dock (~20%)	<ul style="list-style-type: none"> Accelerate emission reduction measures in CAAP, AQMD, and state plans Use clean technology shuttle to intermodal facilities Use low emission train engines or electrification Construct grade separations in ACE corridor 	<ul style="list-style-type: none"> Construct rail mainline capacity improvements Construct Colton Crossing Use clean technology shuttle to intermodal facilities 	<ul style="list-style-type: none"> Increase on-dock loading Expand hours of port operation (PierPass) and intermodal terminals operation 	<ul style="list-style-type: none"> Railroad (private) funding and public funding proportional to benefit User fees (e.g., container fees) Increase federal participation
Freight transported to near dock facility then onto a train (~20%)				
Freight transported directly out of the region by truck (~12%)				
Freight moves destined outside of Southern California (~25%) – With at Least One Stop within Region – “Regional Trucks”				
Freight trucked to a warehouse, an intermodal facility and then loaded onto a train (12%)	<ul style="list-style-type: none"> Accelerate emission reduction measures in CAAP, AQMD, and state plans Use clean technology shuttle to inland ports Use low emission train engines or electrification Coordinate community impact mitigation and land use planning Adopt incentive programs for turnover of truck fleet to clean technology 	<ul style="list-style-type: none"> Construct highway capacity improvements Study feasibility of dedicated freight guideway(s) Use clean technology shuttle to inland ports 	<ul style="list-style-type: none"> Adopt flexible hours of operation (warehouse/ distribution centers) Study feasibility of virtual container yards Expand use and integration of Intelligent Transportation Systems for highways and vehicles 	<ul style="list-style-type: none"> Railroad funding (private) and public funding proportional to benefit Traditional highway funding Possible truck tolling on dedicated facilities Container fees Increase federal and state participation Conditions of approval and development fees for community mitigation
Freight trucked to warehouse, then trucked to a final destination outside of the region (13%)				
Local freight moves within Southern California (~23%) – Multiple Stops within Region – “Local Trucks”				
Freight trucked to numerous locations within the region	<ul style="list-style-type: none"> Accelerate emission reduction measures in CAAP, AQMD, and state plans Continue project-specific impact analysis and mitigation measures 	<ul style="list-style-type: none"> Construct highway capacity improvements Study dedicated freight guideway(s) on freeways and roadways 	<ul style="list-style-type: none"> Adopt flexible hours of operation (delivery) Expand use and integration of Intelligent Transportation Systems for highways and vehicles Alleviate physical factors and conditions that may constrain operations of trucks(i.e., lane widths, vertical and horizontal constraints and curvature, shoulders, pavement) 	<ul style="list-style-type: none"> Traditional highway funding Possible truck tolling on dedicated facilities Conditions of approval and development fees for community mitigation

Action Set 1 - Accelerate Environmental Mitigation

Goods movement imposes significant costs on community livability and the environment. Therefore, the MCGMAP partners consider air quality improvements and regional environmental mitigation an intrinsic part of a regional goods movement system.

The Action Plan recognizes that a regional approach is necessary, with the focus on cleaning up emissions at the source (i.e., the powertrains of ships, locomotives, trucks, and harbor equipment) not one based simply on project-by-project mitigation. The simultaneous and continuous implementation of environmental mitigation strategies is a leading imperative for this Action Plan and will require action at two levels: (1) region-wide approaches and (2) project-specific mitigation measures.

Region-wide Approaches

A systems approach is required to reduce the air quality, community and environmental impacts of goods movement flowing into and through the region. This approach has three components – acceleration of the funding and implementation of air quality plans already prepared, strengthening of fuel and engine standards, and institutional policies.

- ◆ **Acceleration of funding and implementation of air quality plans** - Some of the nation's most aggressive clean air improvement plans are now in place in Southern California: the San Pedro Bay Ports Clean Air Action Plan (CAAP), the 2007 South Coast Air Quality Management Plan (AQMP), and the California Air Resources Board (CARB) Emission Reduction Plan. The MCGMAP supports these plans and proposes to accelerate the implementation of the strategies in those plans. Accelerating the environmental cleanup from goods movement sources is one of the principle themes of the environmental actions in the MCGMAP.
- ◆ **Strengthening of fuel and engine standards** - Regulations that promote the use of clean fuels and engine standards/technologies should be strengthened beyond those currently proposed. This will need to be supported by accelerated research and development of cleaner technologies by private industry, and by implementation assistance from state and federal regulatory agencies. These actions by private industry and regulatory agencies will allow regional and local strategies and incentive programs in the CAAP and AQMD to have greater effect.
- ◆ **Institutional policies** – Cooperative and coordinated institutional and development policies enacted by local jurisdictions and the development industry could result in environmental and community benefits. Such policies could include: 1) Designating quiet zones for rail corridors; 2) Amending zoning and land use regulations to better avoid non-compatible land uses (separating goods movement activities from residential areas; buffering); and 3) Establishing mitigation banking and/or development of pooled funds for mitigation (i.e., land use changes, purchasing green space along freight corridors, diesel truck retrofits, funds for health clinics, etc.). The partner agencies have embarked on a collaborative effort with community stakeholders and the private sector to develop such guidelines, as will be explained later.

Project Specific Mitigation Measures

While the proposed broader regional strategies will result in significant reductions in emissions for the study area as a whole, project specific mitigation measures are often most effective at the local level, resulting in more tangible benefits for local neighborhoods and communities. Therefore, the Action Plan supports the use of project-specific revenue mechanisms to help fund mitigation efforts. Examples include:

- ◆ Use of best available technology and best practices for project construction and operational impacts.
- ◆ Compliance with natural resource statutes (e.g., federal and state Endangered Species Acts and Clean Water Acts, Migratory Bird Treaty Act).
- ◆ Inclusion of “smart” design and good planning principles, such as landscaped buffering, noise barriers, exterior light shielding and positioning, separation of incompatible land uses, and wetlands protection.

SPECIFIC ACTIONS

- ◆ Develop guidelines for local jurisdictions to use in siting and designing goods movement related land uses and transportation facilities (Consultant activity is underway).
- ◆ Encourage federal participation in developing guidelines and international agreements that regulate vessels (and other stationary sources of diesel emissions) used for transporting goods to and through U.S. ports.
- ◆ Support clean lease arrangements made by the ports for reducing ship emissions.
- ◆ Initiate a follow-on effort to identify more aggressive goods movement initiatives to achieve regional air quality attainment, including the identification of sources of funding to accelerate the environmental cleanup.

CHALLENGES

- ◆ Maintaining dialogue and coordinated planning efforts between MCGMAP project partners, stakeholders, state, and federal agencies to identify impacts and mitigation measures, specifically for broader mitigation measures that involve multiple agencies and jurisdictions.
- ◆ Ensuring the public and private sectors, stakeholders and environmental experts are involved in the project planning process from the outset.
- ◆ Funding constraints.

Action Set 2 - Relieve Congestion and Improve Mobility

Region-wide congestion relief and increased mobility cannot be achieved without significant investment in infrastructure, coupled with improvements in efficiency and productivity. Utilizing the market segmentation approach, various crucial capital improvements were identified for each of the modes involved in the movement of goods.

Increased Intermodal and Mainline Rail Capacity

Increases in mainline rail capacity and on-dock rail improvements at the ports are critical to the efficient transport of intermodal freight bound for destinations outside the region. The Action Plan recommends implementation of rail improvements in accordance with the San Pedro Bay Ports Master Plans as well as triple tracking the BNSF mainline from Los Angeles to San Bernardino and double tracking the two Union

Pacific corridors. These improvements must be done in concert with the grade separations and safety improvements outlined in the multi-county Alameda Corridor East Trade Corridor program. Implementing the mainline rail capacity enhancements together with the grade separation of railroad crossings can maximize efficiency and cost-effectiveness while also providing an opportunity to maximize funding from federal and state sources and accelerate the delivery of the needed improvements. Grade separation of the rail-to-rail Colton crossing as well as other rail-roadway grade separations near the Port of Hueneme, the Port of San Diego and at other key Los Angeles County locations are also critical.

Improved Highways/Roadways

For the purposes of segregating the region's diverse highway and roadway system needs, the Plan recommends three tiers of highway/roadway actions. The first tier includes major improvements on roadways and bridges in close proximity to the ports/border crossings and other major freight activity centers (examples include the Gerald Desmond Bridge replacement project, the SR-47 Expressway, I-110 connectors, High Desert Corridor, SR-78 Brawley Bypass, and the San Diego Border Corridors). Tier two is comprised of corridor-level investigation of alternative technologies, separated mass flow applications (i.e., the I-710 Corridor Improvements) as well as dedicated freight guideways/truck lanes with the use of clean engine trucks and/or clean Long Combination Vehicles (LCVs), if such vehicles could be authorized to operate on dedicated facilities in California safely with minimal impacts on surrounding communities. Further consideration of LCVs will require a detailed analysis of potential capital and operational impacts. This tier focuses on new technologies as well as new application of methods not widely used in California. Consequently, these projects will require additional detailed analysis before they can proceed. Tier three projects encompass capital and operational improvements that in addition to assisting with the efficient movement of goods, are also beneficial to mixed flow traffic. Such improvements include modification of key freeway to freeway interchanges to alleviate operational and geometric bottlenecks, addition of auxiliary lanes, shoulder improvements and other safety and operational improvements on roadways heavily used by trucks.

SPECIFIC ACTIONS:

- ◆ Complete the Alameda Corridor East (ACE) Trade Corridor railroad grade crossing improvement program in Los Angeles, Orange, Riverside, and San Bernardino Counties.
- ◆ Continue with analysis and planning of I-710 dedicated freight guideway facility.
- ◆ Further investigate the feasibility of inland port and concentrate inland warehouse and distribution locations.
- ◆ Increase border trade capacity and efficiency.
- ◆ Implement key highway projects listed as regional and county-specific found in Tables 5 and 6 in the Executive Summary (with expanded descriptions in Tables 5 and 6 found in Appendix B).
- ◆ Participate with the railroads in eliminating key bottlenecks and increasing capacity along the mainline rail system as outlined in the Los Angeles-Inland Empire Railroad Mainline Advanced Planning Study.
- ◆ Develop the appropriate institutional arrangements and negotiating framework to provide simultaneous and continuous improvement to mainline track improvements, the Colton Crossing grade separation, highway-rail grade separations, locomotive emission reductions, and other rail corridor related mitigations.
- ◆ Initiate a Regionally Significant Transportation Investment Study (RSTIS) to evaluate the feasibility of implementing a Dedicated Freight Guideway System/Regional Truck Lanes (I-710 from Port of Long Beach to SR-60; East-West Corridor between the I-710 and to I-15; and I-15 to Victorville) inclusive of potential non-freeway implementation.

CHALLENGES

- ◆ Funding constraints.
- ◆ Overcoming perceptions that improving mobility and reducing congestion will result in increased environmental and community impacts.
- ◆ Maintaining and adhering to the simultaneous and continuous premise.

Action Set 3 - Improve Operational Efficiency

Any comprehensive strategy to address mobility, improve predictability, and enhance safety needs to address system and corridor capacity. This includes improvements to the operational efficiency of the region's goods movement system. The operational efficiency of various segments of the goods movement system can be improved based on specific modal market segments.

Improve Marine Terminal Productivity, Truck Turn Times, and Intermodal Operations

In order to meet the future demand, the Ports of Los Angeles and Long Beach will increase their operational productivity from the existing level of 4,700 TEUs per acre per year to almost 11,000 TEUs per acre per year. The current focus is on increasing on-dock rail use and extending hours of operation to off-peak time periods (PierPass). Additional strategies include the transport of unsorted containers from the ports to inland railyards separated from residential areas for the creation of destination trains, as well as introducing new technologies such as optical character recognition (OCR) and radio frequency identification tags (RFID), and the evaluation of the feasibility of a virtual container yard to reduce the number of unproductive empty container truck trips.

Improve Highway Operations

Increased implementation of Intelligent Transportation Systems (ITS), weigh-in-motion (WIM) systems, highway pricing such as Open Road Tolling (ORT) collection systems, improved incident management, and enforcement of driver and operating restrictions can improve highway operations. ITS solutions allow for truck routing, traffic control during construction or maintenance, as well as the shifting of truck movement to off-peak times. WIM bypass systems are an effective means of traffic management in the proximity of weigh stations. The system helps maintain normal traffic flow and prevents traffic backup onto the mainline freeway resulting from commercial vehicles entering and exiting weigh stations. Open Road Tolling allows users to travel at highway speeds on the mainline while their tolls are collected electronically overhead, reducing congestion and travel times for passenger and commercial vehicles. California has established a statewide standard for use at all toll roads and bridges utilizing the "FasTrak" device.

SPECIFIC ACTIONS

- ◆ Implement efficiency improvements contained in the San Pedro Bay Ports Master Plans that reduce impacts from trucks and containers on the transportation system and community.
- ◆ Improve terminal productivity, truck turn times, and inter-modal operations.
- ◆ Implement the highway operational improvements (listed in Table 6 in the Executive Summary and Table 6 in Appendix B).
- ◆ Develop partnerships between public and private entities to research and develop advances in goods movement transportation technologies.

CHALLENGES

- ◆ Barriers within various segments of the goods movement industry.
- ◆ Competition for physical space, labor and other institutional barriers and practices make it difficult to streamline operations.
- ◆ Exploring the use of new and clean advanced transportation technologies for long-term solutions.
- ◆ Tracking goods through the supply chain using real time data.

Action Set 4 - Develop Equitable Public/Private Funding Strategy

Funding and implementation of the recommended actions, projects, and programs and their associated mitigations will require a coordinated effort by the private sector and public sector at all levels of government. It is critical that all beneficiaries of goods movement participate in funding infrastructure improvements as well as environmental mitigation. Beyond its value to the regional economy, the existing border crossings and commercial trade with Mexico are also critical to the regional and bi-national economies. Cross-border goods have origins and destinations to California/regional retail markets and manufacturers to shipping beyond California through the San Pedro Bay Ports and the Inland Empire Rail/Intermodal distribution centers.

To illustrate the shortfall in public funding, the Alameda Corridor-East Trade Corridor, which would provide much needed grade-separation projects to reduce congestion and emissions throughout the region, has an 83 percent funding shortfall (\$3.8 billion out of the \$4.4 billion total).

Maximize the Study Area's Fair Share of State and Federal Funds

Federal assistance is essential to compensate for the disproportionate local and regional costs for the goods movement services provided to the rest of the nation. The next national transportation funding reauthorization legislation must recognize the importance of funding a national goods movement system, establish appropriate levels of federal funding support, and provide further opportunity for flexibility in the use of federal funds. The four freight-related programs of key relevance are 1) Projects of National and Regional Significance, 2) National Corridor Infrastructure Improvement Program, 3) Freight Intermodal Distribution Pilot Program, and 4) Truck Parking Facilities Program. Though state and federal funds are needed, any funding for private infrastructure to increase capacity and facilitate the throughput of goods must ensure that public dollars are used in return for public benefits, not merely for benefits to the private logistics system. The development of public-private benefit assessments among the private beneficiaries and public agencies is one method to address this issue.

Private Sector Contribution

Recognizing funding shortfalls for infrastructure projects and the fact that private industry benefits from an improved goods movement system, the MCGMAP recommends efforts to secure private revenue sources including user fees. This could be done through pending legislative efforts or by other means such as ongoing efforts by the San Pedro Bay ports to negotiate cargo fees for infrastructure and environmental mitigation projects. The types of user fees that should be considered include congestion pricing, port-assessed cargo or container fees, industry-supported programs similar to PierPass, and VMT-based taxes or gas taxes for trucks. The Action Plan addresses the need to convert the value of improvements to the study area's goods movement system into revenue for improving infrastructure and mitigating impacts.

Federal and state funds require local/private matching funds, thus private sector contributions will add strength to applications for leveraging federal and state funds.

Stakeholders in San Diego and Baja California, Mexico are investigating the potential for use of public funds together with private financing and toll fees for a new border crossing, highways, and federal inspection staffing at Otay Mesa East, California / Mesa de Otay II, Baja California. Similar pursuits for new border crossings or expansions are also projected along the Imperial County, California / Mexicali, Baja California border.

SPECIFIC ACTIONS

- ◆ Maximize Southern California's fair share of state and federal funds through ongoing and coordinated legislative efforts.
- ◆ Provide input to legislation focused on user fees and to any ongoing efforts to negotiate user fees with industry that can be included in a specific plan of finance for goods movement and air quality improvements.
- ◆ Pursue public-private funding arrangements for specific facilities, where appropriate.
- ◆ Implement the Cooperation Agreement among regional, state, and federal agencies to facilitate the actions contained in the MCGMAP.
- ◆ Develop structure for managing user fees and revenue.

CHALLENGES

- ◆ Overcoming institutional barriers to user fee program and reaching consensus on whether a fee structure is appropriate, the type of fee structure, and who should pay.
- ◆ Reaching consensus on projects with known benefits to the private sector as an incentive to introduce fees with a "sunset".
- ◆ Establishing firewalls to assure funds will be used only on designated projects.

Preliminary Regional and County Specific Goods Movement Projects

The partner agencies identified preliminary regional and county-specific projects and strategies that support the vision for the region and the actions set forth in this plan. Many of the infrastructure projects contained in Tables 5 and 6 in the Executive Summary (with expanded descriptions on Tables 5 and 6 in Appendix B) can be implemented in the short-term while others require additional planning and project development. While the projects on both lists are considered essential, neither list should be viewed as taking precedence over the other but rather as complementary efforts that address the effects of goods movement throughout the region. Also, given the multi-county nature of this study, the majority of the regional and county goods movement projects and strategies will require coordination among the multiple counties, jurisdictions, and stakeholders before full implementation.

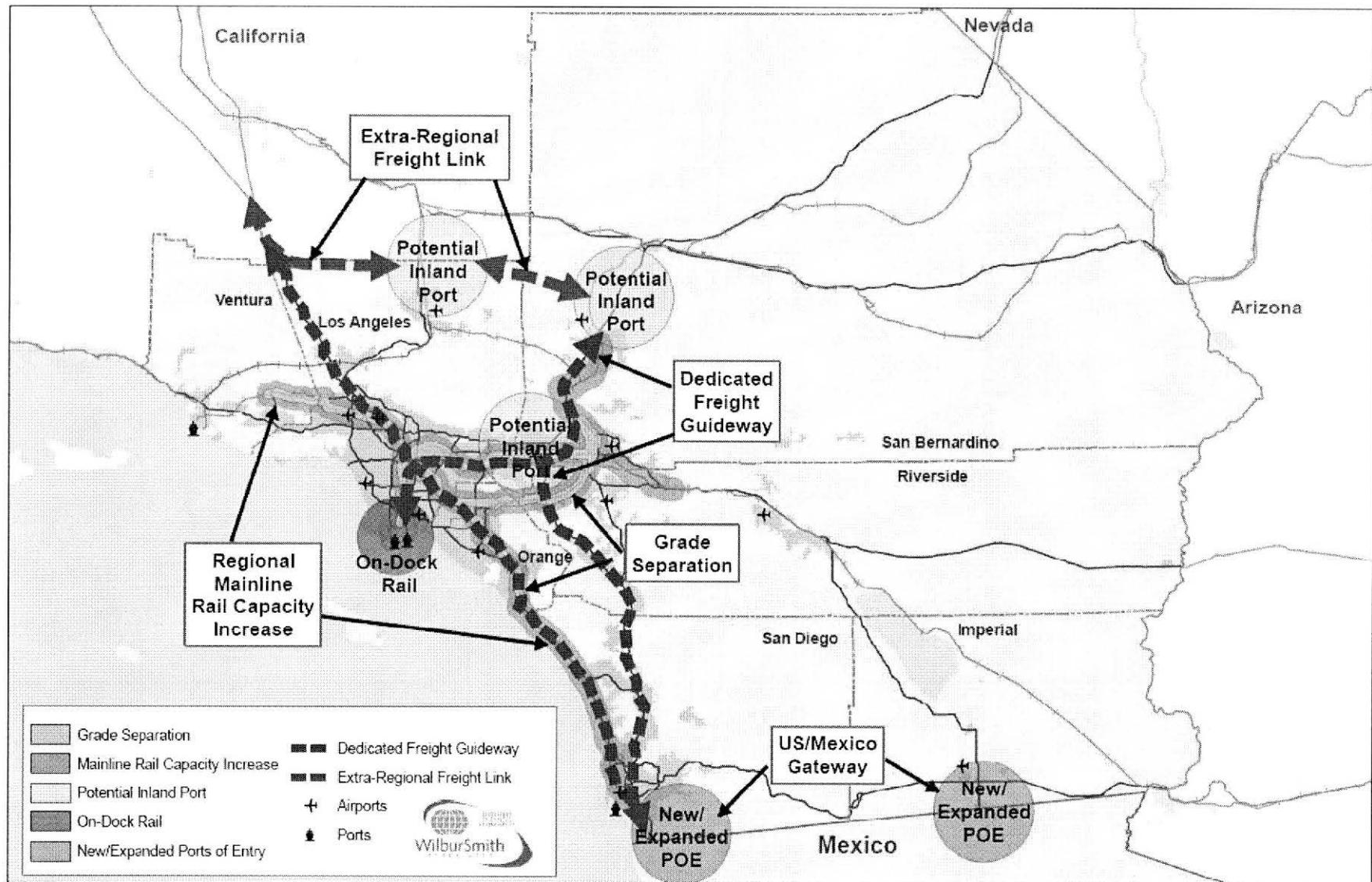
Based on the two project lists, an investment of more \$50 billion over the next 25 years is necessary to accommodate the projected growth of freight within the region and to mitigate related impacts. This will require funding commitments from all levels of government as well as the private sector. Further, Appendix D contains a list of goods movement infrastructure projects, totaling more than \$2 billion for the study area, that were recommended for funding by the California Transportation Commission under the state Trade Corridor Improvement Fund Program (TCIF). The projects recommended for TCIF funding are a subset of the regional and county-specific project lists.

The “Preliminary Regional Goods Movement Projects/Strategies” contained in Table 5 of Appendix B represent a short-term to long-term vision for improving the system that is primarily focused on region-wide projects that provide environmental mitigation and/or ground access (e.g., rail, highway, and intermodal) improvements to and from international gateways, ports of entry, multi-county goods movement distribution centers and corridors (existing and proposed) throughout the study region. This system is graphically depicted and further described in the “Potential Future System” map in Figure 57.

The “Preliminary County-Specific Goods Movement System Projects/Strategies” contained in Table 6 of Appendix B include improvements that are located within a single county that connect to a regional goods movement system of corridors and distribution centers, that are part of the statewide goods movement system that has been identified by Caltrans. Table 9 also comprises a list of improvements that (1) support the regional projects in Table 8, (2) mitigate environmental and/or community impacts in a shorter horizon, (3) correct short-term system deficiencies, and (4) are recommended in advance or in conjunction with the regional projects based on local needs and project readiness. The county-specific list of improvements will fill in the gaps in the existing goods movement network.

In addition, both Tables contain improvements and mitigation measures that help the region move closer to the vision depicted in the potential future goods movement system map (Figure 57). The strategy for implementing the projects and strategies referenced in Tables 8 and 9 in the short, medium, and long-term are described in the next sections. Lastly, Table 7 of Appendix B contains a comprehensive list of the universe of goods movement project which is in various planning stages throughout the study region. This list includes the regional and county specific projects included on Tables 5 and 6 of Appendix B. In addition, the county action plan chapters contain additional projects and strategies that address local needs.

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN



A31418

Wilbur Smith Associates

Figure 57
Potential Future System

Timeframe for Improvements

In the short term (2008-2015), strategies must rely upon the completion of existing infrastructure projects with secure funding streams aimed at eliminating transportation bottlenecks (e.g., Gerald Desmond Bridge replacement; the ports' on-dock rail developments; BNSF's proposed near-dock yard and Victorville intermodal yard; truck lanes through Cajon and San Geronio Passes; Ontario International Airport's air cargo cross dock). The use of pricing to reallocate activity can also be used (e.g., PierPass' OffPeak program; LAX fees encouraging dedicated air cargo carriers to use inland airports; waiving port dockage fees for reduced ship speeds or use of low sulfur fuel). State or federal policies aimed at speeding the construction process (e.g., design-build) or encouraging private sector infrastructure funding (e.g., new market tax credits) can be useful. So can the increased availability of bond funding (e.g., Proposition 1B) and the development of public-private projects (e.g., San Diego County's I-15 HOT lanes). Public-private funding sources (e.g., port-assessed cargo fees and/or gate fees; additional bonds) should be in place to fund specific infrastructure and environmental projects. Legislative mandates (e.g., speeding adoption of Tier III engines), proposed port agreements (e.g., cold ironing, truck replacement and retrofit), and subsidies (e.g., ARB's Carl Moyer Program) also have roles to play. In this period, institutional arrangements and negotiations for longer term public-private funding sources for specific projects can take place, plus the beginning of the approval processes and engineering to ready them for construction. Local and regional planners should be able to set aside specific areas for concentrations of goods handling activities with buffers from population centers.

In the medium term (2015-2025), efforts will still largely be constrained to known technologies. In this time frame, legislatively mandated infrastructure project time frames (e.g., CEQA, NEPA) will have had the time to be met for projects proposed during the short term (e.g., expand mainline track; Colton Crossing; Alameda Corridor-East; dedicated freight guideways; improved airport access). Medium term deadlines for environmental mandates will have to be met. To the extent the state subsidizes the purchase of new equipment to meet these mandates, pricing preferences should be given to local producers (e.g., clean trucks, yard or mainline railroad engines). State tax policy should be used to encourage firms that are developing and producing equipment to meet existing and future environmental mandates (e.g., electric warehouse tools; "green goat" yard engines). Given the advances in technology, workforce training efforts will likely be needed to ensure a trained labor force for both the logistics and infrastructure construction sectors.

In the long term (2025-2035), strategies should be able to rely upon mature public-private funding and operation of infrastructure systems. The legal structure should be available for tapping private investment in projects and accelerating project time frames. Some major infrastructure projects will be completed while others will be ready for construction. Congestion pricing would be available to regulate goods movement along these dedicated public-private corridors. Research and negotiations should be making progress on ways to move goods from the ports to warehouses by methods other than using trucks (e.g., inland rail ports, short haul rail, and possibly maglev trains). Cleaner vehicles should be available for the truck, rail, and aircraft fleet. Governmental purchasing and tax policy should retain its preference for state based producers of equipment and development of technologies to further the expansion and greening of the goods movement system. Workforce training efforts should continue to evolve and commensurate with the technical needs of firms active in the sector.

Environmental Mitigation Strategies

Without the appropriate environmental and community mitigation measures the future system that is envisioned for the region is not likely to occur. This section identifies a set of good or “best” practices and action steps for mitigating the impacts of goods movement. In addition to identifying known practices that have positive results, new approaches (described in Technical Memorandum 7) are encouraged that include early involvement with the private sector to coordinate mitigation banking efforts, establish land use buffers, and use research grants to identify new technologies that will help address local and broader impacts.

While specific costs or budgets for implementation of mitigation measures (e.g., cost-benefit analyses, environmental assessments) were not a part of the project scope, a detailed discussion of the costs associated with specific environmental and community impact mitigation can be found within the recent study conducted by the Southern California Association of Governments (SCAG) entitled Analysis of Goods Movement Emission Reduction Strategies. In addition, the Clean Air Action Plan (CAAP) provides a number of measures to mitigate environmental and community impacts in and around the San Pedro Bay Ports of Los Angeles and Long Beach.

Types of Mitigation

In general, the current mechanisms for identifying, avoiding, reducing and mitigating environmental impacts should be improved and expanded. Most environmental impacts are identified and mitigated on a project specific basis pursuant to state and federal regulations. In some instances this is viewed by stakeholders as applying a “band aid” approach to solving the problem without adequately addressing broader regional concerns and local concern. Regional agencies and authorities try to develop plans and identify appropriate mitigation or avoidance measures; yet these measures are typically linked to projects or specific sectors. Therefore, mitigation measures for goods movement should focus on two issues- (1) Project Specific and (2) Broader Regional.

Project Specific

For project specific mitigation, the California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA) regulations require identification of mitigation strategies as part of the project analysis. The project lead agency (for example, Caltrans for a highway project, ACE for the Alameda Corridor, the port of Los Angeles for a port project, etc.) is required to identify mitigation measures as part of the environmental document (EA, EIR, EIS, etc.) If these lead agencies don't identify mitigation measures that are deemed appropriate by a myriad of responsible agencies, trustee agencies, and other public agencies that have jurisdiction by law with respect to the project (reviewing agencies), then the lead agencies will not get the needed permits to do the project and risk potential lawsuits. Once a lead agency adopts/certifies the environmental document and mitigation measures are identified, the agency must also (under CEQA) adopt a Mitigation Monitoring & Report Program, which sometimes involves different agencies for monitoring and enforcement. These agencies are required to fulfill their duty and implement those measures at their own cost as part of the project development process.

Fulfilling the CEQA and NEPA processes is legally binding. The public can pursue legal recourse if the processes are not adhered to correctly. CEQA and NEPA are public disclosure tools. Each time a project is considered, CEQA and NEPA regulation requires disclosure to the public. For EIRs/EISs, public scoping meetings are required, sponsored by the lead agency. Public circulation/comments periods are prescribed per CEQA and NEPA requirements.

In some cases (such as the I-710 / Major Corridor Study Tier 2 Advisory Committee) stakeholder and community members are brought together to identify solutions to address environmental, community, and health impacts with the lead agency and design team. This type of process can be folded into the CEQA/NEPA process to identify project specific mitigation measures. It can also serve as a successful framework for addressing the broader cumulative concerns of a community or region. Also, in some instances, a project does not require any mitigation if there are no significant impacts.

Broader Regional Issues

Under the Clean Air Act, regional planning officials must consider both public mobility and air quality in their transportation improvement plans. The United States Environmental Protection Agency has established National Ambient Air Quality Standards (NAAQS) for specific pollutants (ozone and its precursors, carbon monoxide, and particulate matter). Regions that do not meet the NAAQS are considered “nonattainment” and have developed plans known as the State Implementation Plan (or the “SIP”) to work towards reaching attainment. While there have been some improvements made in improving air quality in the region, over the past 30 years, the study area is in nonattainment for ozone and particulate matter as described in Chapter 5. The emission reduction strategies for regional goods movement that is listed in Table 25 helps to achieve the emissions budgets in the SIP.

The project partners and others have also worked toward developing new approaches to solving the environmental challenges facing the region. During the development of the Action Plan, the project partners convened Environmental Working Group meetings that consisted of agency staff with environmental expertise to share information and to help identify the project partners' role in developing environmental and community impact mitigation measures beyond project-specific mitigation. This type of coordination will be crucial to move broad regional approaches forward.

Also, the Southern California National Freight Gateway Cooperation Agreement Strategy (SCNFG) was established to broaden the collective efforts of the project partners to address goods movement issues. This effort involves bringing a group of principal conveners from local, state, and federal agencies together to develop preliminary scoping for topics that include²:

- ◆ Streamlining processes and approaches for the coordination of environmental reviews and, more specifically, the addressing of cumulative and systemic environmental and community impacts and effects (e.g., those related to environmental justice) under NEPA and CEQA.
- ◆ Funding principles and alternatives (including fees and tolls; and, possible institution(s) to hold, disburse and monitor combined funds).

Implementing and Funding Mitigation

Mitigation and avoidance measures are often tied to available funding. Discrete projects with discrete mitigation or avoidance measures have the highest likelihood of funding (both from a public and private sector perspective). Therefore, in the development and identification of broader strategies to mitigate regional or cumulative impacts, it will be critical to identify a nexus between projects or market segments and specific impacts. It will also be critical to bring all affected groups (stakeholders, community members, public agencies, private industry) together early in the process.

Mitigation Strategies

Numerous mitigation strategies are available to reduce the effects of goods movement on the community and the environment. Goods movement emissions, primarily mobile source, are a significant source of pollution in the study area. The effects are especially egregious due to the potential direct health impacts resulting from pollutants. The goods movement industry is heavily dependent upon diesel fuel for mobility and operations. As discussed in Chapter 5 (and in Technical Memorandum 5B), diesel fuel results in the emissions of diesel particulate matter (DPM), which has been identified as a toxic air contaminant (TAC) by the state's Office of Environmental Health Hazard Assessment (OEHHA). Diesel fuel is also a significant contributor of nitrogen oxides (NOx), the primary pollutant for ozone formation. Both DPM and NOx are linked to various health issues especially in susceptible populations (the young and the elderly), including cancer, asthma, and preterm and low birth weight babies. Due to the current dependency of the goods movement industry on diesel fuel and the associated environmental and health impacts of diesel emissions, a major focus of this Action Plan is emission reduction. The following sections include emission reduction strategies, general mitigation measures, and institutional policies that are proposed, and in some instances currently underway, to protect public health and to address the environmental impacts in the region.

Emission Reduction

The goods movement mobile sources targeted for emission reduction include ocean going vessels (or ships), on-road heavy-duty vehicles (or trucks), cargo handling equipment, harbor craft, and railroad locomotives. Aircraft, a goods movement mobile source, generally have not yet been targeted for emission reductions efforts primarily because emissions reporting do not identify aircraft as a significant source of pollutants in comparison to other mobile sources. However, according to the South Coast Air Quality Management District (SCAQMD), "Aircraft will soon be in the top ten NOx categories. Other categories in the top ten are relatively well controlled with the notable exceptions of locomotives and marine vessels. Aircraft emit quantities of NOx comparable to locomotives and all sources of the 'RECLAIM' program – the 320 stationary sources of NOx, including all refineries and power plants." The SCAQMD 2003 AQMP estimated that the 2005 annual average aircraft emissions in the SCAB contributed less than 3 percent NOx, 1.6 percent SOx and 0.6 percent PM2.5 of the total emissions from all sources in the Basin.

Many emission reduction strategies can be applied to goods movement, regardless of mode. Such strategies focus on fuel and engine technologies, as well as congestion reduction and operational approaches. Fuels and engine technologies concentrate on the reduction of PM, NOx, and sulfur oxides (SOx) at the source. Congestion reduction and operational strategies can be considered to mitigate the negative effects of goods movement such as corridor congestion, safety concerns for mixed-use traffic, and truck traffic diversion into neighborhoods, in addition to emission reductions. Table 25 presents various emission reduction strategies that have been aggregated from multiple sources, including but not limited to: California Air Resource Board (CARB) Emission Reduction Plan for Ports and Goods Movement in California, San Pedro Bay Ports Clean Air Action Plan (CAAP), and SCAQMD Draft 2007 AQMP.

General Mitigation Measures

The effects of goods movement on local communities are largely a result of the proximity of goods movement corridors and facilities to the places where people live, work, and recreate. This proximity is unintended; most corridors and facilities were initially constructed in areas with sparse population. Over time, however, the dramatic growth in both population and trade has resulted in encroaching land uses that produce undesirable effects. In addition to the air quality impacts addressed in the previous section, undesirable community effects include noise and vibration, aesthetics, safety, natural resources, land use strategies, and cultural resource impacts. Table 26 identifies various general strategies that may be considered for mitigating the general effects of goods movement. These strategies come from various public agency studies and guidelines including the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and U.S. Department of Transportation. Industry best practices and resource agency mandates are also sources.

Institutional Policies

Agencies that have regulatory and/or funding purview for goods movement related activities can influence, either directly or indirectly, the environmental and community effects resulting from the goods movement industry. Table 27 provides a listing of institutional policies that may be considered for mitigating the effects of goods movement. Many of these strategies have already been implemented or are suggested by various sources, including but not limited to: CARB's Emission Reduction Plan and the Ports' CAAP and SCAQMD Draft 2007 AQMP.

Community/Stakeholder Input on Mitigation Measures

Stakeholders within the MCGMAP region voiced strong concern over the impacts of goods movement on the environment, their communities, and their overall quality of life. Due to the serious environmental, public health, and traffic congestion issues, communities and policy makers have begun to demand mitigation and to challenge proposals for infrastructure capacity enhancement. The stakeholders within the affected communities are opposing key infrastructure improvement projects that could improve current circumstances through additional mitigation and/or funding for mitigation improvements; they are calling for slower growth and mitigation of existing impacts.

The stakeholder outreach process has highlighted the critical need to address community and stakeholder concerns regarding the environmental and community impacts of goods movement while pursuing infrastructure improvements. The mitigation of direct and indirect impacts of specific goods movement projects or related activities must become a part of the process from the start.

Table 25
EMISSION REDUCTION STRATEGIES

FUELS & ENGINE TECHNOLOGIES

Ships

- Low-Sulfur Diesel Fuels
- Emulsified Diesel
- Shore-based Electrical Power (Cold Ironing)
- Dedication of Cleanest Fuels to California Service
- Diesel oxidation catalyst retrofit
- Diesel particulate filter (DPF) retrofit
- Improved Original Equipment Manufacturer (OEM) Engines – main & auxiliary
- Speed Reduction

Harbor Craft

- Cleaner Engines
- Biodiesel Fuel
- Liquefied Natural Gas (LNG)
- Liquefied Petroleum Gas (LPG)
- Ethanol
- Diesel oxidation catalyst retrofit
- DPF retrofit
- Selective catalytic reduction (SCR) systems
- Cold Ironing

Cargo Handling Equipment

- Fleet modernization with improved OEM Engines
- Biodiesel Fuel
- LNG
- LPG
- Fuel-cell
- Electrification
- Fischer-Tropsch fuel
- Emulsified diesel
- Diesel-electric
- Diesel oxidation catalyst retrofit
- DPF retrofit

Rail

- Biodiesel Fuel
- LNG
- Compressed Natural Gas (CNG)
- Fuel-cell
- Electrification
- Fischer-Tropsch fuel
- Emulsified diesel
- Diesel-electric hybrid (e.g., Green Goat)
- Fleet modernization with improved OEM Engines

Table 25
EMISSION REDUCTION STRATEGIES

FUELS & ENGINE TECHNOLOGIES

On-board engine diagnostics

Trucks

Fleet modernization with improved OEM Engines

Biodiesel Fuel

LNG

CNG

Emulsified diesel

Propane fuel

Diesel-electric hybrid

Transport Refrigeration Unit (TRU) engine improvements

CONGESTION REDUCTION/OPERATIONS

Electronic cargo manifest

Grade separations at highway-rail crossings

Dedicated lanes, including possibility for automobile and truck tolls

Rail capacity expansion

Extended port and/or distribution gate hours (e.g., PierPass)

Shift operations to other ports

Modal shift from truck to rail

Shuttle trains in lieu of trucks between ports and warehouses (short-haul)

Virtual container yard

Increased on-dock rail

Creation of near-dock rail terminal

Engine idling restrictions for rail and trucks

Maglev technology

Efficiency through facility planning and design

Near-dock rail

Traffic Management Plan (TMP) – during project construction

Source: Jones & Stokes. 2006. Additional information is available in CAAP.

Table 26
GENERAL MITIGATION MEASURES

Noise & Vibration
Railroad Quiet Zones
Grade Separations – reduce noise from train horns & tire/rail interaction
Noise barriers (e.g., sound walls, berms)
Rubberized asphalt on highways
Exhaust mufflers on trucks
Tunneling of corridors
Building and window insulation
Prohibition of truck Jake brake usage
Siting/orientation of amplification systems
Noise control policy implementation during construction activities
Aesthetics
Landscaping – avoid non-native or invasive vegetation.
Barriers – landscaped berms; walls with possible artistic elements
Below-grade facilities – prevent visual perception of rail or truck corridors
Matte or diffuse building materials in locations of external lighting to prevent glare
Property acquisition land use buffering
Façade illumination from fixed downlight sources
Shielding & aiming of light fixtures
Low-level wattage lighting for landscaping and plazas
Low-height pedestrian poles, bollards, and steplights
Lighting design for minimum necessary illumination generation
Safety
Grade separation
Pedestrian crossing improvements
Natural Resources
New, replaced, or replanted vegetation removed shall be native vegetation appropriate to the setting.
On a project specific basis, develop a Stormwater Pollution Prevention Plan (SWPPP) if required.
Comply with Section 404 of the Clean Water Act concerning activities that result in discharge of dredged, fill, or excavated material in waters of the U.S.
Comply with Section 402 of the Clean Water Act and National Pollutant Discharge Elimination System (NPDES) standards during and following construction to ensure that dirt, construction materials, pollutants, or other human-associated materials are not discharged from the project area.
Comply with California Department of Fish & Game Section 1600 et seq.
Comply with the Migratory Bird Treaty Act.
Comply with any locally adopted tree protection ordinances as required
Comply with Federal and State Endangered Species Acts
Comply with Federal and State Clean Water Acts
Comply with Coastal Zone Management Act
Comply with Natural Community Conservation Planning (NCCP) Act by coordinating with NCCP/Habitat Conservation Plan (HCP) organizations where applicable.

**Table 26
GENERAL MITIGATION MEASURES**

Recycled water usage for project construction activities and irrigation

Design facility elements to accommodate the natural filtration/attenuation of runoff to the maximum extent possible in order to prevent erosion and to preserve more stable soil conditions.

Cultural Resources

Verify the presence of existing or eligible historic resources. Any historic materials removed shall be replaced with materials that are consistent with the original historic design.

A certified archaeologist shall monitor project-related ground disturbing activities in areas of archeological sensitivity.

Excavation shall be monitored by a qualified paleontologic monitor in areas identified as likely to contain paleontologic resources.

Source: Jones & Stokes. 2006

**Table 27
Institutional Policy Listing**

POLICY

Dedication of Cleanest Fuels to California Service

Implement Sulfur Emission Control Area (SECA)

Monetary incentives/disincentives for vehicle replacements, engine upgrades, and other technology retrofits

Regulatory engine idling reduction

Mandatory engine performance standards

Mandatory emissions controls

Anti-idling training & awareness programs

Zoning and land use regulations for land use compatibility

Community reporting of engine idling violators

Enforcement of emissions control requirements

Environmental justice considerations & public outreach requirements

Establish public-private partnerships for practical and innovative strategies

Source: Jones & Stokes. 2006.

Potential Fund Sources

Opportunities for Project-Specific User Fees

As federal grant funds will be insufficient to address the extensive needs within this region, and state and local traditional fund sources are steadily shrinking, more programs are needed to encourage private sector investment in essential infrastructure improvements. Included among such programs are investment tax credits, loans, and expansion of tax-exempt bonding to projects of both public and private benefit. Similar to the REACH program and the Carl Moyer Program, more market-based approaches should also be encouraged.

Fees negotiated with industry can be an important component of a project-specific plan of finance. To attract private financing it will be important to quantify the costs and benefits to all stakeholders and to establish various safeguards such as firewalls and sunset provisions. It will be important initially to focus on a short list of high priority projects in order to initiate a process for establishing user fees. Once the process is established and the private sector realizes the benefits of the initial key projects, it will likely facilitate implementation of future projects. In addition to financing specific projects, a negotiated user fee approach should also be considered for collecting and banking resources for implementing broader or regional environmental mitigations.

The types of user fees that should be considered include,

- ◆ Tolling of regional highways and major bridges, including congestion pricing
- ◆ Port-assessed cargo or container fees
- ◆ Industry-supported programs similar to the PierPass
- ◆ VMT-based gas tax (e.g., Oregon DOT pilot study)

In Southern California, there are two notable examples of successful public-private partnerships: the Alameda Corridor and the PierPass extended gates program. The Alameda Corridor Transportation Authority (ACTA) negotiated a system of railroad user fees to help fund the project. These fees are used to retire debt on revenue bonds and a federal loan. The loan has already been paid back. With PierPass, importers and exporters pay a fee of \$50 per TEU to enter the terminals during daytime hours. There is no charge to cargo that enters the terminals at night and on weekends. Since its inception in July 2005, the PierPass program has successfully increased off-peak use of the ports from about 15 percent to about 40 percent.

The Ports of Los Angeles and Long Beach are currently developing a new system of proposed fees to help pay for new trucks and for diesel particulate filters (DPF) for older trucks, as well as user fees to pay for selected infrastructure projects. As proposed, the truck fee would be paid by Licensed Motor Carriers (LMCs), not owner-operators. The fee would be paid for every inbound gate move. The 2007 model year, and newer trucks, and trucks retrofitted with a CARB-approved DPF would be exempt from the fee. The fee would pay for about \$1.2 billion of the \$1.8 billion clean trucks program. The adopted Clean Air Action Plan calls for 16,000 trucks to be replaced or retrofitted within five years. This means that before major infrastructure projects such as the Gerald Desmond Bridge replacement project are complete, clean trucks will be serving the ports.

A separate proposed fee, not yet formally adopted by the ports, called the Infrastructure and Environmental Cargo Fee (IECF), would be paid by importers and exporters to help pay for selected infrastructure projects,

including on-dock rail improvements, grade separations along the Alameda Corridor-East, the Colton Crossing rail-to-rail grade separation, the Gerald Desmond Bridge, the I-110 Connectors, the Navy Way interchange, and the SR-47 Expressway. Ultimately the fee program may be expanded to help pay for the I-710 truck lanes and other projects that have a clear nexus to the ports in terms of facilitating port cargo movement and/or mitigating the impacts of port-related goods movement. Industry funds are needed to provide the required match to federal grants and to state bond funds. One of the principal objectives of the proposed fee is to "leverage" Proposition 1B bond funds as well as future federal funds through the reauthorization of SAFETEA-LU in 2009.

If the fee program is adopted, the ports may engage a third party to be the actual collection agent which would turn over the proceeds to the ports. The ports would then allocate the funds to the selected projects such as the Alameda Corridor-East and Colton Crossing.

The current fee program being proposed by the ports of Los Angeles and Long Beach involves a "pay-as-you-go" program without the need for borrowing. The advantage of this approach is two-fold. First, the project owner/sponsor can avoid substantial borrowing costs such as interest and other financing fees. Second, the term of the fee is reduced, reducing the burden on the project owner/sponsor and on the fee contributors. This approach is especially attractive to the San Pedro Bay ports because of the high volume of container traffic.

Establish Institutional Structure for Managing User Fees and Revenue.

Successful programs for obtaining user fees and revenues, ACTA for example, have developed specific institutional structures to collect, manage, and allocate fees in a manner that is acceptable to all involved parties. Therefore, negotiations for user fees needs to include a discussion of institutional arrangements for revenue collection and allocation to implementing agencies. The collection and distribution of funds must be transparent and viewed as fair to all parties involved. As proposed by the ports, the ports would lead the effort to collect user fees from licensed motor carriers for the clean trucks program and from cargo owners (importers and exporters) for selected infrastructure projects. A third party may be used as the collection agent.

Entities involved in ongoing discussions with industry, including the ports, may want to consider forming key stakeholder agencies, similar to the composition and structure of the Alameda Corridor Transportation Authority (ACTA), to administer the fee collection and fund disbursement program on a project by project basis. An alternative approach would be to expand the role of the committee recently created to develop a Southern California consensus position on the Trade Corridor Improvement Fund (TCIF). The committee currently consists of the CEOs of the County Transportation Commissions, ACTA, the Alameda Corridor-East Construction Authority, and the Ports of Los Angeles and Long Beach. This committee, if expanded to include private sector representatives, could be used to discuss project priorities and to develop a fair allocation of user fee funds.

Traditional Fund Sources

The state will receive \$23.4 billion in federal funds from SAFETEA-LU between 2005 and 2009, according to the January 2006 report from the California Legislative Office entitled - Funding for Transportation: What the New Federal Act Means for California. This represents 9.7 percent of SAFETEA-LU's \$241 billion total funding level.

The majority of projects recommended as a part of the MCGMAP will likely seek earmarks from a number of discretionary programs in future transportation bill reauthorizations. The four freight-related programs of key relevance are 1) Projects of National and Regional Significance, 2) National Corridor Infrastructure Improvement Program, 3) Freight Intermodal Distribution Pilot Program, and 4) Truck Parking Facilities Program. Over the 2005-2009 SAFETEA-LU authorization period, the total funding available through these programs is \$3.75 billion. Of the \$3.75 billion in earmarks, the Southern California region received approximately \$280 million in earmarks representing 7.5 percent of the total, for the following goods movement projects:

- ◆ Inland Empire Goods Movement: \$55 million
- ◆ Alameda Corridor East: \$125 million
- ◆ Gerald Desmond Bridge: \$100 million

In addition to earmarks for these four freight-related programs, SAFETEA-LU provided additional discretionary funding for goods movement projects through the Transportation Improvements discretionary program. Of the \$2.56 billion in earmarks through this program, the Southern California region received an additional \$30 million representing 1.2 percent of the total, for the Alameda Corridor East project.

Table 28 summarizes the total earmarks for Southern California goods movement projects. Within SAFETEA-LU, there were more than 6,000 projects nationwide that received earmarks totaling \$26 billion. As shown on the table below, the four key goods movement projects within the northern study area counties received a total of \$330 million, or 1.3 percent of all SAFETEA-LU earmarks. In addition San Diego County and Imperial County received \$94.4 million in earmarks for Coordinated Border Infrastructure and High Priority Projects related to the San Diego Port.

**Table 28
Summary of SAFETEA-LU Authorizations by Program**

Project	SAFETEA-LU Earmark (In millions)	Discretionary Program
Alameda Corridor East	\$125	Projects of National and Regional Significance
Gerald Desmond Bridge	\$100	Projects of National and Regional Significance
Inland Empire Goods Movement Gateway	\$55	Projects of National and Regional Significance
Alameda Corridor East	\$30	Transportation Improvements
Inland Empire Goods Movement Gateway	\$20	High Priority Projects
Subtotal	\$330	
State Route 905 Six-Lane Freeway, San Diego (from Otay Mesa Border Crossing to I-805)	\$80	Coordinated Border Infrastructure Program
State Route 11 Four-lane Freeway, San Diego (from SR-905 to Mexico Border)	\$0.8	Coordinated Border Infrastructure Program
State Route 78/ Brawley Bypass, Four-Lane Highway, Imperial County (Calexico East Border Crossing-Trade Corridor)	\$10	Coordinated Border Infrastructure Program
Grade Separations at 32 nd Street and Cesar Chavez Parkway / Harbor Drive, San Diego (10 th Avenue Marine Terminal – Truck Access Project)	\$1.2	High Priority Projects
Construct Truck Ramp Linking I-5 to the National City Marine Cargo Terminal, National City, San Diego	\$2.4	High Priority Projects
Subtotal	\$94.4	
TOTAL	\$424.4	

Federal assistance is essential to compensate for the disproportionate local and regional costs for the goods movement services provided to the rest of the nation. The next national transportation funding reauthorization legislation must recognize the importance of funding a national goods movement system, establish appropriate levels of federal funding support, and provide further opportunity for flexibility in the use of federal funds.

At the state level, the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 (Proposition 1B), approved by voters on November 7, 2006, provides for \$19.925 billion in General Obligation bond funds to fund transportation investments statewide. Of this total, \$3.1 billion will be set aside in a Ports Infrastructure, Security, and Air Quality Improvement Account to fund goods movement-related infrastructure, emission reductions strategies, and homeland security improvements:

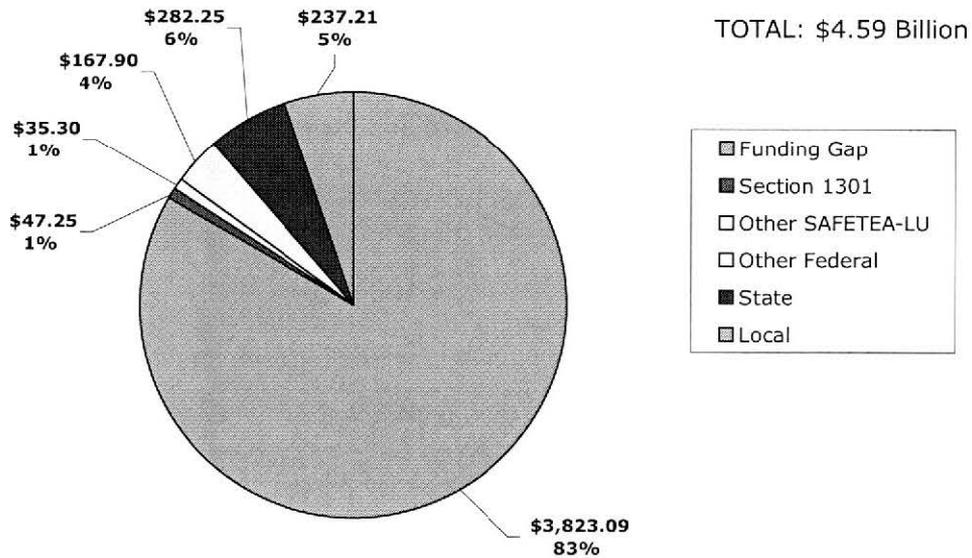
- ◆ The Trade Corridor Improvement Fund (TCIF), to be allocated by the California Transportation Commission (CTC), will provide \$2 billion for improvements along trade corridors of national significance.
- ◆ An additional \$1 billion will be allocated by the California Air Resources Board (CARB) for emission reductions from activities related to goods movement.
- ◆ \$100 million will be allocated to ports for security improvements.

Other components of the infrastructure bond program could potentially fund goods movement-related projects that involve congestion mitigation, intercity passenger rail, and highway-railroad crossing safety.

Despite these new funding resources, there will not be enough funding to pay for all of the necessary infrastructure and mitigation projects recommended for the region. Since many of the projects listed in the Action Plan will provide benefits to the general public, such as highway capacity and operational improvements, it is likely that traditional federal, state, regional, and local funding sources will be part of these individual project financing scenarios. Other freight specific projects affording benefits to industry and generating a revenue stream from user charges may be able to take advantage of more innovative approaches by including private participation as a key revenue source. All levels of government as well as private industry must participate and pay a share to help reduce the funding gap.

While the region has had some success at securing state and federal funds for its most significant projects, the level of funding received has fallen short of its fair share (as described in previous sections). Moreover, many of the projects which present regional and national benefits have significant funding gaps. For example, the Alameda Corridor-East Trade Corridor (as shown in Figure 58) which would provide much needed grade separation projects to reduce congestion and emissions throughout the region has an 83 percent funding gap totaling over \$3.8 billion, despite receiving state and federal funding. It is important to stress that the grade separation projects to be funded are intended to mitigate the impact (on local communities) from increased rail intermodal traffic, existing and forecasted. All of this intermodal traffic serves national markets, not local markets. Yet, the impacts are local, and if no action is taken, funding may also become a local burden.

Figure 58
FUNDING SOURCES FOR COMPLETION OF
ALAMEDA CORRIDOR EAST TRADE PLAN (2006 Dollars, Millions)



Source: Alameda Corridor East Trade Corridor FHWA Funding Application, 2006

Local entities should not have to bear the costs of projects that mitigate the impacts of international trade that benefits the entire nation. Effective communication of regional needs will require a coordinated effort, with participants working together to achieve their common objectives. For this reason, the program of projects advanced in the Action Plan should reflect consensus, with goals, anticipated benefits, and strategies for achievements clearly defined.

Of the major investment market segments identified for improvements in the Action Plan, components providing for increasing intermodal lift capacity, increasing mainline rail and specialized truck capacity, and corridor-wide grade separations are considered to have the greatest potential for obtaining federal and state funding as well as having potential for private sector involvement. Other program elements including highway capacity additions and general-purpose lane investments will likely continue to be dependent on formula-based funding from regional and local agencies. Although funding is scarce on all levels, it is even more challenging on the regional and local levels.

Financial Framework

An examination was conducted of potential fund sources for the projects and strategies described in Chapter 6. This analysis included a review of both traditional fund sources that include existing local, state and federal fund sources, as well as non traditional fund sources such as tolling and/or container fees. Appendix B Table 10 lists various fund sources considered and their applicability to fund various potential goods movement projects by category.

As described previously, the MCGMAP includes 249 projects³ for the region to improve goods movements. These projects fall into the following three project cost/funding categories:

1. Projects identified without cost estimates: 102 projects;
2. Projects identified with cost estimates and a preliminary funding plan: 50 projects; and
3. Projects identified with cost estimates but without a preliminary funding plan: 97 projects.
 - a. Projects identified with cost estimates, 147 projects total

The total cost estimate for the 147 projects with cost estimates is almost \$40 billion, while the 50 projects with preliminary funding plans have identified \$2.5 billion for these projects. The resulting shortfall for projects with cost estimates is approximately \$37.5 billion.

To date the project team has been able to identify project cost estimates for 154 of the 249 projects totaling over \$83 billion. However, based on a request to funding partners for individual funding plan details, potential funding sources have not been identified for the large majority of these projects.

A range of funding sources has been identified for a sample of projects. Detailed information is included in Table 10 of Appendix B:

- ◆ The Alameda Corridor East Trade Plan, which has a funding shortfall of \$3.78 billion dollars. To date the largest funding sources identified are the state (\$282.3 million), the four counties (\$143,245 million combined) and a SAFETEA-LU earmark (\$118,172.3 million). However, only \$82.6 million of the SAFETEA-LU earmarks are currently considered fully funded.
- ◆ Five infrastructure projects in the San Pedro Bay Ports of Los Angeles and Long Beach area total \$2.16 billion of which 22 percent is committed from federal sources and 19 percent is committed from state sources. However, the State General Obligation funds (25 percent of the total) represents the level of funding the San Pedro Bay Ports of Los Angeles and Long Beach would like to receive from Proposition 1B (\$2 billion Trade Corridor Infrastructure Fund). Please note that the State's Goods Movement Action Plan only recommended this source for two of the projects (Gerald Desmond Bridge and SR-47 Express) at lower funding levels. Finally, the San Pedro Bay Ports of Los Angeles and Long Beach have proposed that private industry should share in funding these projects which would be through a fee on loaded containers collected from Beneficial Cargo Owners (importers and exporters).
 - The funding plan for the Gerald Desmond Bridge has identified funding sources for the entire \$800 million project. The majority of project funding will be provided from federal sources (40 percent - committed), private industry (28 percent) and State G.O. Bonds (25 percent).
 - Funding for the \$557 million SR-47 Expressway project has been identified with the largest shares provided by the ports (52 percent), State G.O. Bonds (22 percent) and private industry (22 percent).

- Funding for the \$40 million Navy Way/Seaside Avenue project has been identified with the largest shares provided by private industry (44 percent), State G.O. Bonds (39 percent), and the San Pedro Bay Ports of Los Angeles and Long Beach (17 percent).
- Funding for the \$134 million I-110 Connectors project has been identified with the largest shares provided by State G.O. Bonds (38 percent), private industry (38 percent), and 28 percent from the ports.
- Industry has been identified as the primary funding source (61 percent) for the \$631 million ports Rail Systems project with the remainder to be funded by State G.O. Bonds (39 percent).
- ◆ The only identified funding source to add auxiliary lanes on I-10 from I-15 to Ford Street is Measure I funds (68 percent of total costs).
- ◆ For San Bernardino's Goods Movement Interchange Program there are 27 interchange projects identified totaling \$971 million. Identified funding sources include Measure I funds (52 percent) and Developer Fees (39 percent).

A substantial level of funding, from a variety of sources will be needed to incrementally implement the projects identified in this study. Since many of the projects listed in the Action Plan will provide benefits to the general public, such as highway improvements, it's likely that traditional federal, state, regional, and local funding sources will be part of these individual project financing scenarios. While other freight specific projects may be able to take advantage of more innovative approaches by including private participation as a key revenue source.

As referenced earlier, Table 10 of Appendix B, provides a menu of 45 potential funding sources that could be used to assist in filling identified funding gaps. As shown in the referenced table, the funding sources are divided into six categories and represent a mixture of traditional funding sources and innovative sources: 1) Federal program; 2) State programs; 3) Regional programs; 4) Local programs; 5) User fees; and 6) Innovative Finance, Management of Funds, and Project Delivery Systems. Additionally, the project team has indicated which types of projects would likely be eligible for each source.

Finally, due the scarcity and competition for funding (as individual projects move forward from the regional and county specific lists of projects contained in Appendix B, Tables 5 and 6 and the improvement proposed in the county action plan chapters), it will be important for project sponsors (e.g., project partners, the ports, railroads and others) to evaluate the strengths and weaknesses of a variety of funding sources. This will allow sponsors to target their efforts on those funding sources that will have the highest probability of success.

Next Steps

This Action Plan should not be viewed as an end point, but rather the beginning of a more comprehensive regional approach to keep freight moving within and through the region and to reduce the environmental and community impacts caused by the movement of that freight. Going forward, stakeholders will play an integral role in the implementing the next steps. Based on feedback from stakeholders and Action Plan recommendations, the MCGMAP project partners are committed to taking the following next steps, in terms of (1) partnership and advocacy, (2) addressing environmental and community impacts, (3) improving mobility, and (4) securing funding:

Partnership and Advocacy

- ♦ Execute and implement the Southern California National Freight Gateway (SCNFG) Cooperation Agreement among federal, state, regional, and other implementing agencies to maintain dialogue to address the challenges outlined in MCGMAP.
- ♦ Request the incorporation of MCGMAP strategies and actions into other state, regional and local plans.
- ♦ Continue to convene multi-county meetings to monitor the progress on the Action Plan and provide annual reports to the CEOs and to the boards of the partner agencies.
- ♦ Support and propose legislation that (1) provides funding mechanisms for goods movement projects/strategies, and (2) improves mobility and facilitates regional multi-county goods movement goals without undermining local community priorities and quality of life.
- ♦ Support groups such as Mobility 21 and the Coalition for America's Gateways and Trade Corridors in developing dedicated federal and state goods movement funding sources.
- ♦ Continue to work closely with all stakeholders including the Councils of Governments, community groups, environmental regulatory agencies and academia.
- ♦ Seek good movement and logistics industry involvement throughout planning and project development phases.

Environmental and Community Impacts

- ♦ Through the SCNFG Cooperation Agreement and other related activities, develop a specific set of feasible actions to accelerate implementation of the strategies contained in the various air quality and emission reduction plans that are within the scope of responsibility of the project partners.
- ♦ In partnership with CARB, air districts, the logistics industry, and local governments, initiate an activity to generate public and/or private funds to accelerate implementation of air quality improvement strategies being undertaken by these and other entities, including strategies. Examples may include: container fees that provide a revenue stream to fund emissions reduction projects, impact fees paid by entities contributing to the goods-related air quality problem, supplemental transportation infrastructure project mitigation (to add to an air quality funding pool), mitigation banking, market-based strategies, and other vehicle-based fees commensurate with the impacts attributed to those vehicles.
- ♦ Complete the Environmental Justice Analysis and Outreach Study for the MCGMAP in Fall 2008. This effort will develop a guidebook for local jurisdictions and the private sector to use in avoiding, minimizing, and mitigating the effects of goods movement infrastructure and to assist local jurisdictions make informed land use decisions.

Mobility

- ♦ Initiate a study to investigate the linkage between industry supply chain trends and port and trade related transportation patterns and movements.
- ♦ Continue project development efforts, including planning, design, funding, and implementation of the regional and county-specific projects listed in the Action Plan, including the mitigation of the impacts of those projects.
- ♦ Initiate a Regionally Significant Transportation Investment Study (RSTIS) to evaluate the feasibility of implementing a Dedicated Freight Guideway System/Regional Truck Lanes (I-710 From Port of Long Beach to SR-60; East-West Corridor between the I-710 and to I-15; and I-15 to Victorville) inclusive of potential non-freeway implementation.
- ♦ Initiate localized studies, as appropriate.

Funding

- ◆ Pursue new avenues of goods movement funding for projects, including the region's fair share of state appropriations, federal funds and reauthorization, and private sector contributions consistent with the impacts of the benefits they derive from the use of the transportation system.
- ◆ Continue fair share and user fee discussions with private sector stakeholders to seek their support in addressing goods movement impacts and filling funding gaps. Develop a clear and concise message on this subject and communicate this to the public and policy and funding decision makers at all levels of government.
- ◆ Establish structures to manage user fees and revenue that are acceptable to both public and private sector stakeholders.

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MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

LIST OF ABBREVIATIONS

AADT	Annual Average Daily Traffic
ACE	Alameda Corridor East
ACTA	Alameda Corridor Transportation Authority
AF	United States Air Force
ARB	See "CARB"
ARZC	Arizona and California Railroad
BNSF	Burlington Northern and Santa Fe Railway
BUR	Burbank Airport
Caltrans	California State Department of Transportation
CARB (or ARB)	California Air Resources Board
CBRE	C.B. Richard Ellis
CEQA	California Environmental Quality Act
CofI	City of Industry
CTA	Central Terminal Area at LAX
CTC	California Transportation Commission or County Transportation Commission
CY	Calendar Year
CZRY	Carrizo Gorge Railway – the Desert Line
EIR	Environmental Impact Report
ELA	East Los Angeles
EPA	Environmental Protection Agency
ERP	Enterprise Resource Planning
FAF	Freight Analysis Framework
FedEx	Federal Express
FERC	Federal Energy Regulatory Commission
FEU	Full Equivalent Unit
FHWA	Federal Highway Administration
FPN	Ferrocarriles Peninsulares del Noroeste
FTZ	Foreign Trade Zone
FY	Fiscal Year
GIS	Geographic Information Systems
GPS	Global Positioning System
HHDT	Heavy Heavy Duty Truck Classification
HOV	High Occupancy Vehicle
ICTF	Intermodal Container Transfer Facility
ILWU	International Longshoreman and Warehouse Union
ITS	Intelligent Transportation Systems
IVAG	Imperial Valley Association of Governments

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

LIST OF ABBREVIATIONS

JIC	Just in Case [delivery]
JIT	Just in Time [delivery]
LACSD	County Sanitation Districts of Los Angeles County
LAJ	Los Angeles Junction Railway
LATC	Los Angeles Transportation Center
LAWA	Los Angeles World Airports
LAX	Los Angeles International Airport
LCL	Less-Than-Container-Loads
LGB	Long Beach Airport
LHDT	Light Heavy Duty Truck Classification
LNG	Liquefied Natural Gas
LOS	Level of Service
LOSSAN	Los Angeles to San Diego Rail Corridor
L RTP	Long Range Transportation Plan
LTL	Less Than Truckload
MAT	Millions Annual Tons
MCGMAP	Multi-County Goods Movement Action Plan
Metro	Los Angeles County Metropolitan Transportation Authority
MHDT	Medium Heavy Duty Truck Classification
MPO	Metropolitan Planning Organization
MRL	Mesquite Regional Landfill
MRT	Metric Revenue Tons
MSF	Million Square Feet
MT	Metric Tons
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
NAIOP	National Association of Industrial and Office Properties
NISC	National Infrastructure Security Committee
NOP	Notice of Preparation
NRA	Net Rentable Area
NRDC	Natural Resources Defense Council
NVOCC	Non-Vessel Owning Common Carriers
OCTA	Orange County Transportation Authority
OJT	On-the-job training
ONT	Ontario International Airport
PCH	Pacific Coast Highway
PDS	Position Detection System
PHL	Pacific Harbor Line

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

LIST OF ABBREVIATIONS

POE	Port of Entry (US / Mexico)
POLA	Port of Los Angeles
POLB	Port of Long Beach
PMD	Palmdale Regional Airport
PNW	Pacific Northwest
RCTC	Riverside County Transportation Commission
RFID	Radio Frequency Identification
RO/RO	Roll On/Roll Off
RTP	Regional Transportation Plan
RTIP	Regional Transportation Improvement Program
RTW	Round-the-World
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users
SANBAG	San Bernardino Associated Governments
SANDAG	San Diego Association of Governments
SBD	San Bernardino International Airport
SCAG	Southern California Association of Governments
SCIG	Southern California International Gateway
SCM	Supply Chain Management
SCRRA	Southern California Regional Rail Authority
SDIY	San Diego and Imperial Valley Railroad
SF	Square Feet
SIP	State Implementation Plan
SNA	John Wayne/Santa Ana Airport
SPB	San Pedro Bay
3PL	Third Party Logistics
TEU	Twenty-Foot Equivalent Units
TOS	Terminal Operating System
UP	Union Pacific Railroad
UPS	United Parcel Service
USPS	US Postal Services
VCRR	Ventura County Railroad
VCTC	Ventura County Transportation Commission
VMT	Vehicle Miles Traveled
VNY	Van Nuys Airport
YTD	Year to date

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

GLOSSARY OF TERMS

Assembly Bill (AB) 2650 - A law passed in the state of California that fines terminal operators if trucks idle outside the terminal gate for more than 30 minutes.

Air Cargo - Freight that is moved by air transportation.

Air Carrier - An enterprise offering transportation service via air.

All-Cargo Carrier - An air carrier transporting cargo only.

Arterial - A moderate- or high-capacity highway that is just below an expressway classification. Much like a biological artery, an arterial road carries large volumes of traffic between areas in urban centers. Arterials serve as links between local streets and expressways and freeways with interchanges.

Average Annual Daily Traffic (AADT) - A useful and simple measurement of how busy a road is determined by averaging the daily flow of traffic over a year. Consists of a seven-day average of traffic on a roadway facility.

Balance of Trade - The surplus or deficit that results from comparing a country's exports and imports of merchandise only.

Belly Cargo - Cargo carried in the belly deck below the passenger deck of a passenger aircraft.

Bobtail - A truck with shorter bed. Otherwise known as a Straight Truck, Box Truck, or Box Van.

Boxcar - An enclosed railcar, typically 40 to 50 feet long, used for packaged freight and some bulk commodities.

Break-Bulk - The separation of a consolidated bulk load into smaller individual shipments for delivery to the ultimate consignee. The freight may be moved intact inside the trailer, or it may be interchanged and rehandled to connecting carriers.

Break-Bulk Cargo - Cargo shipped as a unit or package (for example: palletized cargo, boxed cargo, large machinery, trucks) but is not containerized.

Break-Bulk Vessel - A vessel designed to handle break-bulk cargo.

Bulk Area - A storage area for large items that, at a minimum, are most efficiently handled by the palletload.

Bulk Cargo - Goods not in packages or containers. See also, Break-Bulk Cargo.

Bulk Transfer Facilities - Facilities used primarily for the storage and/or marketing of petroleum products, and/or facilities that receive petroleum products by tanker, barge, or pipeline.

Cabotage - The carriage of cargo that originates and terminates within the boundaries of a given country by a carrier of another country.

Cargo - Merchandise carried by a means of transportation.

Cargo-Only Airport - An airport that has one or more air cargo operators and no passenger operations.

Carload - In the rail industry parlance, carload traffic refers to cargo moved in or on boxcars, gondolas, tank cars, flatcars, and other conventional railroad vehicles. Typical carload commodities include lumber, paper, scrap metal, coal, aggregates, chemicals, steel, machinery, and large appliances, among many other things. Trains carrying this traffic are sometimes called carload or merchandise trains.

Carrier - An enterprise engaged in the business of transporting goods.

Classification Yard - A railroad terminal area where railcars are grouped together in blocks to form train units. These blocks are combined into long distance trains that drop off the blocks at various destinations along their routes.

Coastal Carriers - Water carriers providing service along coasts serving ports on the Atlantic or Pacific Oceans or on the Gulf of Mexico.

Combi Aircraft - A passenger/cargo aircraft specially designed to carry unitized cargo loads on the upper deck of the craft, forward of the passenger area.

Container - A single rigid receptacle without wheels that is used for the transport of goods (a type of carrier equipment into which freight is loaded).

Container Chassis - A vehicle built for the purpose of transporting a container so that, when a container and chassis are assembled, the produced unit serves as a road trailer.

Container Depot - The storage area for empty containers.

Container Terminal - An area designated for the stowage of cargo in containers that may be accessed by truck, rail, or ocean transportation.

Container Vessel - A vessel specifically designed for the carriage of containers.

Container Yard - The location designated by the carrier for receiving, assembling, holding, storing, and delivering containers, and where containers may be picked up by shippers or redelivered by consignees.

Containerization - The technique of using a boxlike device in which a number of packages are stored, protected, and handled as a single unit in transit.

Cross Dock - An enterprise that provides services to transfer goods from one piece of transportation equipment to another. Commonly used to transfer shipments between local delivery trucks and long-haul (intercity) trucks.

Cross-Docking - The movement of goods directly from receiving dock to shipping dock to eliminate storage expense. Many times a site is chosen to consolidate goods from several origins and reship to the retail or manufacturing site (sometimes called Merge in Transit or Flow Through Distribution).

Cube Out - The situation when a piece of equipment has reached its volumetric capacity before reaching the permitted weight limit.

Customization Centers - Locations where goods are prepared as floor-ready merchandise based on the latest point of sale data.

Distribution Center (DC) - A finished goods warehouse from which a company assembles customer orders.

Dock - A space used for receiving merchandise at a freight terminal.

Enterprise Resource Planning (ERP) - A cross-functional/regional planning process supporting regional forecasting, distribution planning, operations centers planning, and other planning activities. The process provides the means to plan, analyze, and monitor the flow of demand/supply alignment and to allocate critical resources to support the business plan.

Export - To send goods and services to another country.

Federal Aviation Administration - The federal agency that administers federal safety regulations governing air transportation.

First Tier (or Top Tier) - A term used to point out the leading industry group in a specific sector. This is not typically an official term, but a term used herein to classify the leading entities.

Foreign Trade Zone (FTZ) - A site sanctioned by the U.S. Customs Service in which imported goods are exempted from duties until withdrawn for domestic sale or use. Such zones are used by commercial warehouses or assembly plants.

Freight Forwarder - An enterprise providing services to facilitate the transport of shipments. Services can include documentation preparation, space and equipment reservation, warehousing, consolidation, delivery, clearance, banking and insurance services, and agency services. The forwarder may facilitate transport by land, air, or ocean, or may specialize in one mode of transport. Also called Forwarder or Foreign Freight Forwarder.

Freight Analysis Framework (FAF) - The Freight Analysis Framework, created by the Federal Highway Administration, integrates data from a variety of sources to estimate commodity flows and related freight transportation activity among states, regions, and major international gateways.

Freight Gateways - A term generally used to refer to major freight airports, seaports, or intermodal facilities.

Full Container Load (FCL) - A term used when goods occupy a whole container.

Full Equivalent Unit (FEU) - A unit of measure to account for a full-sized (40-foot long) international container. One FEU equates to two 20-foot Equivalent Units (TEUs).

Full Truck Load (FTL) - Same as Full Container Load, but in reference to motor carriage instead of containers.

Goods - A term associated with more than one definition: 1) common term indicating movable property, merchandise or wares, 2) all materials used to satisfy demands, 3) whole or part of the cargo received from the shipper, including any equipment supplied by the shipper.

Goods Movement - The process and activities involved in the pickup, movement and delivery of goods (agricultural, consumer, and industrial products and raw materials) from producer/points of origin to consumer/point of use or delivery. 'Goods Movement' relies on a series of transportation, financial, and information systems for this to occur, that involves an international, national, state, regional and local networks of

producers and suppliers, carriers and representative agents from the private sector, the public sector (federal, state, regional and local government agencies), and the general public. (Definition taken from *Goods Movement Action Plan*, January 2007)

Hopper Cars - Railcars that permit top loading and bottom unloading of bulk commodities; some hopper cars have permanent tops with hatches to provide protection against the elements.

Hostling Trucks – A motorized vehicle (small truck) used for moving trailers/chassis around a port terminal or intermodal yard, specifically to transfer cargo containers and equipment from one mode to another.

Hub - A central location to which traffic from many cities is directed and from which traffic is fed to other areas.

Hub Airport - An airport that serves as the focal point for the origin and termination of long-distance flights; flights from outlying areas meet connecting flights at the hub airport.

Inland Port – An inland port can be defined as a transloading center, where international containerized cargo is unloaded from one mode (e.g., truck) and loaded to another mode (e.g., rail). Specific inland ports can take many forms and serve various purposes.

Integrated Freight Carriers - Typically refers to air cargo and express carriers that provide door-to-door service via any combination of modes. They control the reliability of service by owning the ground transport operations as well as the air lift capacity, exercising control through ownership (for example, FedEx and UPS). They also use information technology to exercise control.

Integrated Logistics - An integrating process that combines the classic logistics functions of physical distribution and materials management with the purchasing of raw materials and/or inventory and sales, marketing, information technology, and strategic planning functions.

Intermodal - See Intermodal Transportation.

Intermodal Facility - Facilities that allow for the transfer of uniform containers from one mode to another. The term is most commonly associated with a facility that allows for the transfer of containers between rail and truck. It is also used more widely to apply to cargo transfer between ships, barges, railcars, and trailer chassis.

Intermodal Transportation - The use of two or more transportation modes to transport freight; for example, rail to ship to truck, most commonly used or applied in industry to describe shipment of containers by rail.

Inventory Carrying Cost - A measure to account for the cost of goods in delay. This measure is not commonly used in the public transportation sector.

Just In Case (JIC) - An inventory strategy companies use whereby large inventories are kept on hand.

Just In Time (JIT) - An inventory strategy companies employ to increase efficiency and decrease waste by receiving goods only as they are needed in the production process, thereby reducing inventory costs. This method requires that producers are able to accurately forecast demand.

Less than Container Load (LCL) - A term used when goods do not completely occupy an entire container. When many shippers' goods occupy a single container, each shipper's shipment is considered to be LCL.

Less-Than-Truckload (LTL) - A segment of the trucking industry catering to shippers with loads that are less than a full truck load. Shipments that are smaller than a full truckload are combined with other LTL shipments, thereby allowing the LTL trucker to benefit from the economies of scale enjoyed by full truckload truckers.

Level of Service (LOS) - A standard measurement used by transportation officials that reflects the relative ease of traffic flow on a scale of A to F, with free-flow conditions being rated LOS A and completely congested conditions rated as LOS F.

Lift Capacity - Term used to describe a particular carrier or terminal operator's capacity to handle cargo. Most often (not exclusively) applied to intermodal yards and air cargo carriers.

Line-Haul - The long-haul portion of an intermodal trip, typically the main rail trip between the originating and terminating intermodal yards. On either end of the line-haul is the local dray to and from the intermodal yard.

Local Dray - A local truck trip to and from an intermodal yard or port or warehouse.

Logistics - The process of planning, implementing, and controlling procedures for the efficient and effective storage of goods, services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements.

Mega Terminals - In the context of the marine and ports industry, a large terminal built to accommodate the new generation of mega ships (sometimes referred to as post-Panamax). In cases where a new terminal cannot be built, one or more of the existing terminals are tied together to provide the needed acreage and facilities.

Metric Revenue Tons (MRT) - Traditionally, cargo volumes through ports were reported in terms of tons (or metric tons). However, containerized cargo tends to have a higher value (revenue) to weight ratio than most non-containerized cargo. While non-containerized cargo has a one-to-one relationship between metric tons (MT) and metric revenue tons, the relationship for containerized cargo is typically greater than one and varies depending on the mix of cargo.

Metropolitan Planning Organization (MPO) - A regional transportation planning body required to approve transportation improvement plans, to ensure that they are consistent with federal legislation and that they are fiscally sound. It aims to achieve local consensus between different levels of government and across jurisdictions.

Mode of Transportation - The specific type of technology or vehicle involved in the movement of goods and passengers; for example, a railroad, an automobile, an airplane, or a ship.

Movement of Goods - The transfer of goods from one location to another.

Net Rentable Area - The actual square footage of a building that can be rented.

Net Weight - The weight of the merchandise, unpacked, exclusive of any containers.

Non-Integrated Freight Carriers - These types of freight carriers serve two functions: (1) provide scheduled service on major traffic lanes, and (2) provide outsourcing, carrying contracted freight for freight forwarders and other airlines. They typically involve a single mode of transport.

Non-Vessel Operating Common Carrier (NVOCC) - A firm that offers the same services as an ocean carrier, but does not own or operate a vessel. NVOCCs usually act as consolidators, accepting small shipments (LCL) and consolidating them into full container loads. They also consolidate and disperse international containers that originate at, or are bound for, inland ports. They then act as a shipper, tendering the containers to ocean common carriers. They are required to file tariffs with the Federal Maritime Commission and are subject to the same laws and statutes that apply to primary common carriers.

North American Free Trade Agreement (NAFTA) - A free trade agreement, implemented January 1, 1994, between Canada, the United States, and Mexico.

On-Dock, Near-Dock, Off-Dock Intermodal Facilities - On-dock intermodal facilities are located in or immediately adjacent to marine terminals. Near-dock intermodal facilities are located within a few miles from port areas. Off-dock intermodal facilities are comparatively distant from port areas.

Person Hours - A measure to account for the number of hours spent by the occupants of vehicles in traffic.

PierPass - PierPass (or PierPASS) is a not-for-profit organization created by marine terminal operators to reduce congestion and improve air quality in and around the ports of Los Angeles and Long Beach. OffPeak is the off-peak hours program created by PierPass. OffPeak provides an incentive for cargo owners to move cargo at night and on weekends, in order to reduce traffic and pollution during peak daytime traffic hours and to alleviate port congestion (http://www.pierpass.org/about_pierpass). PierPass was introduced in July 2005 in response to a legislative initiative. PierPass as referenced in the MCGMAP is the program now administered by PierPass Inc.

Port - An entry point into, typically a harbor where ships will anchor or an airport.

Ports of Call - Ports at which a vessel, or string of vessels, stop so as to unload and load cargo.

Port of Entry - A port at which foreign goods are admitted into the receiving country.

Post-Panamax Vessel - A container ship too large to pass through the Panama Canal, typically with a capacity in excess of 6,000 TEUs.

Project Cargo - Typically associated with large machinery and equipment used in the construction of major infrastructure projects such as power plants or industrial plants. Large or voluminous shipments, or shipments composed of complex components that must be disassembled, shipped, and then re-assembled.

Project Team - In this document, Project Team refers to the group of consultants assembled to prepare the MCGMAP.

Private Carrier - A carrier that provides transportation service to the firm that owns or leases the vehicles and does not charge a fee. Private motor carriers may haul at a fee for wholly-owned subsidiaries.

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

GLOSSARY OF TERMS

Regional Transportation Plan - A long-term multimodal transportation plan prepared by a Metropolitan Planning Organization (MPO), typically with a 20-year outlook.

Rolling Stock - Traditionally means "vehicles." The term is used in logistics to refer to inventory in motion, or inventory in the pipeline, not at rest.

Roll On/Roll Off (RO/RO) - A term most commonly used to describe ships designed for the carriage of wheeled cargo. These ships typically have large doors in the hull and external ramps that fold down to allow rolling of wheeled cargo between the ship and the pier. The term is also applied to the wheeled cargo itself (RO/RO cargo).

Scheduled Service - A type of service offered by carriers for a designated route that includes multiple designated stopping points, with scheduled times of arrival and departure. The carrier aims to stay within the schedule so as to provide a reliable service that customers can depend on, and can sequence their shipments accordingly.

Second Tier - A term used to point out the second most significant group of players in a specific sector (see First Tier).

Shipping Line - Businesses that own and/or operate the ocean vessels carrying ocean-borne cargo between international ports (also referred to as steamship lines).

Short Line - A local rail line that covers a short distance, not part of a rail network. Ports use a short line to move goods between customers, storage areas, and staging areas within the port without interfering with main line operations.

Simultaneous and Continuous – Defined by the state of California as "the total cost of goods movement related infrastructure project should include the cost of required project-specific mitigation and the combined cost should be funded as the cost of the project".

Southern California – Refers to Southern California region as a whole; inclusive of the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura.

Spur Track - A railroad track connecting a company's plant or warehouse with the railroad's track; the user bears the cost of the spur track and its maintenance.

Steamship Line - A company that owns and/or operates vessels in maritime trade.

Supply Chain(s) - A group of physical entities such as manufacturing plants, distribution centers, conveyances, retail outlets, people, and information that are linked together through processes (such as procurement or logistics) in an integrated fashion, to supply goods or services from source through consumption.

Supply Chain Management (SCM) - The integration of the supplier, distributor, and customer logistics requirements into one cohesive process to include demand planning, forecasting, materials requisition, order processing, inventory allocation, order fulfillment, transportation services, receiving, invoicing, and payment.

Terminal Operator - The enterprise responsible for the operation of facilities for one or more modes of transportation.

Third Party Logistics Provider (3PL) - A third party that handles many of the supply chain logistics aspects on behalf of a large shipper/receiver. Makes many of the decisions related to the shipment of goods: mode choice, routing, transit times, pricing, staging locations, etc.

Transloading - The practice of transferring goods from marine containers to domestic intermodal containers or trucks at a distribution center or warehouse.

Transportation Corridor - A single route or combination of routes along the same general path, between at least two points (one on either end). In general, a transportation corridor is not just one road or rail line, but a combination of modes.

Transshipment - The shipment of merchandise to the point of destination in another country on more than one vessel or vehicle.

Truck Climbing Lanes - Highway lanes in which trucks must operate where the incline of the road becomes steep to the point of reducing truck speeds. They are designed to permit slower-moving trucks to operate at their own pace without reducing the speed of the mixed-flow traffic operating in the lanes without trucks. Typically located on the outside lanes of a highway in an uphill direction.

Truckload (TL) - Quantity of freight required to fill a truck, or at a minimum, the amount required to qualify for a truckload rate.

Truck Turn Time - The time it takes from when a truck arrives at a port (or intermodal yard), loads/unloads its cargo, and departs.

Twenty-foot Equivalent Unit (TEU) - A measure of containerized cargo equal to one standard 20-foot by eight foot by 8½ foot container. A full size 40-foot container (FEU) is counted as two TEUs.

Vessel String - Term used in the ocean shipping business to refer to a group of vessels that serve a specific route. In order to meet a scheduled service, the vessels are sequenced into a string so as to serve the route and meet predetermined dates and times of arrival and departure.

Warehouse - Storage place for products that are in transit. Principal warehouse activities include receipt of product, storage, shipment, and order picking.

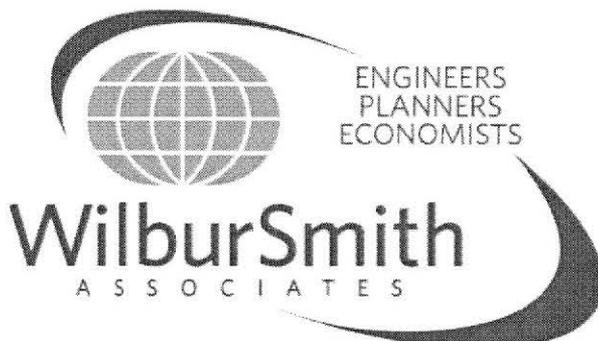
MULTI-COUNTY GOODS MOVEMENT ACTION PLAN VOLUME 1, APPENDIX A: FINANCIAL FRAMEWORK

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April 2008
A31418

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Note: The following financial framework was developed using the comprehensive list of projects and strategies contained in Appendix B, prior to the project partners' refinement of the regional and county-level list of projects included in the Executive Summary.

1.0 FINANCIAL FRAMEWORK

As shown in the comprehensive list of Goods Movement Projects within the MCGMAP Study Area, the results of this study have identified 249 projects for the region to improve goods movements. These projects fall into the following three project cost/funding categories:

1. Projects identified without cost estimates: 102 projects;
2. Projects identified with cost estimates with cost estimates and a preliminary funding plan: 50 projects; and
3. Projects identified with cost estimates but without a preliminary funding plan: 97 projects.

The total cost estimate for the 147 projects with cost estimates is almost \$40 billion, while the 50 projects with preliminary funding plans have identified \$2.5 billion for these projects. The resulting shortfall for projects with cost estimates is approximately \$37.5 billion.

The following figures provide a range of funding sources identified for a sample of projects.

- Figures 1 through 8 provide a detailed breakdown of the Alameda Corridor East Trade Plan, which has a funding shortfall of \$3.8 billion dollars. To date the largest funding sources identified are the State (282.3), the four counties (\$245 million combined) and a SAFETEA-LU earmark (\$172.3 million). However, only \$82.6 million of the SAFETEA-LU earmarks are currently considered fully funded.
- Figures 9 through 13 provide summaries of five infrastructure projects in the ports area. These five projects total \$2.16 billion of which 22 percent is committed from Federal sources and 19 percent is committed from State sources. However, the State General Obligation funds (25 percent of the total) represents the level of funding the ports would like to receive from Proposition 1B (\$2 Billion Trade Corridor Infrastructure Fund). Please note that in the *Good Movement Action Plan*, the Business, Transportation and Housing Agency only recommended this source for two of the projects (Gerald Desmond Bridge and SR-47 Express) at lower funding levels. Finally, the ports have proposed that private industry should share in funding these projects which would be through a fee on loaded containers collected from Beneficial Cargo Owners (importers and exporters). The five individual projects reflect the following
 - Figure 9 summarizes the funding plan for the Gerald Desmond Bridge, which has identified funding sources for the entire \$800 million project. The majority of project funding will be provided from Federal sources (40 percent - committed), private industry (28 percent) and State General Obligation (GO) Bonds (25 percent)
 - Figure 10 shows the funding plan for the SR-47 Expressway. Funding for the \$557 million project has been identified with the largest shares provided by the Ports (52 percent), State GO Bonds (22 percent) and private industry (22 percent)
 - Figure 11 provides the Navy Way/Seaside Avenue project. Funding for the \$40 million project has been identified with the largest shares provided by private industry (44 percent), State GO Bonds (39 percent) and the Ports (17 percent).

- Figure 12 summarizes the I-110 Connectors. Funding for the \$134 million project has been identified with the largest shares provided by State GO Bonds (38 percent), private industry (38 percent), and 28 percent from the Ports.
- Figure 13 summarizes the \$631 million Ports Rail Systems. Industry has been identified as primary funding source (61 percent) with the remainder to be funded by State GO Bonds (39 percent).
- Figures 14 and 15 represent funding plans within San Bernardino County for improvements to I-10 and the county's goods movement interchange improvement program.
 - Figure 14 shows the only identified funding source to add auxiliary lanes on I-10 from I-15 to Ford Street is Measure I funds (68 percent of total costs).
 - Figure 15 provides the funding sources for San Bernardino's Goods Movement Interchange Program. In total there are 27 interchange projects identified totaling \$971 million. Identified funding sources include Measure I funds (52 percent) and Developer Fees (39 percent).

Figure 1: Funding Sources for Completion of the Alameda Corridor East (ACE) Trade Plan

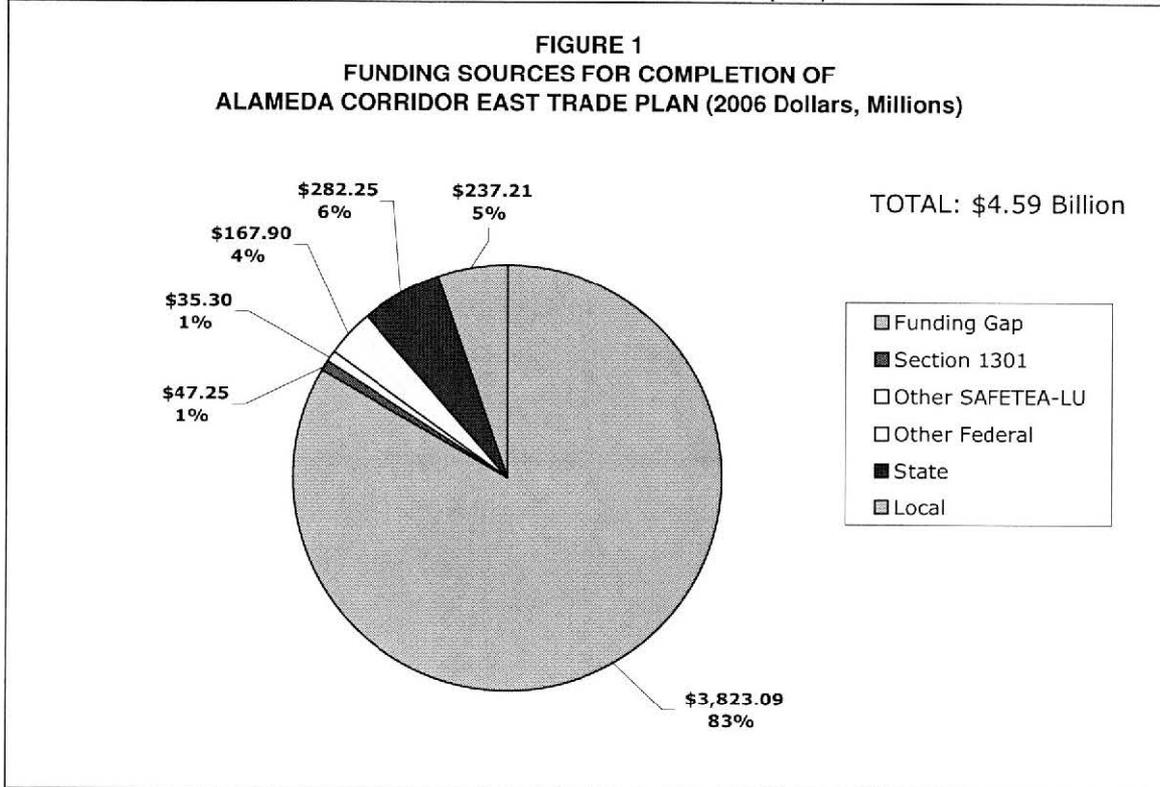


Figure 2: Funding Sources By County for the ACE Trade Plan

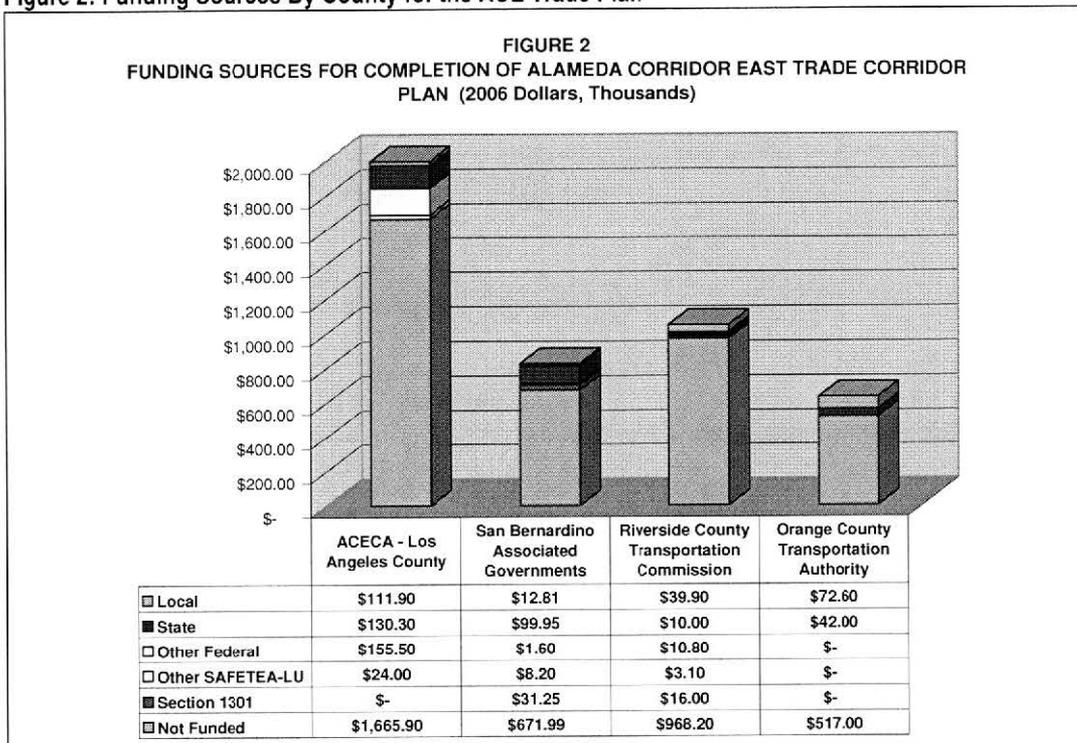


Figure 3: Percent of Funding By County for the ACE Trade Plan

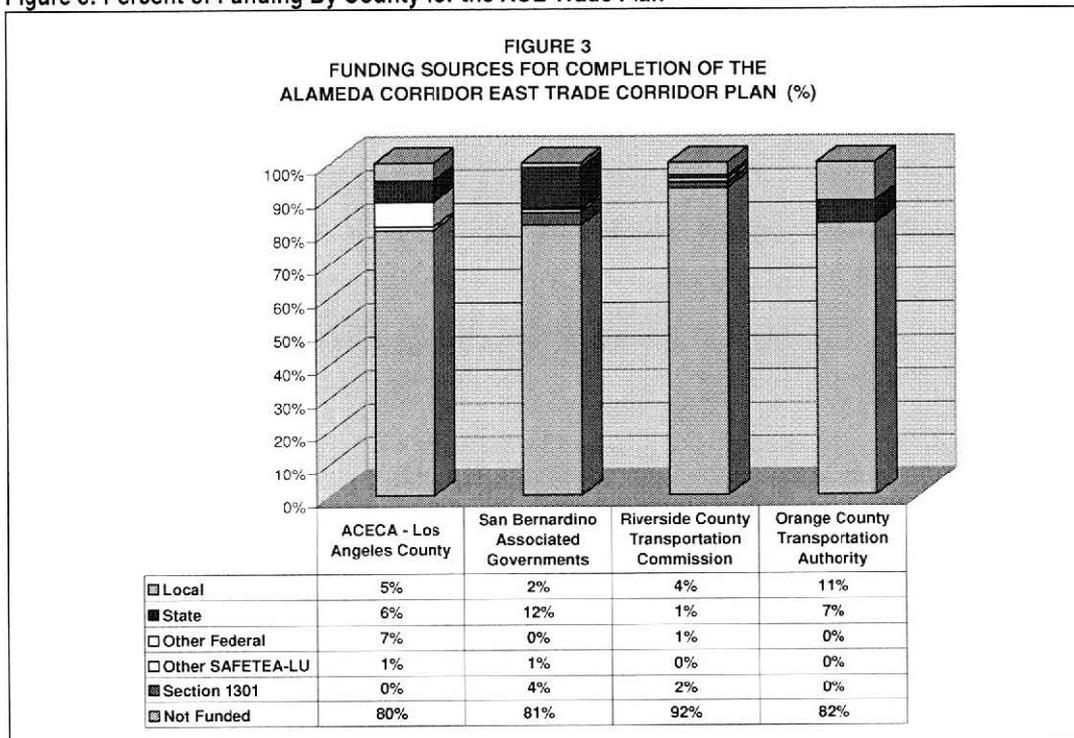


Figure 4: Funding Sources for the ACECA Portion of the ACE Trade Corridor Plan

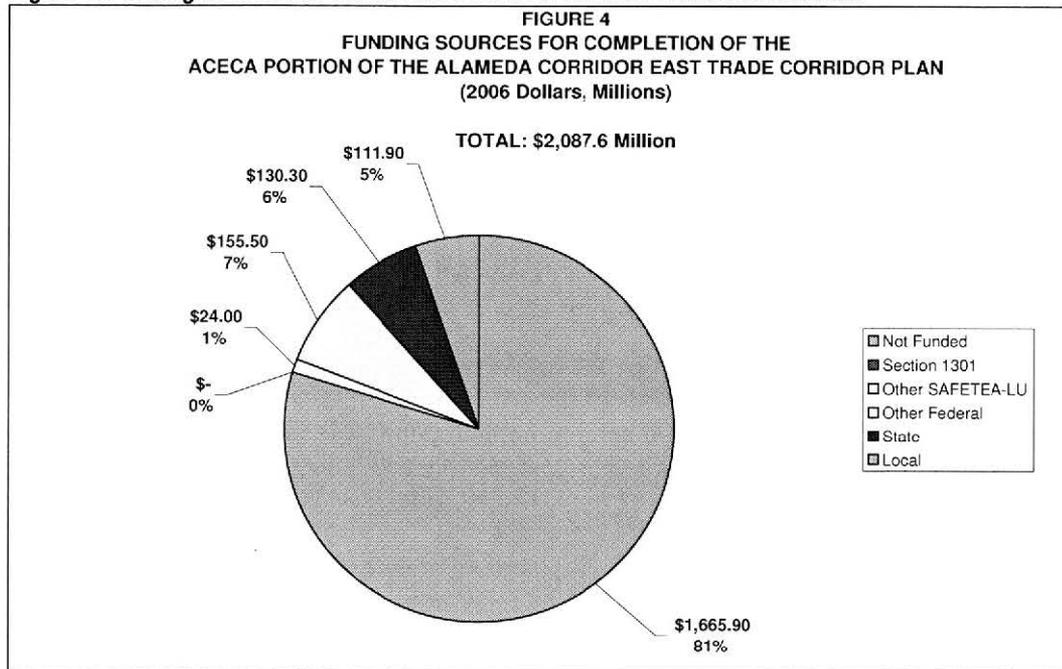


Figure 5: Funding Sources for the San Bernardino Portion of the ACE Trade Corridor Plan

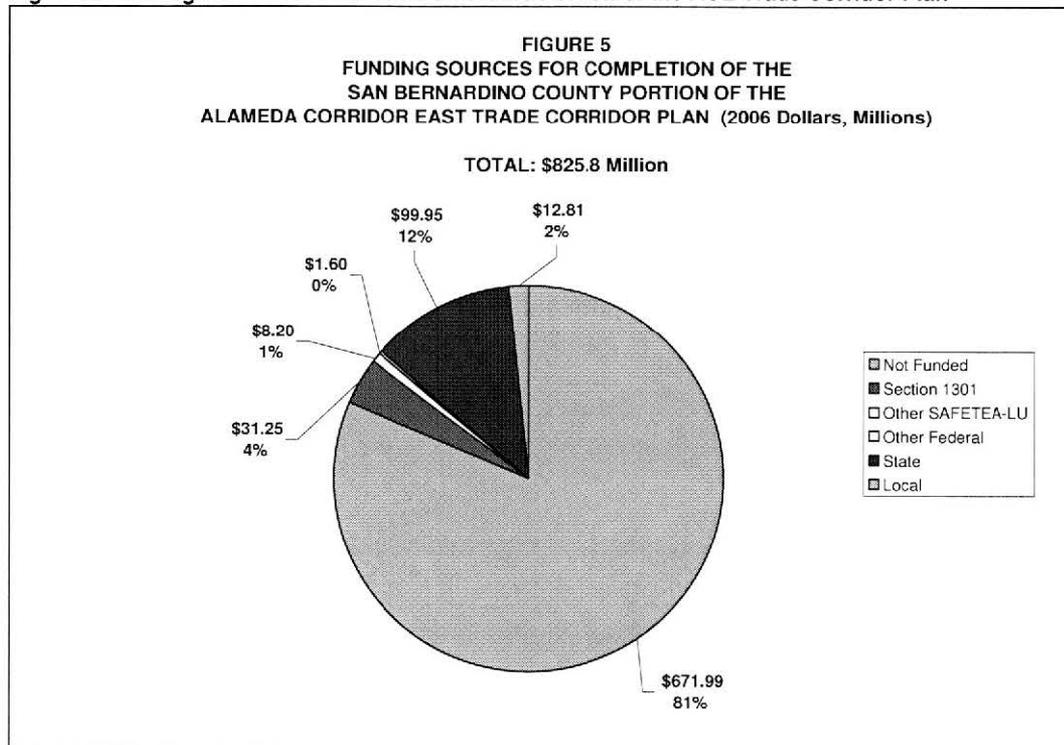


Figure 6: Funding Sources for the Riverside County Portion of the ACE Trade Corridor Plan

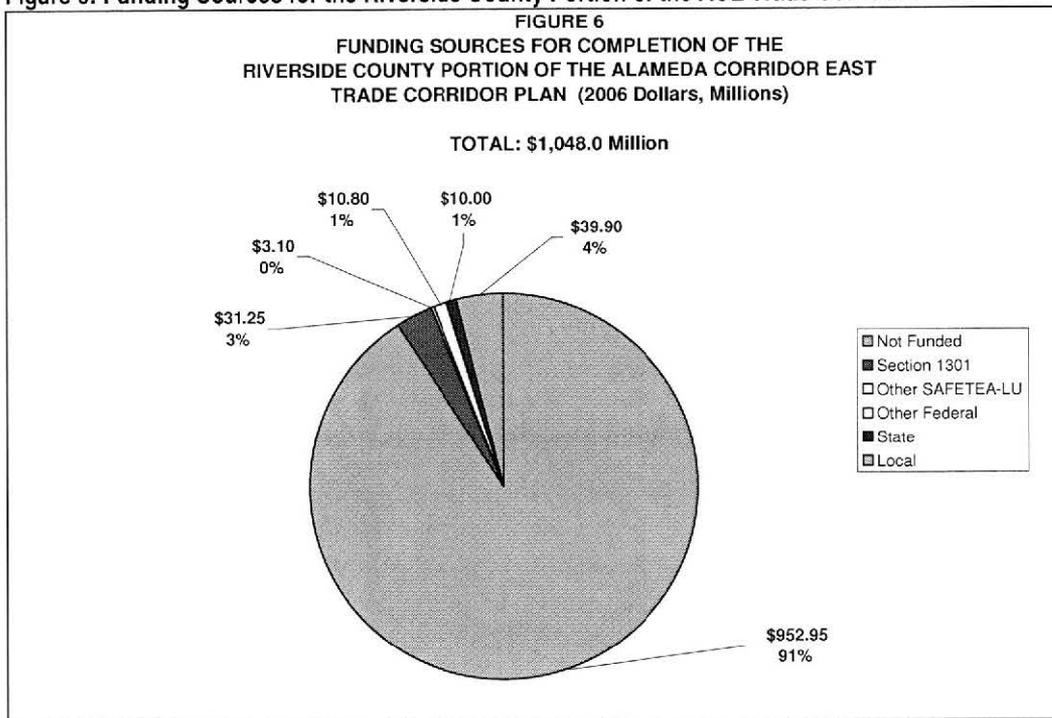


Figure 7: Funding Sources for the Orange County Portion of the ACE Trade Corridor Plan

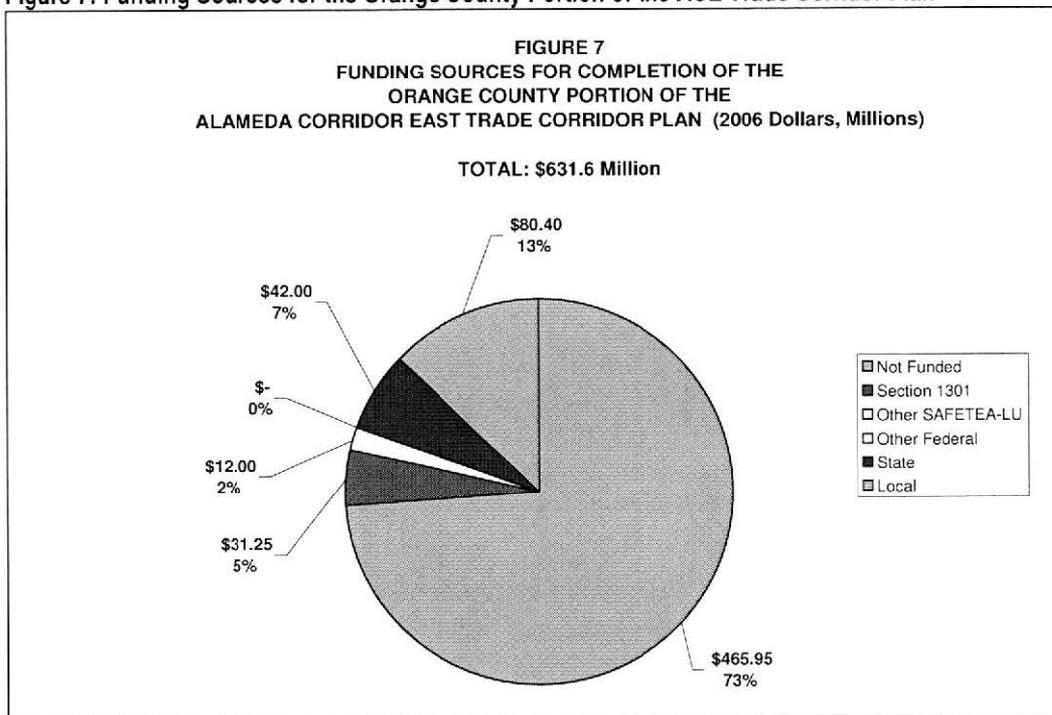


Figure 8: Unfunded Portion of the ACE Trade Corridor Plan, By County

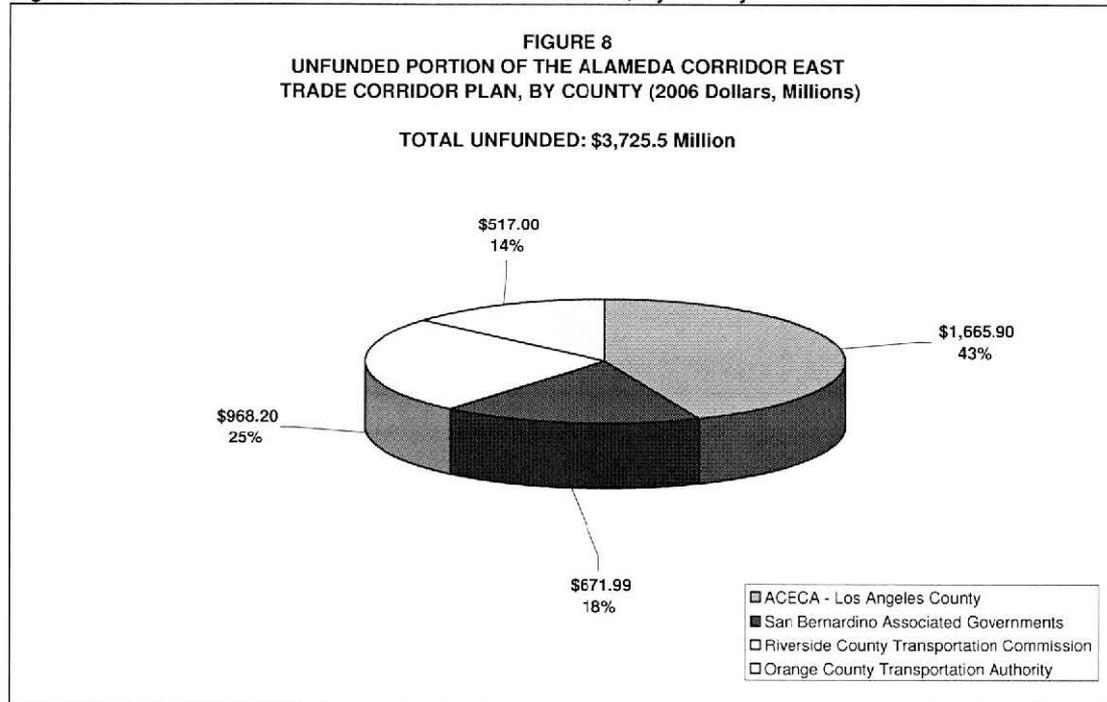


Figure 9: Funding Sources for the Gerald Desmond Bridge

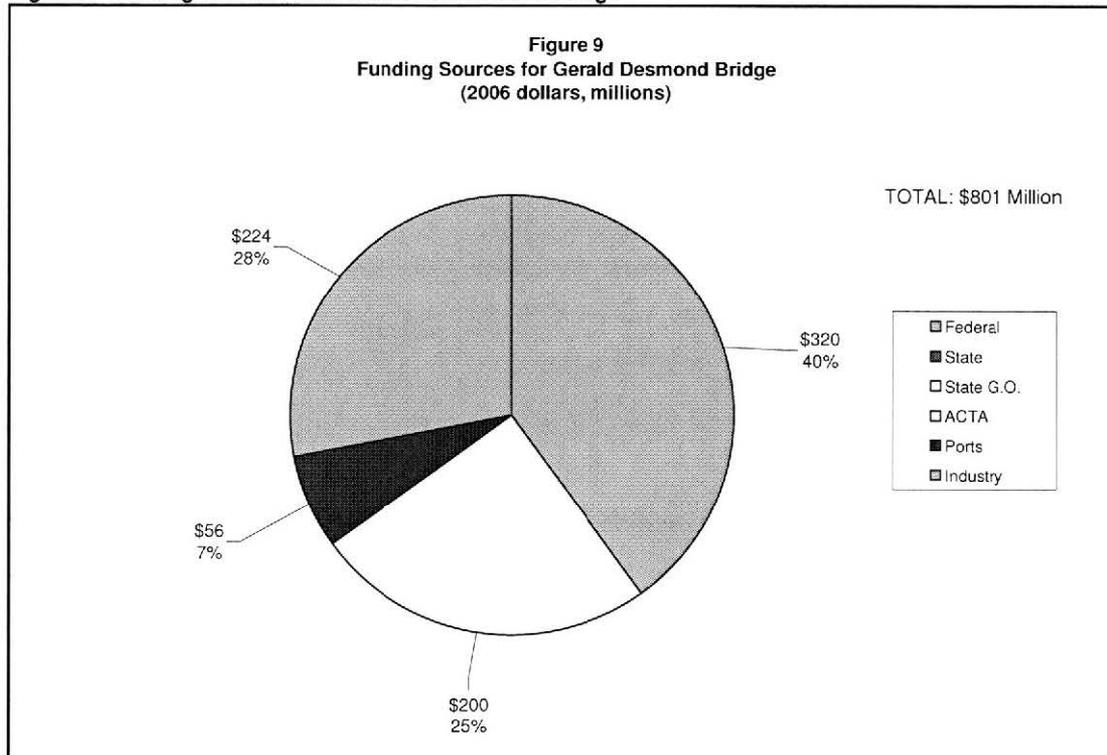


Figure 10: Funding Sources for the SR-47 Expressway

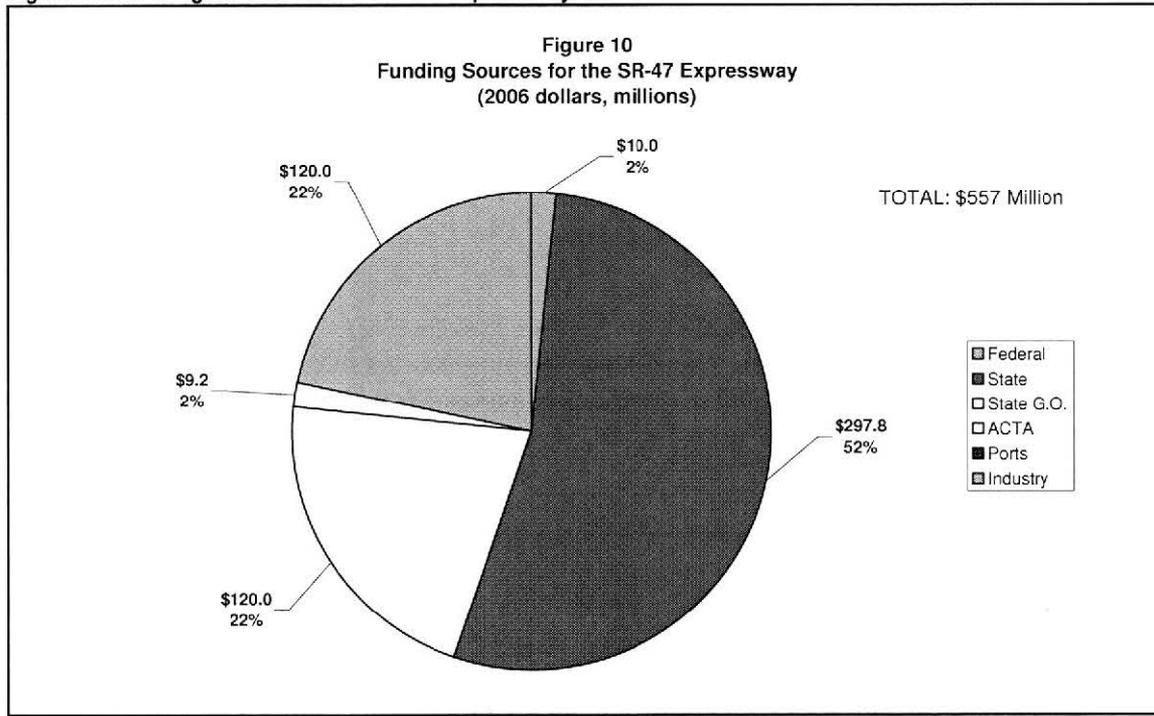


Figure 11: Funding Sources for the Navy Way / Seaside Avenue Project

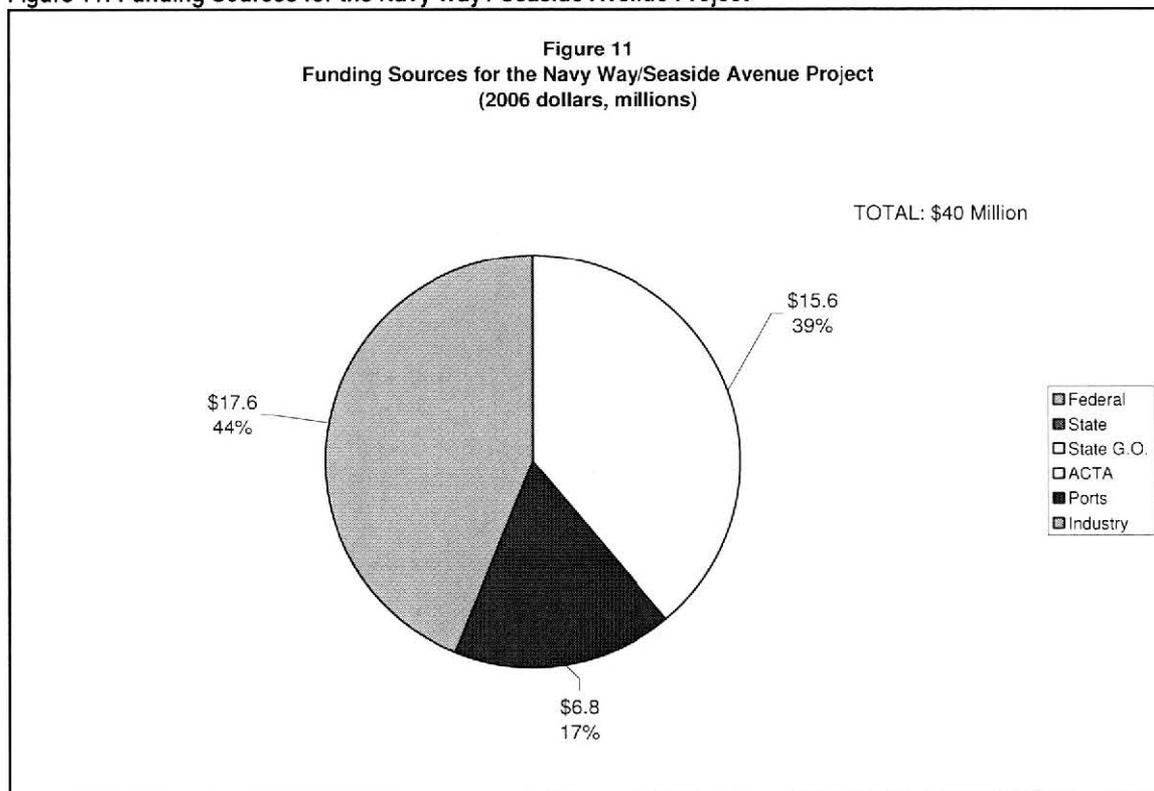


Figure 12: I-110 Connectors Project

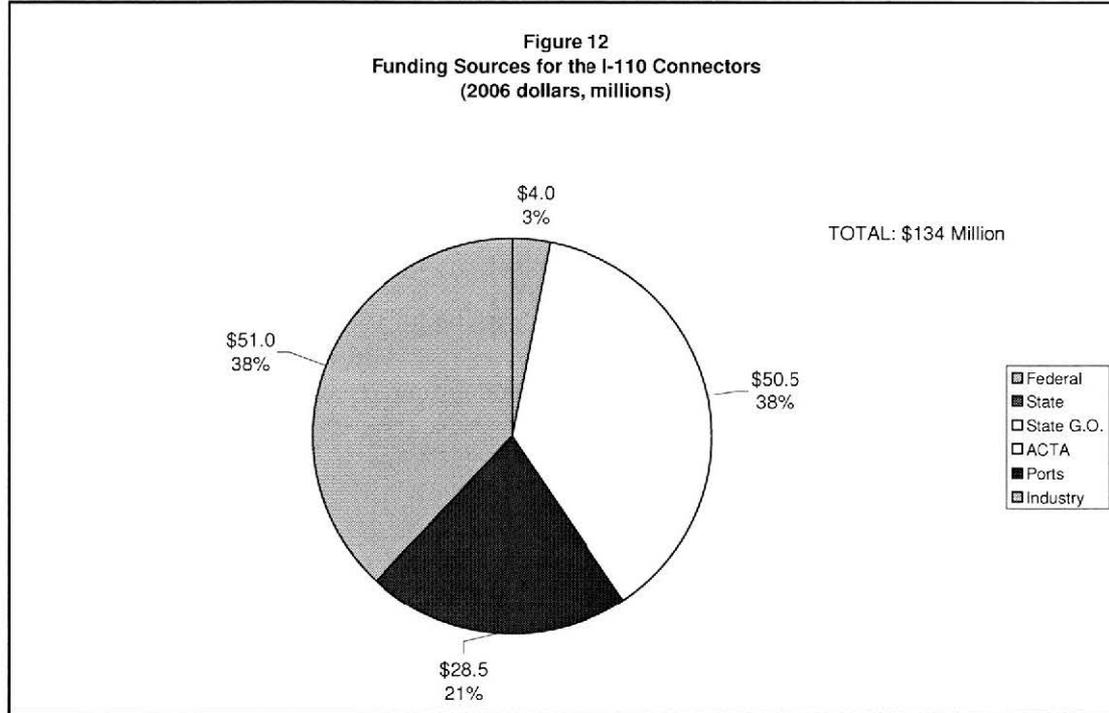


Figure 13: Funding Sources for the Ports Rail Systems

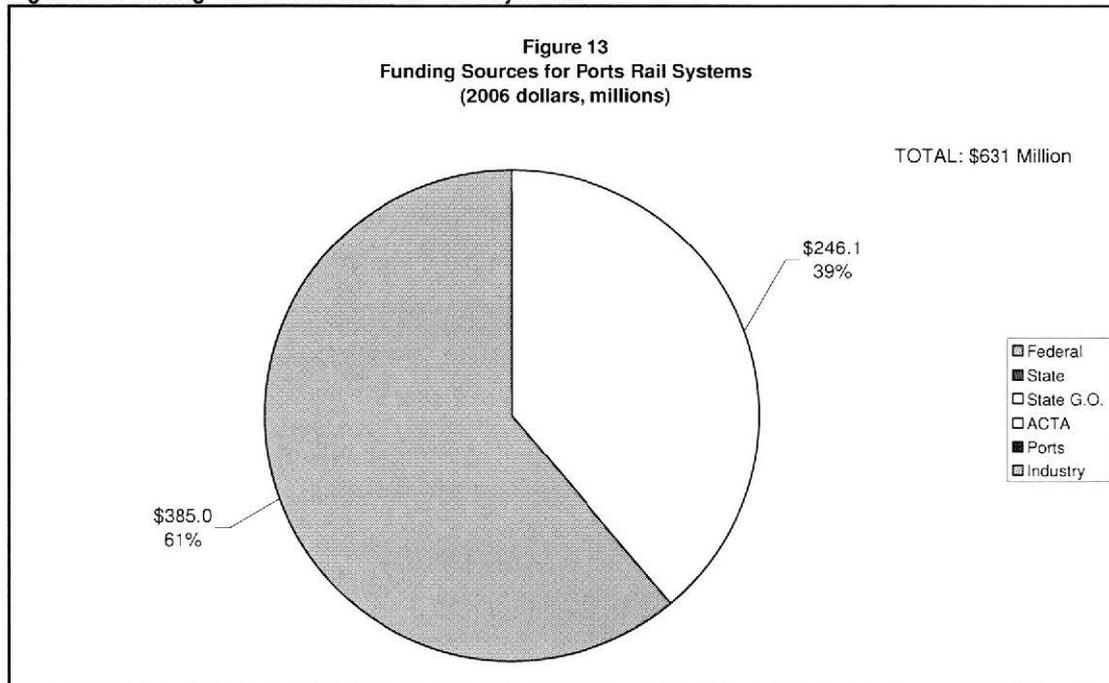


Figure 14: Funding Sources for I-10 from I-15 to Ford Street

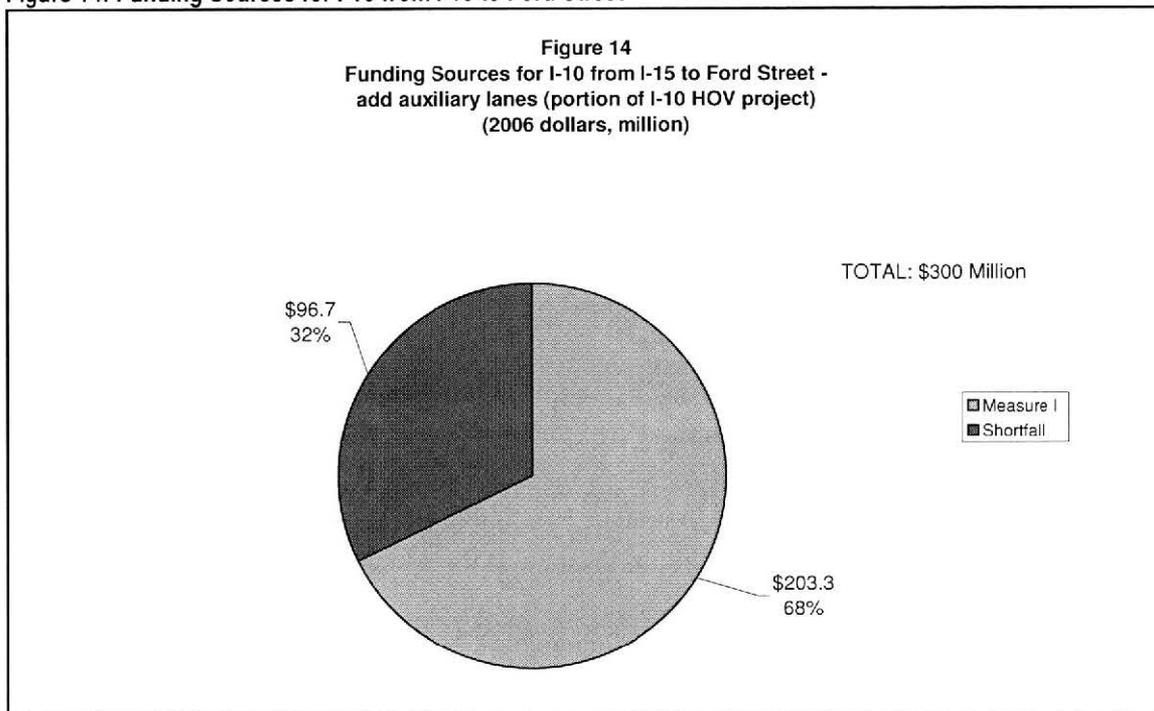
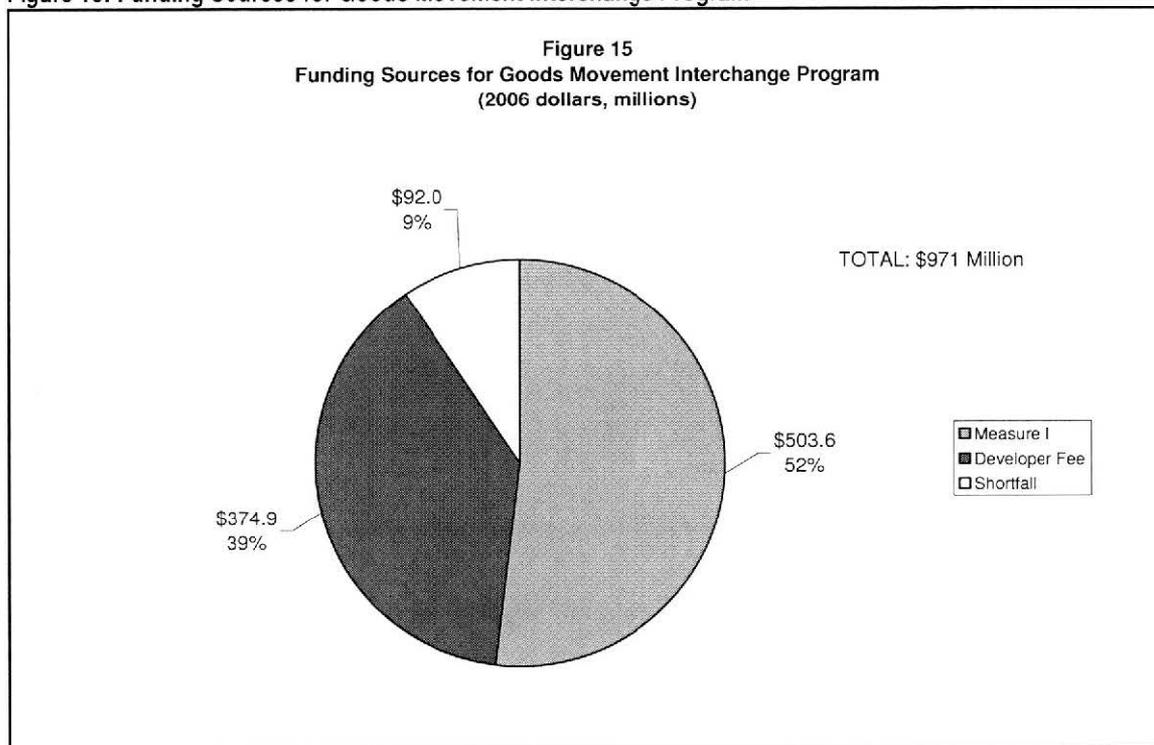


Figure 15: Funding Sources for Goods Movement Interchange Program



A substantial level of funding, from a variety of sources will be needed to incrementally implement the projects identified in this study. The following sections provide a menu of 45 potential funding sources that could be used to assist in implementing these projects. As shown in Appendix B, the funding sources are divided into six categories and represent a mixture of traditional funding sources and innovative sources: 1) Federal program; 2) State programs; 3) Regional programs; 4) Local programs; 5) User fees; and 6) Innovative Finance, Management of Funds, and Project Delivery Systems. These sources are discussed in greater detail following the table. Additionally, the project team has indicated which types of projects would likely be eligible for each source.

Finally, due the scarcity and competition for funding, as individual projects move forward it will be important for project sponsors to evaluate the strengths and weaknesses of a variety of funding sources. This will allow sponsors to target their efforts on those funding sources that will have the highest probability of success.

2.0 FEDERAL FUNDING SOURCES

This section describes the potential federal revenue sources that could be considered by project sponsors. The potential federal revenue sources include discretionary grant programs, formula grant programs, and financing programs from the US Department of Transportation; freight programs identified in SAFETEA-LU; and potential funding from the Department of Defense.

- 1) Discretionary programs: for these programs, the overall dollar amount for the program is authorized by Congress and funding is provided either in the form of earmarks or the responsible agency determines the projects to be funded based on evaluations. Discretionary programs include:
 - i) High Priority Project Earmark
 - ii) Projects of National and Regional Significance
 - iii) National Corridor Infrastructure Program
 - iv) Interstate Maintenance Program
 - v) Highway Bridge Program
 - vi) Transportation Improvement Projects
 - iv) Transportation, Community, and System Preservation Program
- 2) "Core" programs: these are formula based programs. Under FHWA Core programs, the state receives a certain percentage of available funds based on allocation measures such as population, lane-miles of Federal-aid highways, total vehicle-miles traveled on those Federal-aid highways, estimated contributions to the highway account of the highway trust fund; or lane miles. These are then sub-allocated to the metropolitan planning organizations and regional transportation planning agencies within the state. Core programs include:
 - i) FHWA Surface Transportation Program;
 - ii) FHWA Congestion Mitigation and Air Quality Program; and
- 3) Loan and Financing Programs: these programs provide secured loans, loan guarantees, and lines of credit from the Federal government for surface transportation infrastructure projects. Loan and financing programs include:

- i) Transportation Infrastructure Finance and Innovation Act (TIFIA) program;
- ii) Section 129 Loans; and
- iii) Railroad Rehabilitation and Improvement Financing
- 4) Freight specific programs identified in SAFETEA-LU:
 - i) Freight Intermodal Distribution Pilot Grant Program; and
 - ii) Capital Grants for Rail Line Relocation Projects
- 5) Department of Defense (DOD) Programs including
 - i) Department of Homeland (DHS) Security Preparedness and Recovery Preparedness
 - ii) DOB Railroads for National Defense Program
 - iii) Defense Access Roads
 - iv) Military Construction Funds
 - v) Critical Infrastructure Funds

The five program categories are described in greater below.

2.1 Federal Discretionary Programs

Earmarked funds ensure an identifiable funding stream and advantage for any identified project. Congressional earmarks - especially if they are contained in both House and Senate versions of the reports accompanying the Transportation Appropriations measures - carry the special intent of Congress which means that these projects move ahead of others in the funding queue. Thus, Congressional earmarks often indicate a money trail and preference for key projects.

The ability to secure federal demonstration funding for project sponsors will be dependent on strong local, regional and state support and financial participation. It would also be dependent upon the project partners making a strong case that their project is a high priority within the region and the state.

High Priority Project Earmark

Description

High Priority Projects earmarked to receive federal funding are for transportation projects of special importance to members of Congress. Guaranteed funding is made up of two parts: (1) discretionary spending that is protected by firewalls that effectively wall off specified amounts of highway and transit spending from other discretionary spending; and (2) for the highway program, small amounts of mandatory funding, that is, funding exempt from the obligation limitation (Emergency Relief and \$639.00 million per year of the minimum guarantee funding).

A potential source to project sponsors in the pending SAFETEA-LU reauthorization, the process is driven by House/Senate authorization committees every six years and by appropriation committees each year. Amounts available in SAFETEA-LU and in subsequent multi-year legislative reauthorizations of federal transportation programs are discretionary funds that can be earmarked with a positive impact to the project.

Depending on the specific federal program from which funds are earmarked, funding committed to earmarked projects may result in a reduction in the level of funding available for other projects in the State and/or the region. If earmarks are sizeable in total this could require deferral of other programmed or planned regional projects.

Federal earmarks are spread widely throughout the US in increments of various sizes. Earmarks are generally a small percent of the total project costs. Within the 1998-2003 6-year period of TEA-21, a total of approximately \$9.30 billion was earmarked for 1,850 High Priority Projects nationwide. The average amount earmarked per project was \$5.00 million, with funding spread over 6 years. Of the total number of projects nationwide, 154 projects were in California. Over the 6-year SAFETEA-LU reauthorization period, approximately 5,200 High Priority Project were identified with funding levels ranging from \$10,000 to \$100,000,000. There are 158 California High Priority Projects identified in SAFETEA-LU with funding levels ranging from a low of \$12,800 to a high of \$12.4 million. The project-specific annual earmarks range in size from a low of \$2,800 to a high of \$7.50 million.

Project Categories

High Priority Project earmarks could be used for highway, port and rail projects.

Projects of National and Regional Significance

Description

The Projects of National and Regional Significance (PNRS) program provides funding for high cost projects of national or regional importance. To be eligible for this funding source, a project must have a total eligible cost greater than or equal to the lesser of (1) \$500 million or (2) 75 percent of the amount of Federal highway funds apportioned to the State in which the project is located for the most recently completed fiscal year (estimated at \$337.5 million).

Eligible costs include development phase activities (including planning, feasibility analysis, revenue forecasting, environmental review, preliminary engineering and design work, and other preconstruction activities) and the costs of construction, reconstruction, rehabilitation, and acquisition of right-of-way, environmental mitigation, construction contingencies, acquisition of equipment, and operational improvements.

Applications for funding are solicited by the Secretary of Transportation and funding for projects is awarded competitively through an evaluation process modeled on the Federal Transit Administration (FTA) New Starts program. Projects are evaluated on the ability of the project to:

- generate national economic benefits;
- reduce congestion;
- improve transportation safety;
- enhance the national transportation system;
- garner support for non-Federal financial commitments and the degree to which Federal investment is leveraged;

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- provide evidence of stable and dependable financing for construction, maintenance, and operation of the facility;
- use new technologies that enhance project efficiency; and
- help maintain or protect the environment

Similar to the FTA New Starts process, projects that rank well against the evaluation criteria prove the projects have significant benefit in the eyes of FHWA and Congress, which means that these projects will likely move ahead of others in the funding queue.

Six of the twenty-five projects listed in SAFETEA-LU were from California and included the following: Bakersfield Beltway System (\$140 million); Roadway improvements in and around the former Norton Air Force Base as part of the Inland Empire Goods Movement Gateway project (\$55 million); Alameda Corridor East (\$125 million); Transbay Terminal (\$27 million); Gerald Desmond/I-710 Gateway Project (\$100 million); and the Sacramento Intermodal Station (\$3 million).

Project Categories

PNRS earmarks could be used for highway, port and rail projects.

National Corridor Infrastructure Improvement Program

Description

The National Corridor Infrastructure Improvement Program is a discretionary program that provides funding for construction of highway projects in corridors of national significance to promote economic growth and international or interregional trade.

Funding for projects will be awarded through a selection process conducted by the Secretary that:

- requires States to submit an application
- gives priority to projects in corridors that are part of, or will be part of, the Dwight D. Eisenhower National System of Interstate and Defense Highways after completion, and to projects that will be completed within 5 years of allocation of funds for the project.

Highway construction projects in corridors of national significance will be selected with consideration of the extent to which:

- the corridor links two existing segments of the Interstate System
- the project facilitates major multi-state or regional mobility, economic growth, and development in areas underserved by highway infrastructure
- commercial traffic in corridor has increased since enactment of NAFTA and where traffic is projected to increase in the future
- international truck-borne commodities movement through the corridor
- the project will reduce congestion on an existing segment of the Interstate
- the project will reduce commercial and other travel time through a major freight corridor

- Federal funds will be leveraged and the value of the cargo carried by commercial vehicle traffic in the corridor and the economic costs arising from congestion in the corridor

Project Categories

The National Corridor Infrastructure Improvement Program is available for highway related projects.

Interstate Maintenance Program

Description

The 46,000 mile Dwight D. Eisenhower National System of Interstate and Defense Highways retains a separate identity within the national highway system. The Interstate Maintenance (IM) program, established under ISTEA and continued in SAFETEA-LU, provides for the on-going work necessary to preserve and improve Interstate highways. This includes funding for resurfacing, restoring, rehabilitating and reconstructing (4R) most routes on the Interstate System.

Authorizations totaling \$25.2 billion are provided through 2009 which includes \$500 million of authorized funds available at the discretion of the Secretary for high-cost, ready-to-go IM projects.

There are no regulatory criteria for selection of IM discretionary projects; however, the following criteria are also considered in the evaluation of candidates for this program:

- Leveraging of private or other public funding - Because the annual requests for funding far exceed the available IMD funds, commitment of other funding sources to complement the requested IMD funds is an important factor.
- State priorities - For States that submit more than one project, consideration is given to the individual State's priorities.
- Expeditious completion of project - Preference is also given to requests that will expedite the completion of a viable project over requests for initial funding of a project that will require a long-term commitment of future IMD funding. For large-scale projects consideration is given to the State's total funding plan to expedite the completion of the project.
- Transportation benefits and advantages that will be derived upon completion of the project.

Each year, usually around March, a memorandum is sent from the FHWA Headquarters Office of Program Administration to the FHWA division offices requesting the submission of candidate projects for the following fiscal year's funding. The FHWA division offices provide this solicitation request to the State transportation departments, who are the only agencies that can submit candidates. The State transportation departments coordinate with local governments and Metropolitan Planning Organizations (MPOs) within their respective States in order to develop viable candidate projects. The State transportation departments submit the candidate applications to the FHWA division office in their state. After the FHWA division office has reviewed the submission and ensured that the submission and all applications meet submission requirements, the FHWA division office sends the applications to the Office of Program Administration in Headquarters. Candidate projects are due in FHWA Headquarters usually around the middle of July.

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The candidate project applications are reviewed and evaluated by the Office of Program Administration and an allocation plan is prepared for presentation of the candidate projects to the Office of the Federal Highway Administrator, where the final selection of projects for funding is made. The announcement of the selected projects and the allocation of funds are usually accomplished by the middle of November.

Seven California projects were included in the FY 06 IM Funding Program: Highway 156, Monterey County, \$500,000; I-10 Cypress Avenue Overcrossing, Fontana, \$1,000,000; I-15/Base Line Road Interchange, Rancho Cucamonga \$1,000,000; Reyes Adobe Interchange Project, Agoura Hills \$850,000; State Route 180 E Improvements, \$900,000; and Louise Avenue I-5 Interchange Improvements Project \$750,000.

Project Categories

The IM Program is available for highway related projects.

Highway Bridge Program

Description

The Highway Bridge Program provides funding to enable States to improve the condition of their highway bridges through replacement, rehabilitation, and systematic preventive maintenance. SAFETEA-LU no longer requires that the bridges be considered "significantly important". A total of \$21.6 billion is authorized for this program through 2009 to enable States to improve the condition of their eligible highway bridges over waterways, other topographical barriers, other highways and railroads. The requirement that each State spend at least 15% of its bridge apportionment for bridges on public roads that are not Federal-aid highways (off-system bridges) is retained, but the 35% cap is removed. The discretionary bridge program was funded only through 2005; beginning in 2006, \$100 million has been set aside annually to fund designated projects.

To be considered for this funding program, local agencies submit project applications and detailed eligible scopes of work and eligibility requirements. Caltrans evaluates the candidate projects for eligibility requirements and includes the successful candidate projects in the Highway Bridge Program and incorporated the projects into the Federal Transportation Improvement Plan (FTIP) and Federal Statewide Transportation Improvement Plan (FSTIP). Once their projects are in the FTIP and FSTIP, local agencies must request authorization to proceed according to the Local Assistance Procedures Manual to be eligible for project related cost reimbursement.

The federal reimbursement rate is 88.53% of the eligible participating project costs. Eligible project costs include: replacement, rehabilitation, painting, scour countermeasure, bridge approach barrier and railing replacement, low water crossing replacement, and ferry service replacement and also includes preliminary engineering and right of way costs.

Project Categories

The Highway Bridge Program is available for highway related projects.

Transportation Improvement Earmark

Description

The Transportation Improvements provision provides designated funding for specific projects identified in SAFETEA-LU. A total of 466 projects are identified, each with a specified amount of funding over the 5 years of SAFETEA-LU. For each project identified in SAFETEA-LU, the Secretary of Transportation will allocate a portion of the amount designated for that project: 10% in 2005, 20% for 2006, 25% for 2007, 25% for 2008 and 20% for 2009.

Examples of Southern California projects included in SAFETEA-LU under this funding program: Century Boulevard Pedestrian Safety and Transportation Improvements in City of Inglewood (\$3 million); Widen Northbound I-405 between I-10 and US-101 for HOV Lane (\$30 million); and Alameda Corridor East Construction Authority (\$30 million).

Project Categories

Transportation Improvements earmarks could be used for highway, port and rail projects.

Transportation, Community and System Preservation (TCSP) Program

Description

This competitive program provides earmarked funds for projects that integrate transportation, community, system preservation, and the environment

Activities funded under the TCSP Program must address and integrate each of the purposes of the program listed below:

- Improve the efficiency of the transportation system.
- Reduce the impacts of transportation on the environment.
- Reduce the need for costly future public infrastructure.
- Ensure efficient access to jobs, services and centers of trade.
- Encourage private sector development patterns.

Two grants are provided under this program: planning grants and implementation grants.

- Planning assistance under the TCSP Program is intended to provide financial resources to explore integrating their transportation programs with community preservation and environmental activities. Grants will be awarded for planning activities that will achieve this integration, meet the purposes of the program described above and are innovative.
- Implementation assistance under the TCSP Program is intended to provide financial resources to enable agencies to carry out activities that address transportation efficiency while meeting community preservation and environmental goals.

Priority will be given to applicants that have already instituted preservation or development programs and policies that:

- Qualify for Federal highway and transit funding (to be determined by FHWA);
- Coordinate with State and locally adopted preservation and development plans;
- Integrate transportation and community and system preservation practices;
- Promote investments in transportation infrastructure and transportation activities that minimize adverse environmental impacts and lower total life cycle costs; and/or
- Encourage private sector investments and innovative strategies that address the purposes of the TCSP Program.

In FY 2005 the TCSP program distributed grants totaling \$25 million among 39 projects. Within California, two projects received grants in the amount of \$212,000 and one project received an \$848,000 grant. Beginning in FY 2006, the TCSP program is authorized at \$61.25 million per year through FY 2009.

Project Categories

The TCSP is available for highway related projects.

2.2 Federal Formula Programs

Surface Transportation Program

Description

The Surface Transportation Program (STP) provides a flexible source of funds to be used on surface transportation infrastructure projects (except local streets and roads are currently not eligible). Additionally, SAFETEA-LU expands STP eligibilities to include advanced truck stop electrification systems, high accident/high congestion intersections, and environmental restoration and pollution abatement programs.

STP funds are provided through a transportation program administered by the FHWA and Caltrans. SAFETEA-LU legislation requires states to distribute STP funds in the following manner:

- 10 percent - Safety construction
- 10 percent - Transportation Enhancement Activities
- 50 percent - Regional STP, STP Local, and rural areas guaranteed return
- 30 percent - State discretionary

STP funds can be used for construction, reconstruction, rehabilitation, resurfacing, restoration and operational improvements for roads or highways and are programmed in the Interregional Transportation Improvement Plan (ITIP) and/or the Regional Transportation Improvement Plan (RTIP) by Caltrans and the regional transportation planning agencies respectively. STP funds are programmed in the State Transportation Improvement Program (STIP), with 75 percent programmed by the regional transportation

planning agencies and 25 percent programmed by Caltrans. As such, STP funds are considered under the State and Regional funding sources.

STP is discussed further under the State and Regional funding sources.

Project Categories

STP could be used for all transportation project categories

National Highway System Program

Description

The National Highway System (NHS) Program provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System and designated connections to major intermodal terminals.

The NHS is a 163,000-mile system of significant rural and urban roads serving major population centers, international border crossings, intermodal transportation facilities, and major travel destinations. The NHS Program provides funding for improvements to the Interstate System, other urban and rural principal arterials, highways that provide motor vehicle access between the NHS and major intermodal transportation facilities, the defense strategic highway network, and strategic highway network connectors.

SAFETEA-LU expands eligibility of NHS funding to include environmental restoration and pollution abatement to minimize the impact of transportation projects, control of noxious weeds and aquatic noxious weeds, and establishment of native species.

NHS funds are programmed in the STIP, with 75 percent programmed by the regional transportation planning agencies and 25 percent programmed by Caltrans. As such, NHS funds are considered under the State and Regional funding sources.

Project Categories

NHS funds are primarily used for highway projects

Highway Safety Improvements Program

Description

SAFETEA-LU authorized the creation of a new core Federal-aid funding program beginning in FY 2006. The goal of this program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads

As part of SAFETEA-LU, the highway safety improvement program (HSIP) was established as a core program, separately funded for the first time, with flexibility provided to allow States to target funds to their most critical safety needs. A total of \$5.1 billion is provided for 2006-2009. The HSIP requires States to develop and implement a strategic highway safety plan (SHSP) and submit annual reports to the Secretary of Transportation that describe at least 5 percent of their most hazardous locations, progress in

implementing highway safety improvement projects, and their effectiveness in reducing fatalities and injuries.

The SHSP will be used in the HSIP to identify and analyze highway safety problems and opportunities, include projects or strategies to address them, and evaluate the accuracy of data and the priority of proposed improvements. The SHSP must be based on accurate and timely safety data, consultation with safety stakeholders, and performance-based goals that address infrastructure and behavioral safety problems on all public roads. States are also required to develop an evaluation process to assess results and use the information to set priorities for highway safety improvements. States that do not develop a strategic plan by October 1, 2007, will be locked in at their FY 2007 HSIP apportionment level pending development of a plan. States with SHSPs have additional flexibility to use up to 10% of their HSIP funds for behavioral and other safety projects if they meet rail grade crossing and infrastructure safety needs as defined in their SHSPs.

Project Categories

SHSP funds are primarily used for highway projects

Congestion Mitigation and Air Quality Program

Description

The Congestion Mitigation and Air Quality (CMAQ) program provides a flexible funding source to State and local governments for transportation projects and programs that improve air quality and reduce congestion and help meet the requirements of the Clean Air Act. Federal funds are apportioned according to a formula based on population and severity of pollution in ozone and carbon monoxide areas. A number of projects identified in this report are considered key project in the region's air quality conformance plan. Funds are programmed at the discretion of the MPOs.

CMAQ funds are available for capital and O&M related activities. Projects classified as Transportation Control Measures (TCM) are eligible. TCM projects may be transit, high occupancy vehicle lanes, demand management programs, signal coordination, and bicycle facilities. O&M costs can be funded for up to three years.

Project Categories

CMAQ could be used for all transportation project categories

2.3 Federal Formula Programs

The Federal government can assist project sponsors in securing short and/or long term financing through the extension of credit assistance in the form of loans, loan guarantees, and letters of credit. The major federal credit assistance programs are provided through the Transportation Infrastructure Finance and Innovation Act, the Section 129 loan program, and the Railroad Rehabilitation and Improvement Financing Program.

Transportation Infrastructure Finance and Innovation Act

Description

The Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) was enacted as part of the Transportation Equity Act for the 21st Century (TEA-21), the predecessor to the Safe, Accountable, Flexible, Efficient Transportation Equity Act : A Legacy for Users (SAFETEA-LU), the current transportation authorization bill.

The TIFIA program provides project sponsors with secured loans, loan guarantees, and lines of credit from the Federal government for surface transportation infrastructure projects of national or regional significance. Under SAFETEA-LU, eligibility extends to any highway, transit or railroad project in excess of \$50 million in cost, and can include intermodal facilities, border crossing infrastructure, expansion of multi-State highway trade corridors, and other investments with regional and national benefits. The program leverages Federal funds by encouraging co-investment. TIFIA credit assistance cannot exceed 33 percent of total project funding. In addition, an objective of the TIFIA program is to encourage private sector participation in project financing.

The Secretary of U.S. Department of Transportation (U.S. DOT) selects the projects to receive TIFIA credit assistance through a competitive application process administered by the TIFIA Joint Program Office. TIFIA projects are selected on the basis of eight statutory criteria, including national or regional significance; creditworthiness; private participation; acceleration of project schedules; use of new technologies; reduction in the level of federal budget authority required for loans versus grants; environmental stewardship; and reduction of Federal grant assistance.

Over the 1999-2006 period in which TIFIA has been in existence, a total of \$10.6 billion in credit assistance has been made available through the program. Of this total, as of February 2006, a total of \$3.2 billion in credit assistance has been committed to 15 projects totaling \$12.6 billion in cost. The types of credit commitments consist of 12 projects with direct loans, two projects with a combination of direct loan and line of credit, and one project with a loan guarantee.

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Table 1 summarizes the types of revenues pledged for repayment of the user-backed financings and tax-backed financing proposed to be issued with TIFIA assistance. While revenues pledged for repayment of user-backed financings are principally from tolls, other forms of repayment include commercial lease payments, retail rents, and rental car customer facility charges. Revenues pledged for repayment of tax-based financings consist of various forms of state, county, and local taxes and multi-year revenue streams, including property, sales, and hotel taxes and fuel excise taxes.

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Table 1
Revenues Pledged for Repayment of TIFIA Financing

User-Backed Financings	Credit Instrument Type	Pledged Revenues
Miami Intermodal Center Rental Car Facility	Direct Loan	Rental Car Customer Facility Charges
State Route 125 Toll Road	Direct Loan	Facility Tolls
Farley Penn Station	Direct Loan and Line of Credit	Commercial Lease Payments / Retail Rents
Moynihan Station	Direct Loan and Line of Credit	Lease Income
Central Texas Turnpike	Direct Loan	Facility Tolls
San Francisco/Oakland Bay Bridge	Direct Loan	System-wide Facility Tolls
Wanwick Train Station	Direct Loan	User Charges
US 183 A Toll Road	Direct Loan	Facility Tolls
Louisiana 1 Elevated Toll Facility	Direct Loan	Facility Tolls
Tax-Backed Financings	Credit Instrument Type	Pledged Revenues
Miami Intermodal Center General Program	Direct Loan	State Fuels Excise Taxes
Washington Metro Capital Improvement Program	Loan Guarantee	Local Government Contributions
Tren Urbano, Puerto Rico	Direct Loan	Various Commonwealth Taxes
Cooper River Bridge	Direct Loan	State and County Contributions
Staten Island Ferries and Terminals	Direct Loan	Tobacco Settlement Payments
Reno Transportation Rail Access Corridor	Direct Loan	Local Taxes (Sales, Hotel, Property) and Assessment District Revenues

Source: <http://tifa.fhwa.dot.gov/projects.htm>, March 2007.

As noted in the *U.S. Department of Transportation: Transportation Infrastructure Finance and Innovation Act Report to Congress, June 2002*, the public policy underlying the TIFIA credit program is for the Federal government to supplement, but not supplant existing capital finance markets for large transportation infrastructure projects. Section 1502 of TEA-21 stated “a Federal credit program for projects of national significance can complement existing funding resources by filling market gaps, thereby leveraging substantial private co-investment.”

Because the TIFIA program offers credit assistance, rather than grant funding, its potential users are infrastructure projects capable of generating their own revenue streams through user charges or other dedicated sources of funding. The secured loans, loan guarantees, and lines of credit available through the TIFIA program can be used as an alternative to bonding and/or in combination with bonding.

Project Categories

TIFIA funds can be used on highway, freight rail, and port projects, including intermodal freight transfer facility projects. Projects must meet the applicable Federal grant funding rules, including planning, right-of-way acquisition, competitive procurement, and Buy America requirements.

Section 129 Loans

Description

The National Highway System Designation Act (NHS) established the Section 129 Loan Program as a mechanism to allow States to offer low interest loans to project sponsors. States can use their federal-aid highway apportionment funds for any Federal-aid highway project and can offer loans to either public or private project sponsors.

The Section 129 loan process includes the following activities:

- The State DOT identifies project(s) for a potential loan and the dedicated revenue source(s) for loan repayment;
- The State requests authorization of Federal-aid funding for the loan to the project and provides written assurance that a repayment pledge has been secured;
- The State negotiates a loan repayment schedule and terms with the project sponsor;
- FHWA determines if requirements are met, then approves the project for a loan and executes a project agreement;
- The State DOT makes the loan to the project sponsor;
- The State obligates the funds and receives the Federal share of the loan;
- The project sponsor (borrower) repays the loan on an approved schedule; and
- The State uses the loan repayments to make grants or loans to other eligible projects

Loans can provide funding for up to 80 percent of the total project costs as long as the State can document that sufficient funds have been secured for loan repayment. The loan's interest rate is determined by the State but the rates must be below the market rate and the project must receive a financial benefit.

Loan repayment to the State by project sponsors must begin within five years following the project being completed. The total loan must be repaid within 30 years from the date Federal funds were authorized. Two additional requirements on the project sponsors include: 1) committing dedicated revenue source funds to repay the loan; and 2) not being allowed to use federal funds for loan repayment. Dedicated revenue sources for sponsors may include but not be limited to tolls, excise taxes, sales taxes, property taxes, motor vehicle taxes, and/or other beneficiary fees.

Among the benefits of the Section 129 Loan Program are:

- States have an opportunity for the funds to be recycled and re-used in the transportation system through a process where federal-aid highway funds are lent out, repaid by project revenues and then recycled on other projects; and
- States can subordinate Section 129 Loans and give investors and bondholder first lien on the project revenues. This subordination improves debt service coverage owed and acts as a credit enhancement.

There has been limited use of Section 129 loans by project sponsors. One key reason is the competition from the TIFIA program described previously. TIFIA created a federally administered credit opportunity and, more importantly, a new revenue source for the same kinds of projects that would likely use Section 129 loans. Additionally, SAFTEA-LU's reduction of TIFIA's minimal threshold for projects to \$50 million makes the Section 129 Loan program less competitive. However, for projects that do not fit the requirements of the TIFIA program, Section 129 Loans remain a good alternative. For example, the George Bush Turnpike in Dallas used a Section 129 loan to overcome significant financial barriers and resulted in the project being completed over a decade sooner than would have been possible under traditional pay-as-you-go financing.

Project Categories

Traditionally, Section 129 Loans have been considered for highway projects. However, the FHWA Resource Center also noted that the Environmental Protection Agency is interested in using this program to support truck rest-stop idling services. Eligible project costs include: engineering; right-of-way acquisition, and construction, as long as the costs are incurred after FHWA authorizes the loan.

Railroad Rehabilitation and Improvement Financing (RRIF) Program

Description

The RRIF program provides financial assistance in the form of direct loans or loan guarantees to eligible participants for the purpose of: 1) acquiring, improving, or rehabilitating intermodal, rail freight, passenger equipment or facilities, including track, components of track, bridges, yards, building or shops; 2) to refinance outstanding debt incurred for these purposes; or 3) to develop or establish new intermodal or rail facilities.

Direct loans can be made for up to 100% of the total project cost, for terms up to 25 years at an interest rate equal to the cost of borrowing for a comparable term based on the current Treasury rate at the time of closing. Loan guarantees can be made up to 80% of the cost of a loan, for terms up to 25 years, at a rate the Secretary determines reasonable taking into account prevailing interest rates and customary fees incurred under similar obligations in the private capital market.

Additionally, the following changes included in SAFETEA-LU amended the RRIF program:

- **Expansion of eligible applicants:** SAFETEA-LU expanded the type of entities eligible for the RRIF program to include limited option shippers and commuter railroads.
- **Expansion of the list of projects to be given priority consideration:** SAFETEA-LU added to the list of eligible projects to include those that "enhance service and capacity in the national rail system" and "would materially alleviate rail capacity problems which degrade the provision of service to shippers and would fulfill the need in the national transportation system." These two types of projects were included to address congestion on the nationally important rail lines.
- **Expanding RRIF assistance levels:** SAFETEA-LU expanded the total authority for outstanding RRIF financial assistance from \$3.5 billion to \$35 billion and amount reserved for small and

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regional railroads increased from \$1 billion to \$7 billion. Additionally, the Secretary may not establish a limit on the amount that could be used for one direct loan or loan guarantee.

- **Requirement for Collateral:** SAFETEA-LU provides that the Secretary may not require an applicant to provide collateral and that any collateral provided be valued at going concern value after giving effect to the present value of the improvement.

Table 2 summarizes the RRIF loan agreements that have been provided since 2002.

Table 2
Summary of Railroad Rehabilitation and Improvement Financing Program Agreements

Organization	Year	Amount
Iowa Northern Railroad	2006	\$25.5 million
Wheeling & Lake Erie Railway	2006	\$14 million
Iowa Interstate Railroad	2006	\$9.35 million
Great Smoky Mountains Railroad	2005	\$7.5 million
Riverport Railroad	2005	\$5.5 million
The Montreal, Maine & Atlantic Railway	2005	\$34 million
Tex-Mex Railroad	2005	\$50 million
Iowa Interstate Railroad	2005	\$32.7 million
Stillwater Central Railroad	2004	\$4.6 million
Wheeling & Lake Erie Railway	2004	\$25 million
Arkansas & Missouri Railroad	2003	\$11 million
Nashville and Western Railroad	2003	\$2.3 million
Dakota, Minnesota & Eastern Railroad	2003	\$233 million
Amtrak	2002	\$100 million
Mount Hood Railroad	2002	\$2.07 million

Source: <http://www.fra.dot.gov/us/content/177>, March 2007.

2.4 Freight Programs in SAFETEA-LU

Freight Intermodal Distribution Pilot Grant Program

Description

SAFETEA-LU establishes a new program to facilitate and support intermodal freight transportation initiatives at the State and local levels to relieve congestion and improve safety; and to provide capital funding to address infrastructure and freight distribution needs at inland ports and intermodal freight facilities. Eligible projects from this program would include those that help relieve congestion, improve transportation safety, facilitate international trade, and encourage public/private partnership. Also eligible are projects for the development and construction of intermodal freight distribution and transfer facilities at inland ports.

In selecting projects for grants, the Secretary of DOT gives priority to projects that will:

- b) reduce congestion into and out of international ports located in the United States;
- c) demonstrate ways to increase the likelihood that freight container movements involve freight containers carrying goods; and
- d) establish or expand intermodal facilities that encourage the development of inland freight distribution centers.

SAFETEA-LU provided \$30 million over 5 years (2005-2009) for 6 designated projects: (A) Short-haul intermodal projects, Oregon, \$5,000,000; (B) The Georgia Port Authority, \$5,000,000; (C) The ports of Los Angeles and Long Beach, California, \$5,000,000; (D) Fairbanks, Alaska, \$5,000,000; (E) Charlotte Douglas International Airport Freight Intermodal Facility, North Carolina, \$5,000,000; (F) South Piedmont Freight Intermodal Center, North Carolina, \$5,000,000.

Capital Grants for Rail Line Relocation Projects

Description

SAFETEA-LU establishes a new capital grants program for local rail line relocation and improvement projects. A State is eligible for a grant for any construction project for the improvement of the route or structure of a rail line that either is carried out for the purpose of mitigating the adverse effects of rail traffic on safety, motor vehicle traffic flow, community quality of life, or economic development; or involves a lateral or vertical relocation of any portion of the rail line.

The Secretary of DOT considers the following factors when determining if a state is eligible for this grant program:

- (1) The capability of the State to fund the rail line relocation project without Federal grant funding.
- (2) Equitable treatment of the various regions of the United States.

- (3) The effects of the rail line, relocated or improved as proposed, on motor vehicle and pedestrian traffic, safety, community quality of life, and area commerce.
- (4) The effects of the rail line, relocated as proposed, on the freight and passenger rail operations on the rail line.

Approximately \$350 million per year (2006-2009) is available with a \$20 million maximum grant for a project.

2.5 Department of Defense

DHS Preparedness and Recovery Preparedness Grant Program

Description

The Department of Homeland Security has targeted six critical areas for funding: intelligence and warning, border and transportation security, domestic counterterrorism, protecting critical infrastructure, defending against catastrophic terrorism, and emergency preparedness and response. The mission areas focus on preventing terrorist attacks, reducing National vulnerabilities, and on minimizing the damage and maximizing recovery from attacks that do occur. The mission areas provide a framework for aligning the resources of the federal budget directly to the task of securing the homeland.

Of potential relevance to the rail and highway projects included in this report are the protecting critical infrastructure and emergency preparedness and response components of the six targeted areas identified by the Department of Homeland Security.

As determined by the Secretary of Homeland Security, the Preparedness and Recovery Preparedness Discretionary grant program was provided \$1.15 billion in grant to state and local agencies in FY 2006. Of this total, \$765,000,000 was to be used in high-threat, high density urban areas; \$175,000,000 will be for port security grants; and \$150,000,000 will be for intercity passenger rail transportation, freight rail, and transit security grants.

Project Categories

DHS discretionary grants could be used for all transportation projects.

DOD Railroads for National Defense Program

Description

Under Department of Defense Directive 4510.11, the Department of Defense established a special program to identify and protect commercial railroad infrastructure important for defense purposes. The program is administered by the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA). SDDCTEA's mission is to "provide the DOD with the research, engineering, and analytical expertise to improve the deployability of U.S. Armed Forces, the transportability of military equipment, the infrastructure of the defense transportation system, and the management and execution of the DOD transportation programs for national defense." Under this program, DOD assures that its civil and commercial sector rail requirements are met, including:

- Identify and protect the civil rail lines important for movements in peace and war;
- Assist the military services in identifying installations that require rail service;
- Work with FRA, State rail planners, installations, and the commercial rail carriers in developing and coordinating the Strategic Rail Corridor Network (STRACNET) and STRACNET connector lines;
- Develop and publish the STRACNET Report; and
- Work to ensure that necessary commercial rail infrastructure is in place for rapid rail deployment capability from designated power projection platform installations.

DOD funding from this program would be considered annually through the Military Construction (MILCON) appropriations bills considered by Congress and proposed by the Administration.

Project Categories

This program could be used for rail projects only.

3.0 STATE FUNDING SOURCES

Four state funding programs were considered as potential sources for projects listed in this report: the Interregional Improvement Program component of the State Transportation Improvement Program (STIP), Grant Anticipation Revenue Vehicle (GARVEE) bonds, proceeds from the State infrastructure bonding, and the Transportation Finance Bank Revolving Loan Program. As well, there are over \$2 billion in goods movement infrastructure projects recommended for funding through the Trade Corridor Improvement Fund Program (TCIF). Refer to Appendix D for more information and the list of projects nominated for funding through the TCIF.

STIP: Interregional Transportation Improvement Program

Description

The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System. The STIP is funded primarily from the State Highway Account, whose principal sources of funds are excise taxes on motor-vehicle fuels, commercial-vehicle weight fees, and funds from the federal Core programs. This account commits major resources for improving the interregional road system, providing highway safety, and ensuring the efficient operation of the state transportation system.

The CTC adopts the Caltrans five-year estimate of available funds for transportation projects. The Commission schedules most of the State's new transportation projects through the STIP prioritization process, which allows regional agencies and Caltrans to participate. As reflected in the 2006 STIP Guidelines, the CTC has adopted a specific list of performance indicators and measures to assist regional agencies in the quantitative and qualitative evaluation of candidate STIP projects.

STIP capital improvement funding goes to two broad programs: 75 percent of the funding goes to the Regional Improvement Program (see the Regional Sources section below) and 25 percent goes to the Interregional Transportation Improvement Program (ITIP). California state law further subdivides the funding

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for both the regional program and a portion of the interregional program by formula into county shares. For the ITIP, Caltrans recommends projects, with input from the regional agencies.

The over-arching theme of the ITIP is to provide "funding for projects to improve the interregional movement of people and goods to and through urbanized areas. The Interregional Transportation Strategic Plan (ITSP) serves as a guide to be used in programming ITIP funds for completion of key portions of the freeway and expressway system and the intercity passenger rail program. Key program themes are:

- Complete the ITSP focus routes;
- Reduce congestion and promote livable communities;
- Improve goods movement; and
- Encourage rural funding partnerships.

As noted above, Caltrans is the responsible agency for prioritizing and programming the 25 percent of STIP funds that comprise the ITIP. Based on the policies and guidelines for ITIP, 60 percent of the ITIP funds are required to be used for interregional roads that are outside the boundaries of urbanized areas with a population of more than 50,000 and for inter-city rail projects. A minimum of 15 percent of these funds (or 9 percent of the entire ITIP) must be used for intercity rail improvements, including grade separation projects.

The remaining 40 percent of the ITIP funds can be for projects that are needed to facilitate the interregional movement of people and goods, including state highway, intercity passenger rail, mass transit guideway, or grade separation projects in either urbanized or non-urbanized areas. Of the 40 percent from the original 25/75 split, 40 percent goes to County Group 1 (the 45 Northern California Counties), and 60 percent goes to County Group 2 (the 13 Southern California Counties). These percents are formula-based: 75 percent is based on county population in relationship to the county group's population, and 25 percent is based on state highway miles in relation to the county group's state highway miles. Thus, the maximum level of funding available statewide provides a ceiling on the level of interregional funds the projects any one county may receive in any one year.

Based on the April 2006 California Transportation Commission Staff Recommendations, two new programming years, 2009-10 and 2010-11, were added to the STIP with over \$1.9 billion in new capacity. The 2006 STIP differed from prior STIPs in that it required the programming of projects in three distinct categories, reflecting the restrictions on two of its major funding sources. The new capacity includes about \$455 million for highway projects, \$1.355 billion for rail and transit projects, and \$116 million for transportation enhancement (TE) projects. The most serious challenge facing the Commission is that project nominations from Caltrans and regional agencies far exceeded the available capacity for highway projects. The Commission's adoption of the 2006 STIP left about \$780 million in highway proposals out of the STIP while \$730 million in rail and transit capacity remained unprogrammed, subject to future STIP amendments.

Project Categories

ITIP funds could be used for all transportation projects.

Grant Anticipation Revenue Vehicle (GARVEE) Bond Program

Description

The State of California has the legal capacity to use GARVEE bond financing to infuse funds into transportation in the near term. GARVEE bonds are tax-exempt debt instruments where future federal-aid highway funds in the State Highway Account are pledged to meet debt service requirements on bonds issued to fund transportation projects. GARVEE bonds are issued by the State and backed by annual federal appropriations for federal-aid transportation projects. In authorizing the use of GARVEE financing in California, the State Legislature intended to accelerate the funding and construction of critical transportation infrastructure projects and provide congestion relief benefits to the public significantly sooner than would be possible using pay-as-you-go traditional funding mechanisms.

By State policy, annual GARVEE debt service is limited to 15 percent of total federal revenues deposited in the State Highway Account for any consecutive 12-month period within the preceding 24 months. Each bond must be structured for debt service payments over a term of no more than 12 years.

The California Transportation Commission has the authority to select projects for accelerated construction through the use of GARVEE bonding. The selection would be through the programming process for the STIP and the State Highway Operation and Protection Program (SHOPP). The projects with the most potential for GARVEE funding are major improvements to corridors and gateways for interregional travel and goods movement. Major improvements include projects that increase capacity, reduce travel times, or provide long-life rehabilitation of key bridges or roadways.

The use of GARVEE bond financing was the result of the State's fiscal situation that severely restricted the level of ITIP (and RTIP) funding prior to 2004. On March 10, 2004, the State issued \$657,713,000 State of California (California Department of Transportation) Federal Highway Grant Anticipation Bonds Series 2004A, the first and only issuance of GARVEE obligations to date. The bond proceeds are being used to pay a portion of the costs of acquisition of right-of-way and/or construction for eight projects approved by the CTC for funding.

Until the passage of the 2007 State Budget, the State's transportation funding situation continued to be significantly impaired due to General Fund loans, transfers of transportation funds out of the program, and other factors intended to improve the State's overall General Fund condition. Due to the lack of transportation funds, GARVEE bond financing was suspended until federally-required State matching funds could be identified. With the 2007 Budget, some of the transportation funding borrowed by the State will be repaid, however there were no GARVEEs issued.

Project Categories

If available, GARVEE funds could be used for all transportation projects.

Transportation Finance Bank (TFB) Revolving Loan Program

Description

The TFB Revolving Loan Program was implemented to provide flexible, short-term financing to public entities and public/private partnerships for the purpose of accelerating the delivery of transportation projects in California. The program was initiated in 1998 as one of the State Infrastructure Banks (SIB) authorized in

TEA-21, and was capitalized with \$3 million in federal funding. With no activities in the program, in 2002 Caltrans initiated state legislation (AB2996, Chapter 805, Statutes of 2002) to take over responsibility for the program from the California Technology, Trade, and Commerce Agency. Caltrans developed guidelines and loan application documents which were approved by the CTC in January 2003.

Loans are available to local public entities and public/private partnerships. Any local transportation planning agency or county transportation commission may apply for a loan. Additionally, projects must be included in a Federal State Transportation Improvement Program (FSTIP) and must comply with all other Federal requirements, including National Environmental Policy Act, Americans with Disabilities Act, and Davis-Bacon Act requirements, as appropriate. Loans are available for any phase of an eligible project, but funding will be provided only for authorized expenditures incurred after the Commission has approved the loan.

Other requirements include but are not limited to, the following:

- The borrower must agree to provide collateral in the form of a pledge of county share allocations.
- The borrower will be solely responsible for ensuring that the project is in compliance with all applicable federal, state, and local laws, rules, regulations, and/or policies.
- The borrower must provide a financial plan for each project containing the required financial information.
- The borrower must demonstrate that the project has a high probability of resulting in a completed facility.

Under the initial guidelines for the TFB, loan amounts could not be less than \$300,000 or over \$1 million, with a maximum loan term of 6 years. While the program has not been active, it could potentially be reactivated with improvements in the status of the State's transportation revenues.

Project Categories

If available, TFB funds could be used for all transportation projects.

State Infrastructure Bonding and GoCalifornia Program

Description

Governor Schwarzenegger has proposed the Strategic Growth Plan, part of which is a historic comprehensive transportation investment package that incorporates GoCalifornia, a mobility action plan designed to decrease congestion, improve travel times, and increase safety. The Governor's Strategic Growth Plan for transportation proposed to reduce congestion below today's levels while accommodating future transportation demands from growth in the population and the economy. This would be done by both deploying demand management strategies that change how and when people drive and building new capacity to increase "throughput" in the system. It would improve mobility and accessibility to move people, goods, and services through a comprehensive, integrated, multimodal, world class transportation system. This effort would require innovation in transportation planning, construction and management, sustained coordination among regional transportation agencies and the state, and dedicated funding.

The Governor's GoCalifornia plan identified over \$100 billion in transportation improvements to be funded through a combination of sources including but not limited to: Proposition 42 funds, general obligation

bonds, GARVEE bonds, revenue bonds, existing and planned local sales tax measures, public-private partnerships and increased federal funding.

As part of the funding for the Governor's GoCalifornia Program, on November 7, 2006 voters statewide approved four bond measures. Of the four, Proposition 1B provides \$19.925 billion for transportation and could be a significant state funding source for the many of the projects identified in this report. The \$19.925 billion Transportation and Air Quality Bond Package includes the following components:

- **Corridor Mobility Improvement Account (CMIA)** - \$4.5 billion will be deposited in the CMIA to be available to the CTC, upon appropriation in the annual Budget Bill by the Legislature, for allocation for performance improvements on the state highway system or major access routes to the state highway system.
- **Trade Corridor Improvement Fund** - \$2.0 billion will be deposited in this fund, available to the CTC upon appropriation in the annual Budget Bill by the Legislature and subject to such conditions and criteria as the Legislature may provide by statute, for infrastructure improvements along federally designated "Trade Corridors of National Significance" in this state or along other corridors within this state that have a high volume of freight movement. The CTC is to consult the Trade Infrastructure and Goods Movement Plan, trade infrastructure and goods movement plans adopted by regional transportation planning agencies, regional transportation plans, and Cal-MITSAC Statewide Port Master Plan.
- **STIP Augmentation** - Proposition 1B authorized \$2.0 billion in general obligation bond proceeds to be available for projects in the STIP to augment funds otherwise available for the STIP from other sources. Under the Bond Act, the funds will be deposited in the newly created Transportation Facilities Account (TFA) and will be available, upon appropriation by the Legislature, in the same manner as other STIP funds.
- **State - Local Partnership Program Account** - The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, approved by the voters as Proposition 1B on November 7, 2006, includes \$1.0 billion to be deposited into the newly created program. The funds will be available to the California Transportation Commission, upon appropriation by the Legislature and subject to such conditions and criteria as the Legislature may provide by statute, for allocation over a five-year period to eligible transportation projects nominated by an applicant transportation agency. A dollar for dollar match of local funds is required for an applicant transportation agency to receive state funds under this program.
- **SHOPP** - \$750.0 million will be deposited in the newly created Highway Safety, Rehabilitation, and Preservation Account for highway safety, rehabilitation, and pavement preservation projects. Of this, \$250.0 million will be available for traffic light synchronization projects or other technology-based improvements to improve safety operations and the capacity of local streets and roads. Funds will be available to the Caltrans upon appropriation by the Legislature, for the purposes of the state highway operation and protection program.

Project Categories

State infrastructure bonds could be used for all transportation projects.

California Public Utilities Commission Section 130 Program

Description

The Section 130 Program provides federal funds to improve safety at existing at-grade highway-rail crossings. The purpose of Section 130 Program is to reduce the number, severity and potential of hazards to motorists, bicyclists, and pedestrians at highway-rail at-grade crossings.

The Section 130 program is a cooperative effort between the FHWA, Caltrans, California Public Utilities Commission (CPUC, or the Commission), railroad companies and local agencies. FHWA delegated the authority to manage this program to Caltrans in cooperation with the California Public Utilities Commission.

Crossings are selected for inclusion in the state wide funding list based on their hazard potential. There are a number of sources the Commission staff uses to target crossings that present a high hazard potential. These include the FRA's Web Accident Prediction System, the Commission's database to identify crossings with multiple accidents, local agencies, and railroads.

Commission staff reviews each targeted crossing. The review determines which crossings are considered for Section 130 funds. This is based upon such factors as the federal program requirements, eligibility criteria, and if there are improvements which can be made to reduce hazards that are covered by the Section 130 program.

An in depth diagnostic review is conducted for each crossing that will be considered for Section 130 funds. These crossings are then given a priority ranking based on several factors, including the U.S. DOT Accident Prediction Formula. Due to the finite amount of funding, the final priority list is created based on the highest ranking crossings. Commission staff provides the final priority list to Caltrans. Caltrans develops a funding schedule and solicits plans, specifications, and cost estimates (PS&E) for the scheduled projects. Upon approval of the PS&E, Caltrans will enter into a construction contract agreement with the railroad, and as necessary, the local agency. Caltrans uses the final priority list to allocate funding in order of priority.

All projects with improvements to only warning devices, illumination of the crossing, and signals may be funded 100% under the Section 130 Program. For projects that include safety improvements beyond that scope, the Section 130 Program may fund 90% of the total project cost. The city or the county may be required to pay the remaining 10% of the total cost. The railroad can voluntarily pay the local agency's 10% share.

Two or more crossings that are located within the electronic advance warning circuitry limits are considered a corridor project. PUC staff will not initially nominate corridor projects, as they require a greater commitment from the railroad or local agency. Corridor projects are limited to a maximum coverage of \$1 million, and generally require a larger percentage match in funding by the railroad or local agency. New corridor projects will only be approved by joint agreement with Caltrans, the Commission, and the local agency/railroad.

FHWA provides approximately \$10 million annual for the State's Section 130 Program to fund improvements to the over 11,000 public grade crossings statewide. On an annual basis, between 20-30 crossing improvements are selected from a screened priority list of over 100 candidate projects. Under SAFETEA-LU, the Section 130 Program will continue as part of the State's larger Strategic Highway Safety Program.

Project Categories

Section 130 funds could be used for highway and rail projects.

California Public Utilities Commission Section 190 Program

Description

Under the California Streets and Highways Code Section 190, \$15 million is budgeted annually from the State Highway Account for grade separations statewide. The Section 190 Program provides funds to public agencies to grade-separate existing at-grade crossings, eliminate existing at-grade crossings, and improve existing grade-separated crossings.

Under Streets and Highways Code Section 2452, the California Public Utilities Commission is responsible for establishing and applying the criteria and formula used to prioritize projects nominated for grade separation or alternation. The criteria in the formula weigh vehicular and train volumes at crossing, project cost, accident history, delay caused by trains, sightlines along the crossing approaches, angle of the tracks to the roadway, and other factors.

As the process works, on a bi-annual basis, interested local agencies submit nominations to the CPUC with the data required for project evaluation. The Commission reviews the projects, holds public hearings, solicits testimony from applicants, and establishes a Grade Separation Priority List. After the Commission issues the Priority List, Caltrans accepts funding applications on or before April 1 of each fiscal year. While the priority list ranking is an important factor in whether a project is selected for funding, there are other factors that affect the decision. Projects must have completed design and environmental review, have a maintenance agreement with the host railroad, and have the local funding share committed. As a result, projects selected for funding may rank at the top of the priority list or at 50 or below.

A total of \$15 million is available annually from the Section 190 Program. This level of funding has remained unchanged for over 20 years, despite various legislative efforts to increase it. Theoretically, an allocation may be up to 80 percent of the estimated cost to eliminate an existing crossing or reconstruct an existing grade separation. For a grade separation of a proposed new crossing, an allocation can be 50 percent of the project cost, with 50 percent from the local agency. However, an allocation to a project may not exceed \$5 million from any one fiscal year. Cumulative allocations to any one project may not exceed \$20 million over a multi-year period, not to exceed five years. Further, an agency that has received an allocation greater than \$5 million is not eligible for an allocation for another project for a period of 10 years.

Project Categories

Section 130 funds could be used for highway and rail projects.

4.0 LOCAL FUNDING SOURCES

Two local funding programs categories were considered as potential sources for projects listed in this report: Value Capture Mechanisms (impact fees, assessment districts, and tax increment financing) and generation of project revenue (joint development, utility easement and leases, and naming rights).

Value Capture Mechanisms

Description

Value capture mechanisms provide the public sector the ability to capture some of the increased value - typically property value - that results from a transportation project. Without local government efforts to capture this value, the windfall accrues to private landowners. Examples include:

- A new freeway or interchange may increase the value of adjacent properties by improving access;
- Traffic calming investments on a local street may boost residential property values by reducing through traffic; and
- Implementation of a transit stations may create or improve the market for adjacent development.

The most common value capture mechanisms include: development impact fees; special assessment districts; and tax increment finance districts. Depending on the transportation project, the amounts recovered from these mechanisms may range from the partial payment of initial capital costs or partial operating cost payments to full repayment of capital costs and operating expenditures.

- **Development Impact Fees** are charges assessed by the public sector against developing property to recover the cost incurred to provide the transportation facilities required to serve the new or expanded development. The local government examines the proposed development, identifies what capital improvements are needed to sustain the desired level of service, and charges the developer a fee to cover a portion of the cost of the needed improvements. These fees are generally one-time cash payments. The developer of a proposed project pays the impact fee, which may in turn be passed on to the purchaser of the developed property.
- **Special Assessment Districts** are authorized in all 50 states either under explicit enabling legislation or under state constitutional provisions primarily to finance transportation facilities that provide local benefits. These districts cannot be used to finance facilities that provide general, community-wide benefits and as a result special assessments are not a viable alternative to finance major components of the regional transportation system.

However, many state legislatures have passed new enabling legislation that allows special assessment districts to finance a broader range of facilities than in the past. These districts often go by such names as improvement districts, road districts, metropolitan districts, and building authorities.

The greatest problem in using special assessment districts to finance regional transportation improvements is that it is difficult to establish a district that includes all those who benefit while excluding those who do not benefit. Special assessment districts are most successful in financing closed systems such as water and sewer systems.

- **Tax Increment Financing (TIF)** Tax increment financing (TIF) is a type of financing whereby municipalities can obtain in the present the fiscal benefit of future increases in the tax base by issuing bonds. TIFs are used primarily to fund redevelopment in blighted or underutilized areas. Under this method of financing, public improvements are financed by establishing an assessed value base in a project area at pre-project levels and dedicating the increment in property values for the repayment of bonds. The assessed valuation of property within the redevelopment area is determined as of a particular date, and is referred to as the frozen base assessed value. After the bonds are sold and redevelopment occurs, the assessed valuation in the project area generally rises, thus resulting in additional ad valorem revenues being generated within the project area. The difference in ad valorem

tax revenue received before and after the redevelopment is referred to as the tax increment. This revenue is paid into a special fund and used for repayment of tax allocation bonds, or bonds which are repaid through the dedication of tax increments. Only revenues above and beyond what would have been collected from the property owners under the base year assessed valuation are diverted into the repayment fund. When the bonds are fully repaid from the captured tax increments, the allocation to the special fund terminates, and the full value of the ad valorem taxes are disbursed to the involved taxing authorities.

Project Categories

Value capture mechanisms can be used to contribute funding for the capital cost of most transportation modes.

Generation of Project Revenues

Description

The most common mechanisms to generate project revenue are: joint development; utility easements and leases; and naming rights. Depending on the transportation project, the amounts recovered from these mechanisms typically provide partial support for on-going operating costs or partial repayment of capital costs.

- **Joint Development** is a process through which public transportation investments are coordinated with private land development investments so that they will generate a maximum stimulus to economic development and urban revitalization. Joint Development occurs when public and private sectors work cooperatively in the planning, financing, and construction of development projects adjacent to and integrated with transportation facilities.
- **Utility Easements and Leases** provide an opportunity for government entities to derive revenue from sharing use of the right-of-way with other non-interfering users. The types of uses generally interested and allowed to obtain easements or leases for use of transportation rights-of-way include utilities, fiber-optic networks and other forms of cable, communication systems, and other related uses.
- **Naming Rights** are a form of sponsorship provided through the provision of equity investments in the system. In return, sponsors receive a combination of advertising, promotion of image, and/or a commitment that their products will be used by the entity they are sponsoring. Sponsorships have become an increasingly important mechanism for funding large public projects, most notably stadiums, aquariums, and similar facilities that attract large attendance and/or provide high visibility.

Project Categories

Generation of project revenue can be used to contribute funding for the capital cost of most transportation modes.

5.0 USER FEES

While used in many areas of the country, enabling legislation is required to authorize use of fees/tolls for individual projects within the State of California. The following sections summarize alternate forms of users fees including: multiple variations of tolling highways or bridges, the Pier Pass Program, container fees and gate fees.

Tolls

Description

Tolls could provide a mechanism to generate revenue, moderate traffic demand, and/or provide incentive to use particular facilities. Tolling could be part of an overall funding strategy with toll revenues providing part of a larger revenue stream pledged for debt repayment. In addition to traditional tolling, the following sections summarize alternative forms of tolling that could be considered for future highway projects:

Transportation Development Credits/Toll Credits: Transportation Development Credits (TDCs), formerly known as toll credits, allow states which have toll road facilities that are part of the state and national highway system to utilize revenues derived from the facilities as a "credit" or "match" to any federally funded highway and/or transit related program. Toll credits are designed to 1) encourage states to increase capital investment in infrastructure; 2) increase the flexibility of state transportation finance programs; and 3) enable states to more effectively utilize existing resources.

The use of TDCs by a transportation agency does not generate new revenue for use on projects, rather they replace what otherwise would be local cash to meet federal matching requirements. By using toll credits to substitute for the required nonfederal share on a new Federal-aid project, the Federal share can effectively be increased to 100 percent.

Traditionally, the federal government would provide credits to states when only local and state funds were used to build toll facilities. However, SAFETEA-LU added a new provision that states are now given credit on a pro rata basis for their investments in toll projects.

Shadow Tolls: A Shadow Toll occurs on a roadway typically constructed under a Design Build Finance Operate (DBFO) arrangement where the government entity will pay the private contractor on an annual basis depending upon the volume of traffic using the road. The term "shadow tolling" is used since there are no tollbooths and the users do not pay tolls. Shadow tolls are not a financing source in themselves, but rather a payment approach which can employ a range of financing methods, innovative or traditional, and can permit a viable financing structure that fits the characteristics and needs of certain projects.

The potential benefits of shadow tolls to governments include:

- Transferring traffic risk to a developer/operator;
- Traffic levels are not impacted by users' tolls or increased tolls;
- Multiple sources of revenues can be drawn upon to contribute to a shadow toll fund; and
- Project cost obligations can be reasonably known in advance and guaranteed for a particular traffic level.

Additionally, the traffic risk given to a developer/operator can be dampened by thresholds or guarantees. For example, if the traffic is less than specified in the agreement, a portion of the revenue shortfall could be made up by the Government. Conversely, if traffic is significantly greater than specified, a portion of the additional shadow toll revenues could be shared with the government sponsoring entity.

To date shadow tolls have only been implemented outside of the U.S., primarily in England. As a result there are no case studies within the U.S. to determine their effectiveness.

Pass-Through Tolling: Pass-through toll financing is a variation of the shadow tolling approach. Pass through tolling is an agreement between local communities and a state DOT where the local communities provide funding to build a state highway project and the state partially reimburses the community over time by paying a fee for each vehicle that drives on the new highway. In addition to supporting the construction of a project, the State DOT would also make repayment arrangements with communities that choose to maintain the new roadway facilities as well.

Pass-through toll financing can be used on toll or non-toll road facilities. However, this financing method is typically applied to non-toll roads. Pass-through agreements could be implemented with regional tollway authorities, counties, cities, and public or private entities.

Typically, the repayment schedule is based on traffic levels. If traffic levels are higher than projections in the agreement, the State DOT would repay at a faster rate. Conversely if traffic is lower than projected, repayment will occur over a longer period.

Truck Toll (TOT) Lanes: Truck only toll (TOT) lanes are highway lanes that are reserved for the use of commercial vehicles, primarily trucks. Commercial vehicles can pay a fee to use the lanes if so desired, or they can continue to use the general purpose lanes. TOT lanes can either be newly constructed facilities, or they can be created by reallocating the use of existing lanes. Similar in concept to HOT lanes, the pricing strategy for TOT lanes corresponds to a cost per mile that will keep the TOT lanes performing at a level of service that provides more reliable travel. The I-710 Corridor from Port of Long Beach/Los Angeles to SR-60 could potentially be a TOT facility.

Bonds leveraged from anticipated truck toll revenue could potentially be a component of the funding and financing proposed for the truck toll lane projects. However, since cost data and traffic forecasts are only conceptual at this time, the toll revenue and bonding potential described below should only be considered as order of magnitude estimates. The following assumptions were used to generate order of magnitude toll revenue bond estimates for each of the truck lane projects:

- Truck toll project opens in the Year 2030, the revenue begins Year 2030, and construction is completed in the Year 2030.
- First year total truck toll revenue estimates:
 - \$255M year
 - \$308M year
 - \$435.5M
- The range of annual operating and maintenance (O&M) cost were assumed to be between \$6.2 million and \$13.6 million.
- Revenue and O&M costs will increase 110% over 30 years

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- A debt coverage rate of 1.4 was assumed for all projects.
- Bonds would be issued at an interest rate of 5.75 percent with a 30 year repayment schedule and one scenario with a 40 year repayment schedule.
- No transaction fees, debt service costs, or debt service reserves have been included at this time, but would be included in future financial strategy development.
- As a rough estimate, the level of bond proceeds that could be issued under the truck toll projects was estimated to be roughly equal to 14 times the net revenue available for payment of debt service, assuming a 1.4 coverage ratio.
- In the absence of a real cost or schedule, the analysis was done in constant dollars. Any future financial strategy development would be based on refined project cost estimates and a proposed project implementation schedule and would be based on year of expenditure dollars.

As shown on the table below, based on the 2030 annual toll revenue estimates, bonds could issued to cover on the order of 20 percent of the truck toll projects cost.

Table 3
Order of Magnitude Truck Toll Revenue Bond Levels

2030 Toll Revenue (2007\$, Millions)	Bond Term	Estimated Toll Revenue for Mid-Point of Bonding Period (2007 \$, Millions)	Average Available for Debt Service Payment (2007 \$, Millions)*		Bonding Capacity (in Millions)	
			Low Maintenance Cost	High Maintenance Cost	Low Maintenance Cost	High Maintenance Cost
\$255	30 years	\$369	\$259	\$254	\$3,670	\$3,595
\$308	30 years	\$446	\$314	\$309	\$4,446	\$4,371
\$436	30 years	\$631	\$446	\$441	\$6,312	\$6,237
\$255	40 years	\$418	\$294	\$289	\$4,161	\$4,086

PierPass Program

Description

PierPass is a not-for-profit organization created by marine terminal operators to reduce congestion and improve air quality in and around the Ports of Los Angeles and Long Beach. PierPass created the OffPeak program to provide an incentive for cargo owners to move cargo at night and on weekends. For marine containers moving through the Ports of Long Beach and Los Angeles during peak periods, there is a \$50 per TEU (\$100 per FEU) fee. The fee is intended to provide an incentive for cargo owners to move shipments at night and on weekends, when there is no fee. The goal of the program is to reduce port-related truck traffic congestion on local freeways, curb port congestion and eliminate pollution caused by idling trucks during peak daytime traffic hours.

According to the PierPass website, during the first six months of operation, between 30 and 35 percent of all gate activity went to OffPeak operations. Prior to the program's implementation, PierPass officials had estimated that OffPeak would divert 15 to 20 percent of daytime movements to nights and weekends by the end of the first year.

Project Categories

Working in cooperation with the marine terminal operators, the potential exists to expand the use of funds for the PierPass provide for specific highway and port improvement projects.

Container Fees

Description

On February 23, 2007, State Senator Alan Lowenthal introduced a bill would require the Ports of Los Angeles and Long Beach, as well as the Port of Oakland, to collect a user fee on the owner of container cargo moving through the Ports. The fee would be set at a rate of \$30 per twenty-foot equivalent unit (TEU) and would require the Ports of Los Angeles and Long Beach to:

- Transmit half of the funds from fee to the Southern California Port Congestion Relief Trust Fund, which the bill would establish in the State Treasury; and
- Transmit the other half of funds to the Southern California Port Mitigation Relief Trust Fund, which the bill would establish in the State Treasury.
- Senator Lowenthal's bill would require the moneys transmitted to each trust fund be available, upon appropriation, for expenditure by:
- the CTC exclusively for the purposes of funding projects that improve the flow and efficiency of container cargo to and from the ports, and to fund the administrative costs of this program; and
- the State Air Source Resources Board to develop a list of projects to mitigate environmental pollution caused by the movement of cargo to and from those ports, and for the administration of this program.

The bill would prohibit moneys deposited in those funds from being loaned or transferred to, or allocated or appropriated in any other way to, the General Fund.

A similar bill was vetoed last year by Governor Arnold Schwarzenegger. At that time, the governor urged industry leaders to come up with an alternative funding plan.

Finally, a similar bill introduced in the Washington State Legislature in February; however this bill has run into heavy opposition not only from retailers, but also from port authorities and labor groups worried about losing volume to Canadian ports.

Based on analysis conducted as part of this study, there is little support for the implementation of container fees to establish a trust fund for transportation and air quality improvement projects. However, establishment of a fee program similar to what was implemented for the Alameda Corridor may be supported by both the ports and private industry. Under the Alameda corridor approach, container fees implemented to address specific projects. Under this pay as you go approach, when the project is completed the fee ends.

Another approach with container fees could be to issue revenue bonds. Table 5 provides three order of magnitude bond issuance levels based on the following assumptions:

- Three projected forty-foot equivalent units (FEU) scenarios for 2030: Low (12.25 million); Medium (16.65 million), and High (21.25 million)
- Seven levels of container fees ranging from \$10 to \$200.

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- A debt coverage rate of 1.4 was assumed for all projects.
- Bonds would be issued at an interest rate of 5.75 percent with a 30 year repayment schedule.
- No transaction fees, debt service costs, or debt service reserves have been included at this time, but would be included in future financial strategy development.
- As a rough estimate, the level of bond proceeds that could be issued under the truck toll projects was estimated to be roughly equal to 14 times the net revenue available for payment of debt service, assuming a 1.4 coverage ratio.
- In the absence of a real cost or schedule, the analysis was done in constant dollars. Any future financial strategy development would be based on refined project cost estimates and a proposed project implementation schedule and would be based on year of expenditure dollars.

Table 4
Potential Bonding Capacity From Container Fees
(\$, 000)

Scenario	2030 Projected FEUs (000)	\$10	\$20	\$30	\$40	\$50	\$100	\$200
Low	12,250	\$1,238	\$2,476	\$3,714	\$4,953	\$6,169	\$12,338	\$24,675
Medium	16,650	\$1,683	\$3,366	\$5,049	\$6,731	\$8,384	\$16,769	\$33,538
High	21,250	\$2,148	\$4,296	\$6,443	\$8,591	\$10,701	\$21,402	\$42,804

A second bonding scenario analysis examined the potential of implementing an alternative technology system that would connect the San Pedro Bay ports and an inland staging yard. It was assumed this the alternative technology system would accommodate approximately 1,215,000 FEUs per year (equivalent to the existing Hobart yard). As shown below, under this scenario revenue bonds in the range of \$122 million and \$2.45 billion could potentially be issued:

- \$10 container fee: \$122.8 million bond issue
- \$20 container fee: \$245.8 million bond issue
- \$30 container fee: \$368.4 million bond issue
- \$40 container fee: \$491.2 million bond issue
- \$50 container fee: \$611.8 million bond issue
- \$100 container fee: \$1,223.7 billion bond issue
- \$200 container fee: \$2,447.4 billion bond issue

Project Categories

If an agreement can be found among the ports and the private sector, container fees could provide a funding source for highway, port and rail projects.

Gate Fees

Description

At present, significant portions of the \$2 billion Clean Air Action Plan remain under-funded. Along with the Southern California Air Quality Management District's \$36 million commitment, the Ports of Long Beach and Los Angeles have committed \$166 million and are researching a variety of mechanisms to achieve the Clean Air Action Plan goals including private industry fees and state General Obligation bonds. One mechanism being considered in the implementation of impact fees associated with the movement of cargo or sources (i.e., trucks, locomotives, vessels, etc.) as an approach to accelerate emission reductions from all source categories.

As stated in the *Clean Air Action Plan*, for impact fees to achieve the desired results, they must be structured appropriately. The following principles were included in the *Clean Air Action Plan* to provide guidance when crafting any fee with the goal of reducing pollution.

- 1) The fee should target the source of pollution, not cargo in general, and the fee must be higher for those individual sources that cause the greatest impact, while bypassing those sources that meet clearly defined goals/standards. For instance, a truck that does not meet the goals of the Clean Air Action Plan could be assessed a fee based on how old and/or dirty that truck was; while a clean truck meeting the goals could assessed no fee or a small administrative fee necessary to cover the costs of monitoring compliance.
- 2) Fees collected should be used to clean up the source that generated the fee (i.e., fees assessed against a dirty truck should fund a retrofit or replacement truck).
- 3) Costs should ultimately be borne by those who benefit from goods movement. To the extent possible, fees should be shifted to the beneficial cargo owners (BCO). Programs similar to the successful PierPass program provide an example of how this can be done.
- 4) When a specific program achieves its goal, the fee must end. Broad-based fees that have no defined use may fail to garner sufficient support to be successful. In addition, they undermine the goals of the program by not rewarding those who achieve the goals.

According to the *Clean Air Action Plan*, these principal will provide success in two ways. First, the resulting program would generate the funding necessary to achieve the emission reduction goals. Second, they hold the BCO accountable for their shipping decisions, making them pay the price for dirty modes of shipping and financially encouraging them to make more environmentally sound shipping decisions. While these principles are not absolute, adherence to them will more likely result in reduced emissions and increase the chances of broad-based support.

Project Categories

If implemented, impact fees could provide a funding source for highway, port and rail projects.

6.0 INNOVATIVE FINANCE

Around the country, as competition for federal, state, and local funding has becomes more competitive, the use of innovative finance techniques has increased. This section provides an overview of innovative financing techniques that are or have been used by other transportation agencies. In general, innovative

finance encompasses a mixture of: financing mechanisms; management techniques; and project delivery approaches to supplement traditional sources and methods.

The traditional approach to funding transportation projects has been through a combination of the Federal, State, regional and local sources described above. This funding approach typically leads to projects being incrementally implemented as funds become available over a number of years. The primary benefits of this “pay-as-you-go” approach to project funding are the simplicity of funds management and the lack of debt financing. However, there are negative implications with this approach as well including the potential for delays in implementing projects as a result funds not being available. These project delays could also contributed to additional negative implications related to the impact of inflation on project costs, and deferral of congestion, safety, air quality, and economic development benefits.

Innovative finance has evolved as a mechanism for transportation agencies to build projects faster by providing an alternative and/or a supplement to the traditional grant-based funding approach. As stated by the FHWA in its *Innovative Finance Primer*, the primary objectives of innovative finance are to:

- Maximize the ability of states and other project sponsors to leverage Federal capital for needed investment in the transportation system;
- More effectively utilize existing funds;
- Move projects into construction more quickly than under traditional financing mechanisms; and
- Make possible major transportation investments that might not otherwise receive financing.

As described in more detail below, innovative finance techniques typically fall into three main categories:

Innovative Financing Mechanisms consist of short and long term credit assistance and debt finance instruments. Included in this category are Federal and state credit assistance, general obligation bonds, revenue bonds, grant anticipation notes (GANs), certificates of participation (COPs), and private activity bonds.

Innovation and Management of Revenue Sources consist of approaches to manage the use of federal funds.

Innovative Project Delivery and Management Systems/ Public Private Partnerships consist of alternative forms of contracting beyond traditional design-bid-build through the use of public-private partnerships and/or leveraging of a project asset.

6.1 Innovative Financing Mechanisms

The sections below describe four types of long-term and short-term bonding and debt instruments. These include General Obligation (GO) Bonds, Revenue Bonds, Certificates of Participation (COPs), and Private Activity Bonds.

General Obligation Bonds

Description

General obligation bonds (GO bonds) are bonds that are legally backed by the full faith and credit of the issuing government. GO bonds are considered the most secure type of revenue bond, and therefore have

the lowest interest rates. The security is based on the issuing government's ability to use its full taxing power, if necessary, to assure repayment.

The primary advantages of GO bonds are the following:

- Ability to sell at lowest rates of interest due to their low risk;
- Lower administrative costs in preparing for bond issuance;
- Passage of a bond referendum by the voters can confirm the extent of population support for the project or program being financed.

Offsetting these advantages are the following disadvantages:

- Potential for delay due to need for voter referendum;
- In the absence of voter approval, agency officials must identify alternative ways to finance the project or else cancel it outright;
- Legal debt limits limit the magnitude of the debt issues; and
- With debt repayment from general tax revenues, the taxpayers paying for the project may be the same as the taxpayers benefiting from the project.

Project Categories

GO bonds can be used on all public sector transportation projects.

Revenue Bonds

Revenue bonds are municipal bonds distinguished from other bonds by the guarantee of repayment exclusively from revenues generated by a project. Unlike GO bonds which encumber tax revenue and the general credit of the issuing entity, only the project specific revenues specified in the legal contract between the bond holder and bond issuer are required to be used for repayment the Revenue Bonds. Interest rates may be slightly higher for revenue bonds since the security pledge is not as strong as GO Bonds. As a result, Revenue Bonds generally require establishment of a debt service reserve fund.

Policy Considerations

Compared with other forms of bonding, Revenue Bonds are considered the second-most secure type of municipal bonds. In general, any government agency generating operating revenues and expenses can issue revenue bonds.

Project Categories

Revenue bonds can be used on transportation revenue-generating projects including toll roads and bridges; airports; and ports.

Certificates of Participation (COPs)

Description

COPs are tax-exempt bonds, issued by a state-authorized, tax-exempt entity (typically called Finance Corporation) that allows government entities to finance capital projects. The proceeds of the bond sale are

used to acquire capital assets. The capital assets are leased to a government entity, which makes semi-annual lease payments using a combination of local funds and Federal grant funds. Additionally, COPs can provide government entities a long-term debt instrument that does not require voter approval or fall under other state constitutional and statutory requirements. Across the country, COPs have been used by municipalities to pay for prisons, office buildings, vehicles (including transit vehicles), and even parks.

The primary transportation use of COPs has been for transit investments since transit agencies are reliant on capital equipment (rolling stock, buses, or depots) that is well suited to lease agreements. COPs have not been used regularly for roadway projects, but they provide a potential creative financing option for specific highway related investments, such as automated toll collection or ITS equipment.

Examples of COPs financing include the California Transit Finance Corporation, which has funded bus purchases for several California transit agencies. Transit agencies in Los Angeles, New York, and Denver have also issued locally-funded Equipment Trust Certificates, COPs, and Beneficial Interest Certificates to finance bus purchases. These securities are very similar and differ primarily in the specifics of their implementation and documentation.

Benefits of COP's to transit agencies include:

- Freeing up of Federal grants that had been committed to vehicle purchase. This allows the agency to reprogram the grant funds for other capital projects and accelerate their completion;
- Potentially lower vehicle unit costs from a larger order size;
- Reduction in the risk of higher future vehicle prices due to inflation or changes in environmental or other laws;
- Potential lower operating costs from accelerated retirement of older vehicles and maintaining a more standardized fleet;
- Better conformance with mandates for air quality, or service to persons with disabilities; and
- Net cost savings from interest earned on cash balances.

Project Categories

COPs have been used primarily for transit projects but could be used for highways, airports, or ports.

Private Activity Bonds

Description

Private Activity Bonds are bonds that allow a portion of the proceeds to be used for non-governmental purposes. By definition, a Private Activity Bond is either:

- A bond of which more than 10 percent of the proceeds will be used for non-governmental purposes and which is going to be repaid from revenues received from a private entity; or
- A bond that will have the lesser of 5 percent or \$5 million of the proceeds used for loans to non-governmental entities.

As part of SAFETEA-LU, Section 142 of the Internal Revenue Code was amended to add highway and freight transfer facilities to the types of privately developed and operated projects for which private activity

bonds may be issued. This change allows private activity on these types of projects, while maintaining the tax-exempt status of the bonds. However, the law sets a \$15 billion limit on the total amount of these bonds and directs the Secretary of Transportation to allocate this amount among qualified facilities. The U.S. DOT is presently accepting applications from sponsors interested in using a portion of the \$15 billion in exempt facility bonds.

The types of highway and freight transfer facility projects that would qualify for this revenue source include:

- Any surface transportation project which receives Federal assistance under Title 23;
- Any project for an international bridge or tunnel for which an international entity authorized under Federal or State law is responsible and which receives Federal assistance under Title 23; and
- Any facility for the transfer of freight from truck to rail or rail to truck which receives Federal assistance under Title 23 or Title 49.

Finally, to provide additional incentives for private equity investment, SAFETEA-LU also states that any surface transportation project which receives Title 23 assistance is qualified to benefit from private activity bonds. This includes projects that receive TIFIA credit assistance since these are Title 23 projects. As a result, this provision extends eligibility to TIFIA-assisted public transportation, intercity bus or rail facilities and vehicles, including vehicles and facilities owned by Amtrak, public freight rail facilities or private facilities providing public benefit for highway users, and intermodal freight transfer facilities.

Private Activity Bonds represent a dual interest by allowing private benefit in order to stimulate investment in infrastructure that will provide a public benefit. To increase private developer and operator investment in U.S. transportation infrastructure, SAFETEA-LU included provisions to facilitate private access to tax-exempt interest rates. The goals of these provisions are to lower the cost of capital, enhance private investment, and attract new sources of revenue through the increased involvement of private investors.

Project Categories

Private Activity Bonds are primarily designed for use on highway and freight transfer facility projects.

6.2 Innovation and Management of Federal Funds

Federal transportation law provides various mechanisms that facilitate better cash management and enhance opportunities to leverage future federal funds. These mechanisms include Tapered Match, Flexible (or Soft) Match, and Advanced Construction Authority.

Tapered Match

Description

Historically, local match for Federal grants on individual transportation projects was on a payment-by-payment basis. Under this approach, project sponsors had to shoulder the required non-Federal matching

share of project costs each and every time they sought reimbursement of eligible project costs. This requirement not only ensured that the state would pay the required non-Federal share over the life of a project's construction, but also that the state would do so at every step of the way to completion.

A legislative change as a result of TEA-21 removed the requirement for a payment-by-payment match. The removal of this requirement created the opportunity for project sponsors to use the tapered match approach, which imposed the non-Federal matching ratio on the project total rather than individual payments.

The tapered match approach allows project sponsors to seek Federal reimbursement of expenditures as high as 100 percent in the early phases of a project provided that by the time the project is complete, the overall Federal contribution does not exceed the statutory Federal-aid limit for the project.

Most Title 23 projects may request the use of a tapered match approach, with the following exceptions which are considered to be inconsistent with the intent of tapered match:

- Advance construction projects;
- STP projects for which the non-Federal match is being provided on a program-wide basis, or
- Projects that are financed with GARVEE bonds.

Tapered match is most useful in cases where the government sponsor of a Federal-aid project lacks sufficient funds to match Federal grants at the start of the project, but expects to accumulate the match over the life of the project.

When requesting approval to use the tapered match approach, project sponsors must document the approach will achieve one of the following:

- The use of tapered match, when compared to the use of traditional match procedures, would result in an earlier project completion.
- The project costs would be reduced by using a tapered match
- Tapered match would provide for additional non-Federal funds to be leveraged for the project.

Project Categories

The tapered match approach can be used on all transportation projects.

Flexible (or Soft) Match

Description

Traditionally, Federal-Aid programs required that recipients of Federal funds contribute to the total cost of a project. Additionally, Federal law placed limits on both the types and sources of contributions that could satisfy the matching requirement. For instance, cash contributed by state and local governments could satisfy the matching requirement while other types and sources of funding simply reduced the total project cost and the standard matching requirement continued to be applied to the remaining project cost.

Provisions in the NHS Act and TEA-21 introduced flexibility by allowing certain public donations of cash, materials, and services to satisfy the non-Federal matching requirement. These matching options included:

- The value of private and certain state and local contributions, including publicly-owned property;
- Funds from other Federal agencies may count toward the non-Federal share of recreational trails and transportation enhancement projects;

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- Funds from the Federal Lands Highway Program may be applied as non-Federal match for projects within or providing access to Federal or Indian lands; and
- Funds from Federal land management agencies may be used as the match for most Federal-aid highway projects.

These legislative changes, known collectively as Flexible Match provisions, increased a project sponsor's ability to fund its project by:

- Accelerating certain projects that receive donated resources;
- Allowing the reallocation of funds that otherwise would have been used to meet Federal-aid matching requirements; and
- Promoting public-private partnerships by providing incentives to seek private donations.

Most of the conditions related to the use of flexible match concern the types of contributions that are eligible. The critical part of this eligibility determination is the combination of the source of the contribution (private, local, state, or Federal) and the nature of the contribution (cash, materials, land, services, or buildings and equipment).

Table 5 provides the basic tests that determine whether a given non-Federal contribution can satisfy Federal-aid matching requirements under the flexible match provisions.

Table 5
Requirements for Flexible Match Contributions

Type of Donation	Source of Donation	Conditions
Funds	Private - Yes	Funds must be received during the period between project approval and submittal of final voucher
Funds	State - Yes	Same as above
Funds	Local Govt. - Yes	Same as above
Land (right-of-way)	Private - Yes	Property must be appraised to determine fair market value
		Value must be included in total project cost
		Property may be donated anytime during the project development
		Donation does not influence environmental assessment
Land (right-of-way)	State - Yes	Same as above
Land (right-of-way)	Local Govt. - Yes	Same as above
Materials	Private - Yes	Materials must be appraised to determine fair market value
Materials	State - No	
Materials	Local Govt. - Yes	Materials must be appraised to determine fair market value
Services	Private - Yes	Grantee must document the market value of services
Services	State - Limited	Publicly-contributed services count toward match for only Transportation Enhancement projects
Services	Local Govt. - Limited	Publicly-contributed services count toward match for only Transportation Enhancement projects

Source: <http://www.fhwa.dot.gov/innovativefinance/ifp/innoman.htm>, March 2007.

Project Categories

The tapered match approach can be used on all transportation projects.

Advanced Construction Authority

Description

Advanced Construction Authority provides a project sponsor the ability to request and receive approval to construct Federal-aid projects in advance of the apportionment the federal dollars. This technique gives project sponsors a cash flow management tool which allows for the accelerated start of projects using their own funds with a future conversion to Federal assistance. Typically, project sponsors "convert" advance-constructed projects to Federal aid when sufficient Federal funds and obligation authority are available, and do so all at once.

Project sponsors also have the option of a partial conversion of advanced construction where they obligate funds for an advance-constructed project in stages. This removes any requirement to wait until the full amount of obligational authority is available. Project sponsors can convert an advance constructed project to a Federal-aid project in stages, based on cash flow requirements and availability of obligational authority, rather than all at once on a single future date. This flexibility enables a project sponsor to begin some projects earlier which will then be delivered to the public sooner.

The use of Advanced Construction Authority minimizes the need to set aside full obligational authority before starting projects. As a result, implementing agencies can accomplish a greater number of concurrent projects that would otherwise not be possible. In addition, Advanced Construction Authority can facilitate construction of large projects, while maintaining obligational authority for smaller projects.

Project Categories

Advanced construction authority can be used on all transportation projects.

6.3 Innovative Project Delivery and Management Systems/Public Private Partnerships

Innovative project delivery and management systems represent a partnership between a public agency and private sector entity, which expands on the traditional, private sector role in the delivery of transportation projects, also known as Public Private Partnerships (PPP).

According to FHWA's website, public-private partnerships (PPPs) refer to contractual agreements formed between a public agency and private sector entity that allow for greater private sector participation in the delivery of transportation projects.

By expanding the private sector's role on projects, public agencies are able to tap private sector's technical, management and financial resources in new ways to achieve objectives such as greater cost and schedule certainty, supplementing in-house staff, innovative technology applications, specialized expertise or access to private capital.

Conversely, business opportunities for the private partner can expand in return for assuming the new or expanded risks and responsibilities.

Key reasons public agencies have established PPPs include:

- Accelerating the implementation of high priority projects by packaging and procuring services in new ways;

- Turning to the private sector to provide specialized management capacity for large and complex programs;
- Enabling the delivery of new technology developed by private entities;
- Drawing on private sector expertise in accessing and organizing the widest range of private sector financial resources;
- Encouraging private entrepreneurial development, ownership, and operation of highways and/or related assets; and
- Allowing for the reduction in the size of the public agency and the substitution of private sector resources and personnel.

The following sections discuss options that expand private sector responsibilities through the use of partnerships. Table 6 summarizes the variation in roles and responsibilities between the contracting approaches.

**Table 6
Innovative Contracting Roles and Responsibilities**

	Own	Conceive	Design	Build	O&M	Financial Responsibility
Design-Build	Public	Public	Private by Fee Contract		Public	Public
Design-Build-Operate	Public	Public	Private by Fee Contract			Public
Design-Build-Finance	Public	Public or Private	Private by Fee Contract			Public, Public/Private, or Private

Source: <http://www.fhwa.dot.gov/ppp.htm>, and Sharon Greene & Associates, November 2006.

Design-Build Project Delivery

Description

Design-Build is a project delivery method that combines two traditionally separate services into a single contract. With Design-Build procurements, project sponsors execute a single fixed-fee contract for both architectural/engineering services and construction. Historically, the design-build project delivery method has been more prevalent in private sector work, however it is becoming increasingly popular in the public sector.

With Design-Build, the private contractor assumes primary responsibility for the design work and all construction activities. Additionally, the contractor assumes the risks associated with providing these services for a fixed fee. The project sponsor is typically responsible for project financing and operating and maintenance when construction is completed.

Under the Design-Build approach, a certain amount of preliminary engineering and project definition must be completed by the project sponsor in order to prepare bid documents. Experience in the highway sector suggests that preliminary design efforts of 10 to 15 percent completion are usually adequate. While a greater level of design may be advantageous from the perspective of greater accuracy in cost estimation, it may serve to minimize opportunities for private sector innovation.

The typical design-build procurement practice is to rely upon best value, which is also encouraged by Federal guidelines. The best value approach takes into account both the technical capabilities and qualifications of the design-build team, and cost. There is no universally accepted approach for determining

best value, with the request for proposal usually specifying the relationship between technical factors and price.

Project Categories

All transportation modes can use Design-Build

Design-Build-Operate–Maintain Project Delivery

Description

The Design-Build-Operate-Maintain (DBOM) model (also known as build-operate-transfer (BOT)) adds operations and maintenance (O&M) to the design and construction responsibilities of design-build procurements. This “turn-key” delivery approach transfers design, construction, and operation of a single facility or group of assets to a private sector partner and is practiced by several governments around the world.

With DBOM, the contractor assumes primary responsibility for the design work, all construction activities, and on-going O&M for the transportation project. Additionally, together with the design-builder assumes the risks associated with providing these services for a fixed fee. The project sponsor is typically responsible for project financing and retains the operating revenue risk as well as any surplus operating revenue.

The advantage of the DBOM approach include:

- Combining responsibility for usually disparate functions—design, construction, and maintenance—under a single entity which allows the private partners to take advantage of a number of efficiencies;
- Requires the establishment of a long-term maintenance program up front, together with estimates of the associated costs; and
- Provides the benefits of “life cycle costing” as part of the process since contractors understand that most infrastructure owners spend more money maintaining their systems than on expansion.

DBOM contracts are typically awarded through a competitive bid process following a transparent tender process. In response to the specifications provided in the tender documents, bidders provide a single price for the design, construction and maintenance of the facility for whatever period of time is specified.

Policy Considerations

While the DBOM approach has the potential to reap substantial rewards, project sponsors must be able to specify all standards to which they want their facilities designed, constructed, and maintained. Project sponsors relinquish much of the control they typically possess with traditional project delivery.

Project Categories

All transportation modes can use Design-Build-Operate-Maintain

Design-Build-Finance Project Delivery***Description***

The Design-Build-Finance-Operate (DBFO) approach transfers to the private sector the responsibilities for a project's design, construction, finance and O&M bundled together. Within the US, there is a great deal of variety in DBFO arrangements especially related to the degree to which financial responsibilities are actually transferred to the private sector. However, one common component of all DBFO projects is that they are either partly or wholly financed by debt leveraging revenue streams dedicated to the project. These revenue streams are primarily direct user fees (tolls), however, others sources include lease payments, shadow tolls, and vehicle registration fees. Future revenues are leveraged to issue bonds or other debt that provide funds for capital and project development costs. Additionally, they are also often supplemented by public sector grants in the form of money or contributions in kind, such as right-of-way. In certain cases, private partners may be required to make equity investments as well.

The DBFO approach is more commonly used to develop new toll road projects in Europe, Latin America, and Asia. In these areas the project's debt is usually raised by private concession companies who are fully responsible for designing, building, financing, and operating the projects. However, in the US, given public sector agencies' ability to issue low-interest tax-free debt, it is often more cost-effective for public project sponsors to issue debt than their private sector partners. Because of this, public project sponsors using the DBFO approach in the US often issue project debt themselves, but rely on their private partners to study the different options for doing so and to recommend a final financing package. In such cases, the revenue risk may be passed on to the private partner or retained by the public project sponsor.

Policy Considerations

DBFO procurements can be expected to shift a great deal of the responsibility for developing and operating surface transportation infrastructure to private sector partners. In nearly all cases, the public agency sponsoring a project would retain full ownership over the project. However, as with the DBOM approach, the private partner would have design-build responsibilities and would then maintain and operate the infrastructure for a fixed fee. Depending on the revenue sources used and revenue risk allocation, private partners in the United States may or may not be exposed to revenue risks.

Project Categories

All transportation modes can use Design-Build-Finance-Operate.

Leasing of Publicly-Owned Assets***Description***

This PPP approach involves the long term leasing of an existing, publicly-financed toll facility to a private sector concessionaire. The lease would be for a prescribed period during which the concessionaire would have the right to collect tolls. In exchange for the lease, the private partner must operate and maintain the facility, in some cases make improvements, and pay an upfront concession fee. The potential benefits of long term leases include:

- De-politicizing the toll setting process by transferring responsibility to the private sector;
- Ability of leases to increase toll revenues generated by existing facilities;

- Ability to generate extremely large up-front lease payments that can be used to fund other needed transportation improvements;
- Ability to reduce on going public sector operating, maintenance and capital improvement costs; and
- Potential to capture private sector operational and maintenance efficiencies.

Long term leases are procured on a competitive basis, with awards going to the qualified bidder making the most attractive offer to the sponsoring agency. Typically, the most important criterion is the concession fee amount. Other criteria related may include the length of the concession period, the bidder's credit worthiness and the bidder's professional qualifications.

Recent Experience

Within the US, three major long term lease transactions have recently closed:

- The 99-year lease of the 7.8 mile Chicago Skyway for a fee of \$1.8 billion in January 2005;
- The 99-year lease of the 8.8 mile Pocahontas Parkway in Richmond, Virginia for \$548 million,
- The 75-year lease of the 167 mile Indiana Toll Road for \$3.85 billion in July 2006.

Factors Affecting the Use of Long Term Leases

For both the public and private sectors, there are a number of factors that influence the use of long term leasing arrangements.

- The public sector's most basic factors are the political and financial situation of individual states and local jurisdictions. When these two factors coincide, local leaders may make the decision to consider leasing arrangements. However, in cases where there is not a pressing financial need, local decision makers may explore the possibility of leasing toll road assets to determine if the terms of a potential transaction would be attractive enough to move forward with an actual transaction.
- The private sector's primary motivation for pursuing leasing opportunities is the potential to gain an adequate rate of return on their investment.

Additionally, Moody's Investors Service has identified the following key characteristics that may make certain toll facilities good candidates for lease arrangements:

- Established toll roads that have political limits on toll raising ability;
- Government owned roads that are short of capital to fund improvement programs;
- Roads with a significant number of non-resident users, such as truckers or tourists, who may be less able to effectively protest against privatization; and
- Roads that are financially distressed but which may present a strategic business opportunity for concessionaires seeking to enter the U.S. market.

Role of Overseas Investors in the U.S. Leasing Market

To date all private long term lease investors active in the U.S. market are overseas investors. In contrast the PPP markets in Europe and Australia are more mature than those in the U.S. and experienced investors from both continents are actively seeking out new investment opportunities in this country. Enhancing this trend has been the weakened U.S. dollar together with the perception that toll road investments in the U.S. are less risky than those in developing countries. Additionally, due to the strong tax incentives that compel the U.S. capital markets to prefer municipal debt, the market for private activity debt is far greater outside the U.S.

As a result of the overseas investors' interest in the emerging U.S. market for toll road, PPPs are generating interest among U.S. banks and investment funds. A number of U.S. financial institutions are now in the process of establishing infrastructure investment funds. Additionally, SAFETEA-LU's provision to issue tax exempt private activity bonds for transportation projects should encourage U.S. investors to expand their activity in the domestic toll road market.

The Pros and Cons of Long Term Leases

Even with the significant upfront fees paid to the Chicago Skyway and Indiana Toll, the merits of long term leasing are still uncertain. Currently, potential long-term leases of toll roads and bridges are being considered in New York, New Jersey, Delaware, Pennsylvania and Illinois. As a result, the potential lease of some of the nation's most valuable toll road assets has generated a great deal of discussion, including hearings on the subject conducted by the U.S. House of Representatives Transportation Committee in May 2005.

Two examples of toll road owners that have decided not to pursue long term leases are the Harris County Toll Road Authority (HCRTA) and the Metropolitan Washington Airport Authority (MWAA).

- The HCRTA studied the feasibility of leasing its 82 mile toll road network in Houston and found that a 75-year lease of these facilities could attract as much as a \$7 billion fee. However, Harris County commissioners unanimously rejected a possible lease in July 2006. The commissioner's preferred maintaining public control over the toll road network and to use the revenues generated to help fund other transportation needs.
- The MWAA, recently ended attempts to lease the Dulles Toll Road. Rather than seeing toll revenues leave the corridor, MWAA submitted a counter proposal to the Governor of Virginia to assume the operation of the toll road outright. MWAA's proposal calls for the increase in toll rates similar to the proposals of the private sector bidders, but the MWAA would invest all the proceeds in rail and roadway improvements within the corridor.

Policy Considerations

The primary issue for policy makers is whether ceding control of toll road income and assets for extremely long periods of time is in the public's best interest. Unfortunately, the easy answers to several basic questions will not be realized until the lease arrangements end some 70 to 90 years in the future. Did the private sector partners derive reasonable profits or were they excessive? Were the transactions associated with legal battles? Were local residents overburdened by toll increases? Were there alternative ways that the public sector could have extracted comparable revenues from their toll road assets?

Policy issues that would need to be assessed before entering into a long term lease arrangement include:

- The potential undervaluation of an asset to be leased. Competition can help prevent undervaluation. The Chicago Skyway procurement provides an example where the value of the winning proposal was 2.6 times greater than the next highest bid. Those agencies considering leasing options should seek the advice of financial advisors in order to better identify fair market values of lease transactions based on the anticipated revenue streams.
- The legal terms and conditions underpinning lease transactions to ensure a fair outcome and protect the public. For example, the terms and conditions can include language to preserve some public control over toll rates; set of caps on the private sector's rate of return; and ensure that the lease proceeds are used to support transportation improvements in prescribed areas. Additionally, governments provide oversight of the private sector partner's performance as well as include capital reinvestment, availability, safety, and customer services requirements in their lease agreements.

Project Categories

Currently, only highways may be developed under long-term lease arrangements.

7.0 CONCLUSION

As stated previously, based on a review of existing funding plans for the 249 goods movement projects identified in this study, a shortfall in the range of \$37 billion currently exists. Due the scarcity and competition for funding, as individual projects or packages of projects move forward it will be important for project sponsors to evaluate the strengths and weaknesses of a variety of funding sources identified in the previous sections. This will allow sponsors to target their efforts on the federal, state, regional, local, and user fee funding sources and innovative financing mechanisms that will have the highest probability of success.

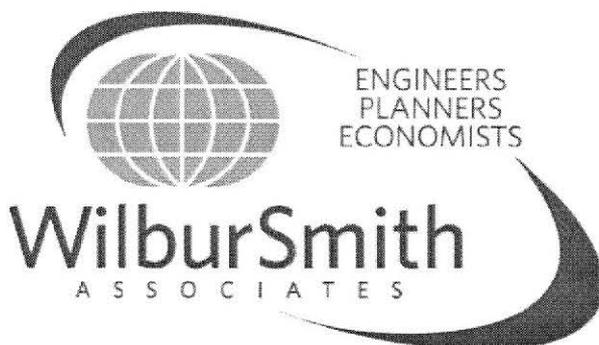
MULTI-COUNTY GOODS MOVEMENT ACTION PLAN VOLUME 1, APPENDIX B: SUPPORTING TABLES

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San Bernardino Associated Governments (SANBAG)
Ventura County Transportation Commission (VCTC)
California Department of Transportation (Caltrans) Districts 7, 8, 11 & 12
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April 2008
A31418

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**Table 1
Environmental Regulatory Agencies**

AGENCY	RESPONSIBILITY	JURISDICTION	KEY REGULATION(S)
International Civil Aviation Organization (ICAO)	International civil aviation standards established by Convention	International, but not preemptive of FAA	Annex 16: Environmental Protection, Volume II - Aircraft Engine Emissions
International Marine Organization (IMO)	International marine safety and pollution prevention law established by the United Nations	International	MARPOL Annex I-VI
U.S. Congress	Established federal environmental protection and Council of Environmental Quality (CEQ) to further NEPA.	Nationwide	National Environmental Protection Act (NEPA)
U.S. Environmental Protection Agency (EPA)	Regulation and enforcement for protection of human health and the environment.	Nationwide	Clean Air Act, Clean Water Act, Oil Pollution Prevention Regulation
Federal Aviation Administration (FAA)	Regulation and enforcement of aviation standards for airport, aircraft, and airmen.	Nationwide	Airport Noise & Compatibility Act; Commercial Airport Certification; Aircraft Certification
U.S. Fish and Wildlife	Conservation and protection of fish, wildlife, and plants and their habitats.	Nationwide	Endangered Species Act
U.S. Department of Transportation (DOT)	Ensuring a fast, safe, efficient, accessible, and convenient transportation system; oversees federal railroad, federal transit, and federal highway regulations.	Nationwide	Title 49 of the Code of Federal Regulations (Transportation), including Hazmat transport.
Bureau of Land Management (BLM)	Sustain the health, diversity, and productivity of the public lands.	Nationwide	Federal Land Policy and Management Act
Army Corps of Engineers (ACE)	Water resource and environmental restoration and stewardship.	Nationwide	Permitting of projects/actions affecting navigable waters of the U.S.
California Legislature	Established state environmental protection and the State Clearinghouse and Office of Planning and Research (OPR) to further CEQA.	Statewide	California Environmental Quality Act (CEQA)
Business, Transportation, & Housing Agency	Oversees 13 state agencies, including Caltrans, California Highway Patrol, Department of Motor Vehicles, and Department of Alcoholic Beverage Control; Regulates managed health care plans as well as the banking, and financial and securities industries	Statewide	Oversight of law enforcement activities of subordinate state agencies.

**Table 1
Environmental Regulatory Agencies**

AGENCY	RESPONSIBILITY	JURISDICTION	KEY REGULATION(S)
California Fish & Game	Manage fish, wildlife, and plant resources and their habitats	Statewide	California Endangered Species Act
California EPA	Oversees CARB, SWRCB, Department of Pesticide Regulation, Department of Toxic Substances Control, Office of Environmental Health Hazard Assessment, Integrated Waste Management Board	Statewide	California Clean Air Act
California Air Resources Board (CARB)	Part of CalEPA; to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy.	Statewide	California Air Pollution Control Laws
State Water Resources Control Board (SWRCB)	Water allocation and water quality protection; Oversees nine regional boards	Statewide	Porter-Cologne Water Quality Control Act (California Water Code, Division 7)
Native American Heritage Commission	Identify and catalogue Native American cultural resources, and prevent damage to and insure Native American access to sacred sites. Also, identify a Most Likely Descendant (MLD) when Native American human remains were discovered any place other than a dedicated cemetery -- MLDs were granted the legal authority to make recommendations regarding the treatment and disposition of the discovered remains.	Statewide	
Regional Air Quality Management Districts	<i>See CARB</i>	Regional	
South Coast AQMD	<i>See CARB</i>	Portions of Los Angeles, Orange, Riverside, and San Bernardino counties	Emissions regulations
South Central AQMD	<i>See CARB</i>	Ventura County	Emissions regulations
Mojave Desert AQMD	<i>See CARB</i>	Portions of Los Angeles, Riverside, and San Bernardino counties	Emissions regulations

Table 1
Environmental Regulatory Agencies

AGENCY	RESPONSIBILITY	JURISDICTION	KEY REGULATION(S)
Antelope Valley AQMD	<i>See CARB</i>	Portion of Los Angeles County	Emissions regulations
Regional Water Quality Control Boards	<i>See SWRCB</i>	Regional	
Los Angeles RWQCB	<i>See SWRCB</i>	Portions of Los Angeles and Ventura counties	Water allocation and water quality protection regulations
Santa Ana RWQCB	<i>See SWRCB</i>	Portions of Orange, San Bernardino, and Riverside Counties	Water allocation and water quality protection regulations
Colorado River Basin RWQCB	<i>See SWRCB</i>	Portions of San Bernardino, Riverside, and San Diego Counties	Water allocation and water quality protection regulations
Lahontan RWQCB	<i>See SWRCB</i>	Portions of Los Angeles and San Bernardino Counties	Water allocation and water quality protection regulations
San Diego RWQCB	<i>See SWRCB</i>	Portions of Orange and Riverside Counties	Water allocation and water quality protection regulations
Central Coast RWQCB	<i>See SWRCB</i>	Portion of Ventura County	Water allocation and water quality protection regulations

Source: Jones & Stokes, 2006.

Table 2
Southern California Air Districts and Air Basins

COUNTY	AIR BASIN	AIR DISTRICT
Imperial	Salton Sea Air Basin	Imperial County Air Pollution Control District
Los Angeles	South Coast	South Coast AQMD
	Mojave Desert	Mojave Desert AQMD and Antelope Valley AQMD
Orange	South Coast	South Coast AQMD
Riverside	South Coast	South Coast AQMD
	Mojave Desert	Mojave Desert AQMD
	Salton Sea	Mojave Desert AQMD
San Bernardino	South Coast	South Coast AQMD
	Mojave Desert	Mojave Desert AQMD
San Diego	San Diego Air Basin	San Diego Air Pollution Control District
Ventura	South Central Coast	Ventura County AQMD

Source: Jones & Stokes, 2006.

**Table 3
CARB Emission Reduction Plan for Ports and Goods Movement in California
List of Strategies to Reduce Emissions
March 2006**

Strategy	Status (Adopted or New Strategy)	Implementation Could Begin		
		2006-2010	2011-2015	2016-2020
SHIPS				
Vessel Speed Reduction Agreement for Southern California	2001	✓		
U.S. EPA Main Engine Emissions Standards	2003	✓		
U.S. EPA Non-Road Diesel Fuel Rule	2004	✓		
ARB Rule for Ship Auxiliary Engine Fuel	New (2005)	✓		
Cleaner Marine Fuels	New	✓	✓	✓
Emulsified Fuels	New	✓	✓	✓
Expanded Vessel Speed Reduction Programs	New	✓	✓	✓
Engines with Emissions Lower than IMO Standards in New Vessels	New	✓	✓	✓
Dedication of Cleanest Vessels to California Service	New	✓		
Shore Based Electrical Power	New	✓		
Extensive Retrofit of Existing Engines	New		✓	✓
Highly Effective Controls on Main and Existing Engines	New		✓	✓
Sulfur Emission Control Area (SECA) or Alternative	New		✓	
Expanded Use of Cleanest Vessels in California Service	New		✓	
Expanded Shore Power and Alternative Controls	New		✓	
Full Use of Cleanest Vessels in California Service	New			✓
Maximum Use of Shore Power or Alternative Controls	New			✓
COMMERCIAL HARBOR CRAFT				
Incentives for Cleaner Engines	2001-2005	✓		
ARB Low Sulfur Diesel Fuel Rule	2004	✓		
ARB Rule to Clean Up Existing Engines	New	✓		
Shore Based Electrical Power	New	✓		
U.S. EPA or ARB New Engine Emission Standards	New		✓	
CARGO HANDLING EQUIPMENT				
ARB Low Sulfur Diesel Fuel Rule	2003	✓		
ARB/U.S. EPA Tier 4 Emission Standards	2004	✓		

**Table 3
CARB Emission Reduction Plan for Ports and Goods Movement in California
List of Strategies to Reduce Emissions
March 2006**

Strategy	Status (Adopted or New Strategy)	Implementation Could Begin		
		2006-2010	2011-2015	2016-2020
ARB Stationary Diesel Engine Rule	2004	✓		
ARB Portable Diesel Equipment Rule	2004	✓		
Incentives for Cleaner Fuels	2001-2005	✓		
CARGO HANDLING EQUIPMENT, continued				
ARB Rule for Diesel Cargo Handling Equipment	New (2005)	✓		
ARB Rule for Gas Industrial Equipment	New	✓		
Upgrade to 85 Percent Diesel PM Control or Better	New		✓	
Zero or Near Zero Emission Equipment	New			✓
TRUCKS				
ARB/U.S. EPA 2007 New Truck Emission Standards	2001	✓		
Vehicle Replacement Incentives	2001-2005	✓		
ARB Low Sulfur Diesel Fuel Rule	2003	✓		
ARB Smoke Inspections for Trucks in Communities	2003	✓		
Community Reporting of Violators	2005	✓		
ARB Truck Idling Limits	2002-2005	✓		
ARB Low NOx Software Upgrade Rule	2005	✓		
ARB International Trucks Rule	New (2006)	✓		
ARB Private Truck Fleets Rule	New	✓	✓	
Port Truck Modernization	New	✓	✓	✓
Enhanced Enforcement of Truck Idling Limits	New	✓		
LOCOMOTIVES				
ARB Low Sulfur Diesel Fuel Rule	2004	✓		
ARB 2005 Agreement with Railroads to Cut PM Statewide	2005	✓		
Idle Enforcement Training	2006	✓		
Upgrade Engines in Switcher Locomotives	New	✓		
Retrofit Diesel PM Control Devices on Existing Engines	New	✓		
Use of Alternative Fuels	New	✓		
More Stringent National Requirements	New		✓	
Concentrate Tier 3 Locomotives in California	New		✓	✓

Table 3
CARB Emission Reduction Plan for Ports and Goods Movement in California
List of Strategies to Reduce Emissions
March 2006

Strategy	Status (Adopted or New Strategy)	Implementation Could Begin		
		2006-2010	2011-2015	2016-2020
OPERATIONAL EFFICIENCY				
Efficiency Improvements	New	✓	✓	✓
Transport Mode Shifts	New	✓	✓	✓
LAND USE DECISIONS				
PROJECT AND COMMUNITY SPECIFIC MITIGATION	New	✓	✓	✓
PORT PROGRAMS TO REDUCE EMISSIONS				
	Ongoing/New	✓	✓	✓

**Table 4
San Pedro Bay Ports Clean Air Action Plan
November 2006**

All new projects to meet or be below acceptable health risk standards (<10 in 1,000,000 excess residential cancer risk threshold)
Heavy Duty Vehicles
<ul style="list-style-type: none"> ▪ By the end of 2011, all trucks calling at the ports frequently or semi-frequently will meet or be cleaner than the EPA 2007 on-road PM emissions standards and be the cleanest available NOx at the time of replacement or retrofit.
Ocean-Going Vessels
<ul style="list-style-type: none"> ▪ 100% compliance with the Vessel Speed Reduction Program, initially out to a distance of 20 nautical miles from Point Fermin, expanded to 40 nautical miles (nm). ▪ The use of <0.2% sulfur MGO fuel in vessel auxiliary and main engines at berth and during transit out to a distance of 20 nm from Point Fermin and expanded to 40 nm or equivalent reduction (starting 1st quarter 2008). ▪ The use of shore power (or equivalent) for hotelling emissions implemented at all major container, selected liquid bulk, and cruise terminals in the Port of Los Angeles within five years and at all container terminals and one crude oil terminal in the Port of Long Beach within five to ten years. ▪ The use of DPM and NOx control devices on auxiliary and main engines mandated on new vessel builds and existing frequent callers.
Cargo Handling Equipment
Beginning 2007, all purchases will meet one of three performance standards: <ul style="list-style-type: none"> ▪ Cleanest available NOx alternative-fueled engine, meeting 0.01 g/bhp-hr PM, available at time of purchase. ▪ Cleanest available NOx diesel-fueled engine, meeting same standard as above, available at time of purchase. ▪ If there are no engines meeting above standard, then must purchase cleanest available engine (engine fuel type) and install cleanest Verified Diesel Emissions Controls (VDEC) available.
By the end of 2010, all yard tractors operating at the San Pedro Bay Ports will meet at a minimum the EPA 2007 on-road or Tier IV engine standards.
By the end of 2012, all pre-2007 on-road or pre-Tier IV top picks, forklifts, reach stackers, rubber tired gantries (RTG), and straddle carriers < 750 hp will meet at a minimum the EPA 2007 on-road engine standards or Tier IV off-road engine standards.
By end of 2014, all cargo handling equipment with engines >750 hp will meet at a minimum the EPA Tier IV off-road engine standards. Starting 2007 (until equipment is replaced with Tier IV), all cargo handling equipment with engines >750 hp will be equipped with the cleanest available VDEC verified by the California Air Resources Board.
Harbor Craft
<ul style="list-style-type: none"> ▪ By the second year of the Plan, all harbor craft home-based at San Pedro Bay Ports will meet EPA Tier 2 for harbor craft and equivalent reductions. ▪ By the fifth year, all previously repowered harbor craft home-based at San Pedro Bay Ports will be retrofitted with the most effective CARB verified NOx and/or PM emission reduction technologies. ▪ When Tier 3 engines become available, within five years all harbor craft home-based at San Pedro Bay Ports will be repowered with the new engines.
Railroad Locomotives
<ul style="list-style-type: none"> ▪ By 2008, all existing Pacific Harbor Lines switch engines in the ports will be replaced with Tier 2 engines equipped with 15-minute idling limit devices, retrofitted with either DOCs or DPFs, and shall use emulsified or other equivalently clean alternative diesel fuels available ▪ Any new switch engine acquired after the initial Pacific Harbor Line replacement must meet EPA Tier 3 standards or equivalent to 3 grams NOx/bhp-hr and 0.023 g PM/bhp-hr. ▪ By 2011, all diesel-powered Class 1 switcher and helper locomotives entering port facilities will be 90% controlled for PM and NOx, will use 15-minute idle restrictors, and after January 1, 2007, use ULSD fuels. ▪ Starting in 2012 and fully implemented by 2014, the fleet average for Class 1 long haul locomotives calling at port properties

Table 4
San Pedro Bay Ports Clean Air Action Plan
November 2006

<p>will be Tier III equivalent (Tier 2 equipped with DPF and SCR or new locomotives meeting Tier 3) PM and NOx and will use 15-minute idle restrictors. Class 1 long haul locomotives will operate on ULSD while on port properties by the end of 2007. Technologies to get to these levels of reductions will be validated through the Technology Advancement Program.</p>
<ul style="list-style-type: none"> ▪ Any new rail yard development or significantly redesigned rail yard at the San Pedro Bay Ports shall be required to operate the cleanest available technology for switcher, helper, and long-haul locomotives, utilize idling shut-off devices and exhaust hoods, use only ULSD or alternative fuels and have only clean cargo handling equipment and HDVs consistent with the Clean Air Action Plan.
<p>Implementation Strategies (Proposed)</p> <ul style="list-style-type: none"> ▪ Facilities required by lease to meet emission reduction requirements. ▪ Port tariffs changed to influence activity and implement uniform rules affecting most or all port users. ▪ New projects or changes to existing facilities must meet health risk requirements as part of environmental review process. ▪ Incentive funding targeted toward specific sources to accelerate emission reductions. ▪ Voluntary emission reduction actions encouraged. ▪ Reward participants for accepting emission reduction responsibility if they achieve reductions early or outperform program expectations. ▪ Allow a port to cover initial capital costs for equipment associated with a measure and then lease back or lease-to-own the cleaner equipment purchased. ▪ Loan guarantees ▪ Loans through a third party available to driver/owners. ▪ Provide trucking companies meeting clean truck requirements exclusive rights to operate on port property. ▪ Joint Powers Authority Nonprofit Trucking Entity to directly purchase trucks, hire drivers, etc. ▪ Recognize industry efforts under Clean Air Action Plan.

Table 5
MCGMAP Preliminary Regional Goods Movement Projects/Strategies
 (Expanded Descriptions for Table 5 in Executive Summary)

NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED..

MITIGATION/ MODE / SYSTEM	PROJECT / STRATEGY	DESCRIPTION	2007 COST ¹ (MILLIONS)	COMMITTED FUNDS (MILLIONS)	TIME FRAME ²
	ENVIRONMENTAL MITIGATION				
	PROJECT SPECIFIC MITIGATION	Implementation of goods movement infrastructure projects could require mitigation of project specific impacts such as noise, vibration, hazardous waste, visual, light, and glare.	TBD	TBD	S, M, L
	EMISSIONS REDUCTION	San Pedro Bay Ports Clean Air Action Plan	\$2,067	\$464	S
		Other Goods Movement Emission Reduction Plans and Identified Needs	TBD	TBD	S, M
RAIL	GRADE SEPARATIONS	<ul style="list-style-type: none"> • Alameda Corridor East (ACE) Grade Separations and Grade Crossings Improvements ACE County subtotals: <ul style="list-style-type: none"> ○ Los Angeles County – San Gabriel Valley ○ Orange County ○ Riverside County ○ San Bernardino County • Gateway Cities BNSF Mainline Grade Separations (on ACE list) 	\$4,450	\$961	S, M
	MAINLINE CAPACITY ENHANCEMENTS	<ul style="list-style-type: none"> • Rail Capacity Improvements (e.g., additional rail track, Colton Crossing)³ 	\$2,200	\$0	S, M
	REGIONAL FREIGHT LINKS	<ul style="list-style-type: none"> • Reconnect Santa Paula Branch Rail Line – Port of Hueneme to Santa Clarita 	\$450	\$0	M
INTERMODAL GROUND ACCESS	ON DOCK RAIL	<ul style="list-style-type: none"> • San Pedro Bay Ports Rail Systems 	\$631	TBD	S, M

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 (Expanded Descriptions for Table 5 in Executive Summary)

NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED..

MITIGATION/ MODE / SYSTEM	PROJECT / STRATEGY	DESCRIPTION	2007 COST ¹ (MILLIONS)	COMMITTED FUNDS (MILLIONS)	TIME FRAME ²
	INTERMODAL YARDS/ FACILITIES	<ul style="list-style-type: none"> • Ports of Los Angeles/Long Beach Union Pacific Intermodal Container Transfer Facility Modernization⁴ • BNSF Port of Los Angeles/Long Beach Near Dock Facility (Southern International Gateway – SCIG)⁴ 	\$300	\$0	S
			\$300	\$0	S
	INLAND PORT	<ul style="list-style-type: none"> • Further investigation of inland port strategy 	TBD	\$0	M
ALTERNATIVE TECHNOLOGY	TRUCK LANES/DEDICATED FREIGHT GUIDEWAY SYSTEM	<ul style="list-style-type: none"> • Dedicated Freight Guideway System/Regional Truck Lanes (I-710 From Port of Long Beach to SR-60; East-West Corridor between the I-710 to I-15; and I-15 to Victorville) 	\$18,268	\$35	M, L

Table 5
MCGMAP Preliminary Regional Goods Movement Projects/Strategies
 (Expanded Descriptions for Table 5 in Executive Summary)

NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED..

MITIGATION/ MODE / SYSTEM	PROJECT / STRATEGY	DESCRIPTION	2007 COST ¹ (MILLIONS)	COMMITTED FUNDS (MILLIONS)	TIME FRAME ²
<p>FREEWAY / HIGHWAY</p>	<p>FREIGHT CORRIDOR CAPACITY ENHANCEMENT AND OPERATIONAL IMPROVEMENTS</p>	<ul style="list-style-type: none"> • High Desert Corridor⁵ (SR-14 to I-15) 	<p>\$5,600</p>	<p>\$0</p>	<p>M, L</p>
		<ul style="list-style-type: none"> • Alameda Corridor SR-47 Expressway including Schuyler Heim Bridge Replacement 	<p>\$662</p>	<p>\$265</p>	<p>S</p>
		<ul style="list-style-type: none"> • Replace/Reconstruct Gerald Desmond Bridge 	<p>\$800</p>	<p>\$337</p>	<p>S</p>
		<ul style="list-style-type: none"> • I-710 Early Action Projects 	<p>\$500</p>	<p>\$12</p>	<p>S</p>
		<ul style="list-style-type: none"> ○ City of Long Beach – Shoemaker Ave. bridge interchange/PCH interchange/Anaheim St. interchange 			<p>S</p>
		<ul style="list-style-type: none"> ○ City of South Gate-Firestone Blvd interchange 			<p>M</p>
		<ul style="list-style-type: none"> ○ City of Vernon - Atlantic Blvd/Bandini Blvd ramp reconfiguration 			<p>M</p>
		<ul style="list-style-type: none"> • I-5 Truck Lanes 	<p>\$148</p>	<p>\$12</p>	<p>M</p>
		<ul style="list-style-type: none"> ○ Southbound from Pico Canyon Rd/Lyons Avenue to Weldon Canyon Road and Northbound From Weldon Canyon Road to Calgrove 	<p>\$244</p>	<p>\$0</p>	<p>M</p>
		<ul style="list-style-type: none"> ○ Southbound from Parker Road to Pico Canyon Road and northbound from Calgrove to Parker Road 	<p>\$150</p>	<p>\$0</p>	<p>M</p>
<ul style="list-style-type: none"> • SR-86 NAFTA Corridor Interchange Construction (to facilitate grade separation for trucks) 	<p>\$113</p>	<p>\$0</p>	<p></p>		
<ul style="list-style-type: none"> • SR-58 Corridor 	<p>\$188</p>	<p>\$0</p>	<p></p>		
<ul style="list-style-type: none"> ○ Realignment and Widening Project between Hinkley & Barstow 			<p></p>		
<ul style="list-style-type: none"> ○ Widening project between Kern Co. Line and east of US-395 			<p></p>		

Table 5
MCGMAP Preliminary Regional Goods Movement Projects/Strategies
 (Expanded Descriptions for Table 5 in Executive Summary)

NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED..

MITIGATION/ MODE / SYSTEM	PROJECT / STRATEGY	DESCRIPTION	2007 COST ¹ (MILLIONS)	COMMITTED FUNDS (MILLIONS)	TIME FRAME ²
	BORDER CROSSING IMPROVEMENTS	<ul style="list-style-type: none"> • Access Improvements to the California/Mexico Ports of Entry at Otay Mesa, Otay Mesa East, and Calexico East: <ul style="list-style-type: none"> ○ SR-905: 6-lane freeway and truck route (From I-805 to Otay Mesa Port of Entry) ○ SR-11/Otay Mesa East Port of Entry: 4-lane freeway (From SR-905/125 to Border) and new port of entry ○ SR-78 Brawley Bypass: 4-lane highway (SR-111-SR-78) 	\$848 \$650 \$201	\$348 \$13 \$163	S, M S S
		TOTAL	\$39,081	\$2,610	

NOTES:

1. All figures includes environmental mitigation costs
2. S=Short-term (2007-2015); M=Mid-term (2015-2025); L=Long-term (post 2025)
3. Project must demonstrate regional public benefit to qualify for public funds
4. Private sector fund sources
5. Requires further analysis west of US-395, private sector primary fund source, with possible exception of short-term project to construct section between Phantom East and I-15 (\$490 million)

Table 6
Preliminary County-Specific Goods Movement System Improvements

(Expanded Descriptions for Table 6 in Executive Summary)

(NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED.)

MODE / SYSTEM	TYPE	COUNTY	DESCRIPTION	2007 COST (IN MILLIONS)	TIME FRAME ¹
RAIL	GRADE SEPARATIONS	VEN	<ul style="list-style-type: none"> Construct Rice Avenue/UP Grade Separation Coast Main Line & Designated Access for Port Hueneme 	\$45	TBD
		VEN	<ul style="list-style-type: none"> Construct Rose Avenue/UP Grade Separation Coast Main Line 	\$45	TBD
		VEN	<ul style="list-style-type: none"> SR-118/Coast Line – Construct Grade Separation 	TBD	TBD
		LA	<ul style="list-style-type: none"> Nogales Street (LA Subdivision) grade separation project 	\$29	S
	MAINLINE CAPACITY ENHANCEMENT	SD	<ul style="list-style-type: none"> Coastal Rail Corridor – Sidings, Passing Track, Rehabilitation, and Shared Use Improvements 	\$1,350	S, M
		SD	<ul style="list-style-type: none"> South Line Rail/Trolley – Sidings, Passing Track, Intermodal Yards to Port of San Diego, Mexico Trade Connectivity, and Coronado Branch Rehabilitation 	\$328	S, M
		LA	<ul style="list-style-type: none"> Relief siding between Lang and Ravenna sidings on the Antelope Valley Line 	\$3	S

Table 6
Preliminary County-Specific Goods Movement System Improvements
 (Expanded Descriptions for Table 6 in Executive Summary)

(NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED.)

MODE / SYSTEM	TYPE	COUNTY	DESCRIPTION	2007 COST (IN MILLIONS)	TIME FRAME ¹
INTERMODAL GROUND ACCESS		LA	• Relief siding between Vincent and Lancaster sidings on the Antelope Valley Line	\$3	S
		LA	• Upgrade 7 existing sidings on the Antelope Valley Line to 40 mph	\$9	S
	INTERMODAL YARDS/ FACILITIES	SBD	• Build New BNSF Intermodal Yard in Victorville	TBD	TBD
		LA	• Shuttle Train Intermodal Service to Inland Empire; Inland Terminal	\$60	TBD
	MARITIME	SD	• San Diego Port District Marine Terminal Ground Access	\$822	S, M
ALTERNATIVE TECHNOLOGY	ITS APPLICATIONS	LA	• San Pedro ATSAC System in City of Los Angeles - provided ATSAC control of all signalized intersections within the project limits to aid motorists. Use available ITS technology to manage traffic accessing the Vincent Thomas Bridge and provide optimal route information	\$6	TBD

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 (Expanded Descriptions for Table 6 in Executive Summary)

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MODE / SYSTEM	TYPE	COUNTY	DESCRIPTION	2007 COST (IN MILLIONS)	TIME FRAME ¹
		LA	<ul style="list-style-type: none"> Wilmington ATSAC System in City of Los Angeles - provided ATSAC control of all signalized intersections within the project limits to aid motorists. Use available ITS technology to manage traffic accessing the Vincent Thomas Bridge and provide optimal route information 	\$7	TBD
		LA	<ul style="list-style-type: none"> Transportation Management, Information and Security System 	\$10	TBD
FREEWAY / HIGHWAY	FREIGHT CORRIDOR CAPACITY ENHANCEMENT AND OPERATIONAL IMPROVEMENTS	VEN	<ul style="list-style-type: none"> Reconstruct US 101/Rice Avenue IC 	\$75	M
		LA LA	<ul style="list-style-type: none"> Key Goods Movement Arterial Improvements Reconstruct SR-91/I605 interchange Reconstruct I-605/SR-60 interchange 	TBD \$240 \$1,000	TBD S S

Table 6
Preliminary County-Specific Goods Movement System Improvements
 (Expanded Descriptions for Table 6 in Executive Summary)

(NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED.)

MODE / SYSTEM	TYPE	COUNTY	DESCRIPTION	2007 COST (IN MILLIONS)	TIME FRAME ¹
		LA	• Reconstruct I-605/I-10 interchange	\$1,000	S
		LA	• Reconstruct SR-60/SR-57 interchange	\$550	S
		LA	• I-110 8 th /9 th Street Interchange – Add Auxiliary Lanes and Modify/Reconstruct Ramps (Two Projects)	\$39	TBD
		LA	• Washington Blvd. Widening and Reconstruction project	\$14	S
		LA	• Alameda Street Widening and Reconstruction in Los Angeles (101 Freeway to 7 th Street; I-10 to 7 th Street)	\$29	TBD
		LA	• Seaside Avenue/Ocean Blvd (SR-47) and Navy Way Interchange	\$43	TBD
		LA	• I-110 Connector Improvement Program includes: South Wilmington Grade Separation (\$53 M), I-110 Freeway/"C" Street Interchange Improvements (\$22 M), I-110/SR-47 Interchange & John S. Gibson Blvd Intersection/NB I-110 Ramp Access Improvements (\$39 M), SR-47 On-Ramp and Off-Ramp at Front Street (\$20 M)	\$134	TBD
	OR	• I-5 From the I-5/SR-22/SR-57 Interchange to SR-91 add a General Purpose Lane in Each Direction	\$430	M	

Table 6
Preliminary County-Specific Goods Movement System Improvements
 (Expanded Descriptions for Table 6 in Executive Summary)

(NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED.)

MODE / SYSTEM	TYPE	COUNTY	DESCRIPTION	2007 COST (IN MILLIONS)	TIME FRAME ¹
		OR	<ul style="list-style-type: none"> I-5 Reconstruct El Toro Interchange to provide separate moves to El Toro Road East and El Toro Road West 	\$120	S
		OR	<ul style="list-style-type: none"> I-5 between SR-55 and the SR-133 (near El Toro "Y") add one general purpose lane in each direction and improve interchanges in the vicinity I-5 between the vicinity of El Toro "Y" to near SR-73 add new lanes in each direction 	\$319.2	M
		OR		\$315	M
		OR	<ul style="list-style-type: none"> I-5 Northbound Extend Existing Truck Bypass Lane From Alicia Parkway to El Toro Road. Add Auxiliary lane where needed. 	\$240	L
		OR	<ul style="list-style-type: none"> I-5 Southbound From Alicia Parkway to the Crown Valley Interchange Lane add a General Purpose Lane I-5 Construct new interchange at Crown Valley (Saddleback) and reconstruct interchange at Avery Parkway with collector distributor road between Crown Valley and Avery 	\$411	M
		OR		\$260	L
		OR	<ul style="list-style-type: none"> SR-57 Northbound From Lambert Road to the SR-60 Interchange Add Truck Climbing Lane (Orange County Line) 	\$157	M

Table 6
Preliminary County-Specific Goods Movement System Improvements
 (Expanded Descriptions for Table 6 in Executive Summary)

(NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED.)

MODE / SYSTEM	TYPE	COUNTY	DESCRIPTION	2007 COST (IN MILLIONS)	TIME FRAME ¹	
		OR	• SR-57 Northbound From Orangethorpe to Lambert Road, Add Auxiliary Lane & 5 ^h Through Lane	\$140	S	
		OR	• SR-57 in the Northbound Direction Extend General Purpose Lane #5 Between Orangewood and SR-91 and Add Auxiliary Lane Where Needed	\$190.8	S	
		OR	• SR-91 Westbound From SR-57 to I-5, Add One General Purpose Lane and Add Auxiliary Lane	\$152	S	
		OR	• SR-91 Westbound- Provide a General Purpose Lane from SR-55 to SR-57 and add Auxiliary Lane	\$120	M	
		OR	• SR-91 Eastbound Add a Lane between SR-55 (Lakeview and SR-241 and Westbound From SR-241 to Imperial Highway).			
		OR	• I-405 from the I-5 to SR-55 add 1 general purpose lane in each direction	\$96	S	
					\$328.9	L
		RIV	• SR-60/10 Truck Climbing Lane	\$50	S	
		RIV	• March ARB/Global Cargo Port Van Buren Interchange Project	\$75	S	
		RIV	• I-10/SR60 New Interchange Construction	\$100	L	
		SBD	• I-15 Widening and Devore Interchange (at I-215) Reconstruction	\$200	S	

Table 6
Preliminary County-Specific Goods Movement System Improvements
 (Expanded Descriptions for Table 6 in Executive Summary)

(NOTE: REGIONAL AND COUNTY-SPECIFIC LISTS ARE BOTH CONSIDERED TO BE OF EQUAL PRIORITY IN MCGMAP. MODES AND PROJECTS ARE NOT LISTED IN PRIORITY ORDER. ALL PROJECTS WILL REQUIRE FURTHER STUDY PRIOR TO IMPLEMENTATION UNLESS ALREADY COMPLETED.)

MODE / SYSTEM	TYPE	COUNTY	DESCRIPTION	2007 COST (IN MILLIONS)	TIME FRAME ¹
		SBD	• Interstate 10 Widening and Interchange Improvements (LA Co. Line to I-215)	\$700	S
		SD	• I-5 Widen/Managed Lanes (From La Jolla Village Dr. to Vandergriff)	\$962	S
		SD	• I-15 Widen/Managed Lanes & Operational Improvements (From SR-163 to SR-78)	\$608	S
		SD	• I-805 Widen/Managed Lanes (From SR-905 to I-5)	\$1,801	S
		SD	• San Diego International Airport Truck Access to I-5 (Truck route/Interchange improvements)	\$32	M
		SD	• Pipeline Truck Access (Petroleum Terminal) to I-15 (Truck route/Interchange improvements)	\$32	M
			TOTAL	\$13,680.9	

NOTES ¹: S=Short-term (2007-2015); M=Mid-term (2015-2025); L=Long-term (post 2025)

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
All	Extend Delivery Hours to 24 hours	
All	Evaluate Use of LCVs on Dedicated Facilities	
All	Improve demand forecasts for labor and equipment across all modes	
All	Employ better trade and transportation forecasting	
All	Enact expanded public-private partnership legislation	
All	Enact design-build and design sequencing legislation	
N/A	Increase "destination loading" on ships from the far east	
Los Angeles County		
LA	Reconfiguration of Control Point (CP) Mole including computerized train control	\$20.0
LA	Pier B Street Rail Yard and ICTF	\$257.9
LA	New Three-track Cerritos Channel rail bridge	\$91.0
LA	Mainline improvements within LA/LB Harbor District	\$184.7
LA	Construct BNSF "Southern California International Gateway" Near Dock Facility	\$200.0
LA	Modernization of UP Near Dock Intermodal Container Transfer Facility (ICTF)	\$300.0
LA	Triple track s/o Thenard	\$16.5
LA	Continue PierPass program at the San Pedro Bay ports and eventually extend to 24-hour operations when warranted.	
LA	I-5 SR-14 to Calgrove Ave. truck lanes	\$50.0
LA	I-5 from Calgrove Ave. to SR-126 West truck lanes	\$100.0
LA	I-5 from SR-126 West to Kern County line truck lanes	\$366.0
LA	I-710 Corridor from Port of Long Beach/Los Angeles to SR-60 - User Fee-Backed Capacity Improvement.	\$7,000.0
LA	Reeves Avenue closure and grade separation (other port area grade separations included in I-110 Connectors Program)	\$61.0
LA	POLA/POLB Advanced Transportation Management, Information, and Security (ATMIS) System	\$15.0
LA	Replace/ Reconstruct Gerald Desmond Bridge.	\$800.5
LA	SR-47 Expressway including Commodore Heim Bridge Replacement	\$557.0
LA	Expansion of I-5 from I-605 to Orange County Line	\$1,150
LA	I-710 from I-10 to Huntington Dr - Construct 3 MF lanes each dir.	\$300.0
LA	I-710 from Huntington Dr to I-210 - Construct 3 MF lanes each dir.	\$450.0
LA	I-110 8th / 9th Street Interchange - Add auxiliary lanes and modify / reconstruct ramps (two projects)	\$39.0
LA	I-405: La Tijera Blvd to Jefferson Blvd, Add Auxiliary Lane	\$39.0
LA	I-5 Orange County Line to I-605, Widen for HOV and Mixed Flow lanes.	\$163.0
LA	I-710 Early Action Project - City of Long Beach – Shoemaker Ave. bridge interchange/PCH interchange/Anaheim St. interchange (bridge replacement and ramp reconfigurations)	\$500.0 Total of (3) I-710 Early Action Projects
LA	I-710 Early Action Project - City of South Gate – Firestone Blvd. interchange (bridge widening & ramp reconfiguration)	
LA	I-710 Early Action Project - City of Vernon – Atlantic Blvd./Bandini Blvd. (ramp reconfiguration)	
LA	I-5 Carmenita Road interchange	\$250.0

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
LA	I-110 Connector Improvement Programs (Fries Ave. grade separation - \$53 million; I-110/SR-47/Harbor Blvd. Interchange improvement program - \$17 million; C St/I-110 access ramp - \$30 million; John S. Gibson intersection & NB ramp - \$18 million; SR-47 on and off ramp - \$17 million; I-110 ramp at Miraflores & Gaffey St/SR-47 - \$31 million; Broad Ave. grade separation - \$18 million)	\$184.0
LA	Seaside Ave & Navy Way Interchange	\$40.0
LA	Reconstruct SR- 91 / I-605 Interchange	\$240.0
LA	Reconstruct SR- 60 / I-605 Interchange	\$1,000.0
LA	Reconstruct I-10 / I-605 Interchange	\$1,000.0
LA	Reconstruct I-105 / I-605 Interchange	\$500.0
LA	Develop chassis pools	
LA	Improve communications (including electronic data interchange) and planning among terminals, steamship lines and railroads to increase efficiency of on-dock rail movements.	
LA	Implement incentives to limit container dwell time	
LA	Establish port-wide terminal appointment systems for truckers	
Los Angeles / Multi-County		
LA/SB	East-West Corridor from I-710 Corridor to I-10/SR-60 Interchange	
LA/SB/ RC	Shuttle train intermodal service to Inland Empire, Inland Terminal	\$60.0
LA/SB/ RC	Evaluation of Alternative Rail Technologies	\$5.0
LA/SB/ RC/OC	Triple track BNSF Transcon; double track two UPRR corridors: LA to San Bernardino	\$2,300.0
LA/SB/ RC/OC	Alameda Corridor-East Trade Corridor Grade Separations	\$3,456.0
LA/SB/ RC/OC	Implement virtual container yards	
Orange County		
OC	SR-57 add a lane northbound from Lambert Road to Los Angeles County Line. Includes ITS components.	\$157.0
OC	SR-91 Truck Storage Lane between Weir Canyon and Imperial. Include ITS components.	
OC	I-5 Improvements SR-55 to SR-57	
OC	SR-91 - Add 5th GP lane in each direction between SR-55 and SR-241	\$135.0
OC	SR-91 EB/WB from Truck scales - Add storage lane at truck weigh in motion station between Weir Canyon and Imperial Hwy. Includes ITS components.	\$11.0
OC	SR-91 westbound from SR-57 to I-5, connect auxiliary lane. Includes ITS components.	\$72.00
OC	I-5, IC/Ramp modifications (acceleration lanes) at various locations on all routes to accommodate trucks. Include ITS components.	\$130.0
OC	I-5, At Crown Valley Parkway Ramp Improvements for SB Off-Ramp. Include ITS components.	\$10.5
OC	I-5, Re-construct southbound on-ramp and off-ramp at Alton Pkwy. Include ITS components.	\$2.7
OC	I-5 Add aux lane from Oso to Crown Valley and widen off-ramp. Include ITS components.	
OC	I-5 Reconstruct northbound on-ramps, construct SB auxiliary lanes and widen arterial at Oso Parkway. Include ITS components.	
OC	I-5 Extend Aux lane between La Paz and Oso Parkway. include ITS components.	

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
OC	I-5 From Alicia Parkway through El Toro Road extend auxiliary lane through interchange. Include ITS components.	
OC	I-5 Construct auxiliary lane from the Collector Distributor Rd to Bake Pkwy off-ramp to provide two lane off-ramp. Include ITS components.	
OC	I-5 Construct auxiliary lane between the Collector Distributor Rd and Alton Pkwy off-ramp. Include ITS components.	
OC	I-5, Construct auxiliary lane and add 2nd off-ramp lane from SB I-5/133 Branch Connector to Barranca Pkwy. Include ITS components.	
OC	I-5 Construct 2nd auxiliary lane and widen off-ramp at Jamboree Road. Include ITS components.	
OC	I-5 Widen arterial eastbound and northbound loop-on-ramp at Jamboree Road. Include ITS components.	
OC	I-5, Reconstruct Avenida Pico Interchange and widen arterial. Include ITS components.	
OC	I-5, Avenida Pico to Camino Las Ramblas add 1 general purpose lane. Include ITS components.	
OC	I-5, Mainline curve correction between Stonehill and SR-1. Include ITS components.	
OC	I-5, New SB off-ramp at Stonehill. Include ITS components.	
OC	I-5, Reconstruct the Interchange at Ortega Hwy (SR-74). Include ITS components.	
OC	I-5, Reconstruct the Interchange at Junipero Serra and widen arterial. Include ITS components.	
OC	I-5, Crown Valley/Avery Interchange Improvements /I-5 Connectors and Collector/Distributor Road. Include ITS components.	
OC	I-5, Reconstruct the Interchange at Avery Pkwy and widen arterial. Include ITS components.	
OC	I-5, Reconstruct the Interchange at La Paz Road and widen arterial. Include ITS components.	
OC	Add NB On & SB off ramps at Los Alisos (Alt #1) or SB On and Off Ramps from Avenida De La Carlota (Alt #2). Include ITS components.	
OC	I-5, Construct two-lane branch connector and extend # 6 general-purpose lane from SR-133 on to Culver Drive NB on-ramp. Include ITS components.	
OC	Sand Canyon Avenue to Jeffrey Rd Add sixth NB and SB general purpose lanes and add a second drop lane from I-5 to the SB off-ramp at Sand Canyon. Include ITS components.	
OC	I-5, Jeffrey Road and Walnut Avenue I-5 SB ramps Add eastbound shared second through lane/second right turn lane. Include ITS components.	
OC	I-5, Interchange improvement between 4th street off-ramp to north and Newport Avenue to South on the I-5, and 4th Street to the north and Edinger Avenue to the south on the SR-55. Include ITS components.	
OC	On I-5 from SR-57 to SR-91 add additional lane in each directions	
OC	I-5, SR-57/SR-22 Interchange to the SR-91: Add additional two lanes. Include ITS components.	
OC	SR-39, Widen highway under freeway from three to four lanes SR-39 / I-405 Interchange. Include ITS components.	
OC	SR-55 from SR22 to SR91 add one lane and aux lane. Include ITS components.	
OC	SR-55 19th Street to SR73 add auxiliary lanes. Include ITS components.	
OC	SR-55 Construct Aux Lane SB from Dyer to Edinger in the City of Santa Ana. Include ITS components.	
OC	SR-55 Construct Aux Lane NB from Dyer to Edinger in the City of Santa Ana. Include ITS components.	

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
OC	SR-55, I-5 to SR22 add aux lanes. Include ITS components.	
OC	SR-57, SR90 to County line add 1 general purpose and aux lane. Include ITS components.	
OC	SR-57, SR22 to SR91 add 1 general purpose and aux lanes. Include ITS components.	
OC	SR-57, At SR-91 add 4th general purpose lane. Include ITS components.	
OC	SR-57, Interchange improvement at Imperial Highway. Include ITS components.	
OC	SR-57, Add northbound lane from 0.3 miles south of Katella Avenue to 0.3 miles north of Lincoln Avenue. Include ITS components.	
OC	SR-57 Add Northbound lane from 0.4 miles North of SR-91 to 0.1 miles North of Lambert Road Interchange Include ITS components.	
OC	SR-91, Reconstruct interchange extend existing auxiliary lane to tie into existing on-ramp between SR-55 Connector and Tustin Avenue Interchange. Include ITS components.	
OC	SR-91, Add general purpose lane from SR-55 to Riverside Co. line. Include ITS components.	
OC	SR-91, Add a lane in each direction eastbound between SR-55/SR-91 Connector to east of Weir Canon Road and westbound between east of Weir Canyon Road and Imperial Highway	
OC	SR-91, Construct WB 91 to SB 55 connector flyover. Include ITS components.	
OC	SR-91, Auxiliary lane between Lakeview Avenue to SR-241. Include ITS components.	
OC	SR-91, Lakeview interchange construct barrier-separated onramp (2 lanes) from SB Lakeview to WB SR-91. Include ITS components.	
OC	SR-91, Lakeview interchange construct barrier-separated onramp (2 lanes) from SB Lakeview to WB SR-91. Include ITS components.	
OC	SR-91, Relocation of Weigh Stations in both directions. Include ITS components.	
OC	SR-91. SR-241 to SR-71 add auxiliary lanes. Include ITS components.	
OC	SR-91, Add auxiliary lane from SR-71 to SR-241. Include ITS components.	
OC	SR-133: Widen from Lake Forest Drive to I-405 from 4 to 6 lanes. Include ITS components.	
OC	SR-133: I-405 to I-5 add 1 general purpose lane and aux lanes. Include ITS components.	
OC	I-405, Sand Canyon Ave SB off-ramp add second drop lane from I-405 to the off-ramp. Include ITS components.	\$3.0
OC	I-405, Widen on-ramp from 2-lane to 3-lane at WB Culver Dr. Include ITS components.	\$2.7
OC	I-405, Modify ramp and widen intersection at ramp entrance at Euclid. Include ITS components.	\$4.0
OC	I-405, Modify ramp and add 2nd NB off ramp at Talbert interchange in Fountain Valley. Include ITS components.	\$3.1
OC	I-405: Add auxiliary lane from SR-133 to Irvine Center Drive. Include ITS components.	
OC	I-405: Construct Sand Cyn SB on-ramp with an auxiliary lane to the SR-133 Collector Distributor Road. Include ITS components.	
OC	I-405, Construct auxiliary lane between Jeffrey Road On-Ramp & Sand Canyon. Include ITS components.	
OC	I-405, Add Aux lane from Jeffery on-ramp to Culver Dr. off-ramp. Include ITS components.	
OC	I-405, Jeffrey Rd NB off ramp Add second auxiliary lane from I-405 to off-ramp. Include ITS components.	
OC	I-405, SR55 to SR73 add aux lanes. Include ITS components.	
OC	I-405, Construct aux lane from Talbert to Ellis/Euclid in the City of Fountain Valley. Include ITS components.	
OC	I-405, Construct aux lane from Euclid to Brookhurst in the City of Fountain Valley. Include ITS components.	

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
OC	I-405, Construct NB auxiliary lanes from Brookhurst to Beach in the City of Fountain Valley. Include ITS components.	
OC	I-405, Construct SB Auxiliary lanes from Magnolia to Brookhurst in the City of Fountain Valley. Include ITS components.	
OC	I-405: Widen and extend collector distributor road southerly to serve both SR-133 and Irvine Center Drive. Include ITS components.	
OC	I-405: Braid the SR-133 Connector with NB Sand Canyon Ave. Include ITS components.	
OC	I-405: SR-133 to SR-55, add 1 general purpose lane and auxiliary lanes. Include ITS components.	
OC	I-405: Reconstruct SB 405 connector to SR-133, braid with NB off-ramp from SR-133 to Barranca Parkway. Include ITS components.	
OC	I-405: Modify the Interchange to widen the Sand Canyon Rd. Include ITS components.	
OC	I-405: Construct collector distributor SB I-405 from Jeffrey Road to Sand Canyon. Include ITS components.	
OC	I-405: South Bristol Braid delete left turn access from NB Bristol to SB I-405. Provide right turn on-ramp from NB Bristol to SB I-405 via a new braid that provides direct access to NB SR-55. Include ITS components.	
OC	I-405: Add a general purpose lane and auxiliary lanes in each direction. Include ITS components	
OC	I-605, Intersection Modification & ramp entrance Katella Ave on ramp to NB I-605. Include ITS components.	\$2.0
OC	I-605, Modify ramp at Katella. Include ITS components.	\$2.0
OC	I-605 to County line add 1 general purpose lane. Include ITS components.	
Riverside County		
RC	I-10 from San Bernardino County Line (R0.0) to Banning City Limits (12.9) - Add eastbound truck climbing lane.	\$75.0
RC	On I-10 at & E/O Apache Trail - Construct new Morongo Pkwy IC (4 lns, ramps - 2 lns), construct aux lane, widen Apache Trail 3 to 5 lns, widen Seminole Dr 2 to 5 lns (ea: oa650g)	
RC	On I-10 near Rancho Mirage from 1.5 km east to 0.9 km west of Ramon Rd IC - Construct Bob Hope Dr extension (6 lanes) with a new diamond IC plus modify Ramon Rd IC and ramps	
RC	I-10 from Calimesa @ County Line Rd (R4.0) to 500 meters e/o Sandalwood Dr I/C (R4.3) - Replace Bridge, Ramps, Construct Auxiliary Lanes, and Realign Calimesa Rd (EA 0A710K).	\$60.0
RC	I-10 at Ave 50 - Construct new interchange .	\$19.5
RC	I-10 McNaughton Pkwy (approx. 3.38 mi e/o Dillon Rd) - Construct interchange.	\$20.0
RC	I-10 at Portola Ave btwn Dinah Shore & Varner - Construct new IC (4 lanes) and ramps incl. bridge over UPRR & Varner realignment.	\$19.8
RC	I-10 at Monterey Ave - Reconfigure IC, add 1 NB lane, construct new WB entry loop ramp from Monterey & WB entry ramp from Varner, realign/relocate WB exit ramp.	\$4.3
RC	At I-15/Weirick Road IC in Corona - Widen ramps 1 to 2 lanes, widen Weirick Road 2 to 4 lanes from Temescal Canyon Rd to I-15, and install signals at ramps/Weirick Rd	
RC	i-15/cajalco road, widen Cajalco Rd i/c widen 2 to 4 lns from Temescal Cyn rd to Bedford Cyn rd and widen ramps 1 to 2 lanes.	
RC	At I-15/El Cerrito Rd IC in Corona - Widen on/off ramps 1 to 2 lanes, widen 2 to 4 lanes El Cerrito Rd between ramps, install signals, realign Bedford Cyn Rd and add soundwalls	

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
RC	on i-15 at Ontario Ave, widen sb off & nb on ramps 2 to 3 lns, & widen Ontario 4 to 6 lns (Compton Ave to State St) & install signals	
RC	In Riverside County at i-15/Limonite Ave IC - widen ic 4 to 6 lns, ramps 1 to 2 lns, & widen Limonite Ave from Hamner to Wineville 4 to 6 lns (approx 1 mi)	
RC	At I-15 and Clinton Keith Road widen overcrossing from 2 to 4 lns and widen ramps from 1 to 2 lns	
RC	SR-86 S at Ave 50 - Construct interchange.	\$9.3
RC	SR-86 S at Ave 52 btwn La Hernandez and Polk - Construct new interchange.	\$19.7
RC	SR-86 at Ave 54 btwn SR-111 & Fillmore - Construct bridge/interchange w new SR-86.	\$11.2
RC	SR-86 S at Airport Blvd/Ave 56 btwn Orange & Fillmore - Construct new interchange (Spread-Diamond).	\$17.8
RC	SR-86S/Airport Blvd. (Ave. 56) construct new IC (three lanes OC:1 lane each direction + 1 median lane) and ramps (1 lane) from approx. Desert Cactus Dr. Ave. 57	\$27.8
RC	SR-86 S at SR-195 (Avenue 66) R10.63/R11.43 - Near Mecca, construct new interchange.	\$19.4
RC	SR-86 S Tyler St w/o SR-86S Tyler St e/o SR-86S - Construct new interchange.	\$19.0
RC	SR-60 at Etiwanda Ave btwn San Sevaine Wy & Iberia St - Widen ramps 1 to 2 lanes. 0.1 mi..	\$0.2
RC	SR-60 from 0.4 mi e/o I-15/SR-60 IC to 0.2 mi e/o Main St - Add auxiliary lanes both directions.	\$5.0
RC	On I-10 at Indian Ave near Palm Springs - Widen overcrossing 2 to 6 lns from 20th Ave North of I-10 & Garnet ave South of I-10 & ramps 1 to 2 lns (tea21-#377) (ea# 45570)	
RC	On I-10 at Date Palm IC in Cathedral City - Widen overcrossing from 2 to 6 lns and ramps from 1 to 2 lns	
RC	At I-10 and Jefferson St IC, modify/widen existing IC from 2 to 6 lanes	
RC	I-10 from Monterey Ave (44.5) to Dillon Rd (58.9) - Add 1 MF lane each direction (EA 0A030K).	\$71.0
RC	I-10/SR-60 - Construct new interchange.	\$129.0
RC	SR-60 - Construct truck climbing lane through Badlands to I-10	\$26
RC	SR-60 at Milliken Ave btwn Etiwanda Ave & Wineville Rd - Widen ramps 1 to 2 lanes. 0.1 mi..	\$0.1
San Bernardino County		
SB	I-15 from Wheaton Springs-Baily Road to Yates Well Road - construct NB truck descending lane	
SB	Colton Crossing BNSF/UP rail grade separation	\$280.0
SB	I-10 and I-215 from On I-10 from 0.1 km w/o I-215 (PM 23.6) to 0.9km e/o SR-38 (PM 31.4) to On I-215 from Riverside County Line (PM 0.0) to Jct I-10/I-215 (PM 4.03) - Install Fiber Optic Communications (FOC) backbone system, Changeable message signs (CMS), Ramp metering stations (RMS), modify existing communication hub, CCTV, VDS, TOS Cabinets; widen on-ramps on I-10 and I-215; add aux lanes on I-10 (various locations).	\$9.5
SB	I-10 from 0.1 km e/o I-15 (PM 9.9) to 0.4 km e/o I-215 (PM R24.5) - Install RMS, CCTV ESU; widen entrance ramps from 1 to 2 lanes at: EB & WB at Cherry Ave, Citrus Ave, Cedar Ave, Riverside Ave and Mt Vernon Ave; WB at Rancho Ave; EB at 9th St.	\$9.2
SB	I-10 - Add auxiliary lanes from I-15 to Riverside Co. line	
SB	I-10 from 0.8 km e/o Etiwanda Ave OC (PM 11.6) to 1.5 km w/o Riverside Ave OC (PM 19.1) - In Fontana widen exit ramps from 1 to 2 lanes at Cherry Ave, Citrus Ave, & Cedar Ave IC to accommodate proposed aux lanes at Cherry Ave IC E/B aux lane PM 11.99/12.85, W/B Aux lane PM 13.38/13.68; Citrus Ave IC E/B aux lane only PM 14.58/14.88; Cedar Ave IC E/B aux lane PM 17.36/17.83, W/B aux lane PM 18.94/19.41.	\$19.0
SB	I-10 WB from Yucaipa Bl to Ford St - Add 1 MF lane westbound.	\$30.0

Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)

County	Description	Cost (\$Mill's)
SB	SR-60 from Ramona Ave. to I-15 - add auxiliary lanes	\$71.0
SB	I-15 - Rt 60 to I-10 Widen Freeway	\$100.0
SB	I-15/I-215 Devore interchange	\$200.0
SB	SR-60 / Ramona interchange	\$26.0
SB	SR-60 / Euclid interchange	\$5.0
SB	SR-60 / Grove interchange	\$43.0
SB	SR-60 / Vineyard interchange	\$43.0
SB	SR-60 / Archibald interchange	\$6.0
SB	I-10 / Monte Vista interchange	\$25.0
SB	I-10 / Grove/4th interchange	\$67.0
SB	I-10 / Cherry interchange	\$43.0
SB	I-10 / Beech interchange	\$40.0
SB	I-10 / Citrus interchange	\$47.0
SB	I-10 / Cedar interchange	\$33.0
SB	I-10 / Riverside interchange	\$50.0
SB	I-10 / Pepper interchange	\$33.0
SB	I-10 / Mt. Vernon interchange	\$31.0
SB	I-10 / Tippecanoe interchange	\$50.0
SB	I-10 / Mt. View interchange	\$50.0
SB	I-10 / California interchange	\$43.0
SB	I-10 / Alabama interchange	\$26.0
SB	I-15 / 6th/Arrow interchange	\$36.0
SB	I-15 / Joshua interchange	\$1.0
SB	I-15 / Bear Valley interchange	\$20.0
SB	I-15 / La Mesa-Nisqualli interchange	\$72.0
SB	I-15/High Desert Corridor interchange	\$74.0
SB	I-215 / University interchange	\$29.0
SB	I-215 / Pep/Lind interchange	\$50.0
SB	I-215 / Palm interchange	\$10.0
SB	SR-210 / 5th interchange	\$17.0
SB	SR-58 PM 21.8/31.0 Near Hinkley from 1.4 miles /wo Valley View Rd. to 0.Kern Co. Line to 7.5 miles E/O JCT US-395. Construct 4 lane expressway. (2-4 lanes) (Phase 2)	\$93.0
SB	SR-58 PM 0.0/12.9 Kern Co. Line to 7.5 miles E/O JCT US-395. Construct 4 lane expressway.	\$152.0
SB	US-395 from Adelanto to I-15 - realign on new route to carry trucks and through traffic	\$670.0
SB	High Desert Corridor - Construct new roadway between Antelope Valley and Victor Valley (First phase from 1 Mi. W/O US-395 to SR-18 in Apple Valley - costs for first phase only)	\$900.0
SB	I-15 at Foothill Blvd (SR-66) - Add 400m deceleration lane on NB I-15 and widen NB off-ramp from 1 to 2 lanes.	\$0.7
SB	Southern California Logistics Airport Track and intermodal yard improvements	\$278.5
San Bernardino / Riverside County		
SB/RV	Electronic Clearance/Pre Pass Program for Inland Empire ITS	\$2.0
San Diego County		
SD	San Diego Yard Improvements (Port, Airport, Border Region)	\$2,112.9

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
SD	San Diego Mainline Rail Improvements	\$1,929.6
SD	I-5, Widen I-805 to SR56	\$180.0
SD	I-5, Widen/ML La Jolla Vil. to Vandergrift	\$962.0
SD	I-805, Widen/ML SR905 to SR54	\$469.0
SD	I-805, Widen/ML SR54 to I-8	\$555.0
SD	I-805, Widen/ML, I-8 to I-5	\$469.0
SD	I-805, Widen/ML Mission Valley Viaduct	\$308.0
SD	SR125, SR905 to San Miguel RD	\$635.0
SD	SR125, San Miguel Rd to SR54	\$140.0
SD	SR52, Widen SR125 to SR67	\$446.0
SD	SR52, I-805 to SR125	\$241.0
SD	I-15, Widen/HOV SR94 to SR163	\$247.0
SD	SR54/125, Widen/HOV I805 to SR94	\$111.0
SD	SR125, Tele Canyon to San Miguel Rd	\$37.0
SD	SR125, San Miguel Rd to SR 54	\$37.0
SD	SR94, Widen/HOV	\$190.0
SD	TAMT/NCMT Ground Access Improv. 1	\$2.4
SD	Lindbergh Field to I-5 Access	\$31.6
SD	SR 905, Siempre Viva Interchange	\$29.0
SD	SR905, I-805 to Mexico Border	\$423.0
SD	SR905, Otay Mesa POE Truck Route	\$42.0
SD	SR-11, 4F SR905 to Mexico	\$234.0
SD	East Otay Mesa Border Crossing	\$750.0
SD	KM MV Terminal to I-15 Access	\$31.6
SD	I-15 Improvements - SR-52 to Lake Hodges	\$83.0
SD	I-15, Widen/ML SR56 to Ctr City Pkwy	\$422.0
SD	I-15 Widen/ML, SR163 to SR56	\$342.0
SD	I-15 Widen/ML, Ctr City Pkwy to SR78	\$183.0
SD	I-5, SR54 to Sea World Drive	\$210.0
SD	I-5/I-805 HOV/ML Connectors	\$222.0
SD	I-15 Improvement, SR52 - SR78	\$19.0
SD	I-15/SR94, S/W-E/N Connectors	\$185.0
SD	SR94, Widen/HOV I-5 to I-15	\$99.0
SD	SR94/SR125 W/N-S/E Connectors	\$136.0
SD	TAMT/NCMT Ground Access Design	\$1.2
San Diego / Multi-County		
SD/RC/ SB	I-15 (U.S./Mexico Border to Victorville) dedicated truck lanes (2 lanes in each direction)	
Ventura County		
VC	Port/rail intermodal access at Port of Hueneme	\$18.0
VC	Santa Paula Branch Line from Santa Clarita to Port Hueneme	\$350.0
VC	Port Terminal - Hueneme Rd (Port to Los Pasos), Los Pasos (Hueneme to US 101)	

**Table 7
Comprehensive List of Goods Movement Projects (INITIAL EVALUATION)**

County	Description	Cost (\$Mill's)
VC	Port Terminal - Ventura Rd (Hueneme to Channel Island), channel Island Blvd (Ventura to Victoria), Victoria Ave (Channel Island to US Port Terminal - Ventura Rd (Hueneme to Channel Island), channel Island Blvd (Ventura to Victoria), Victoria Ave (Channel Island to US 101)	
Imperial County		
IC	SR-78/Brawley bypass	\$108.0

**Table 8
Roles and Responsibilities**

ACTION DESCRIPTION(S)	RESPONSIBLE AGENCIES	TIME FRAME ¹	GOAL/OBJECTIVE	MARKET SEGMENT	COST	FUNDING STRATEGIES & CHALLENGES
ACTION SET 1: ACCELERATE ENVIRONMENTAL MITIGATION						
1.1. Fund and implement the SIP (including San Pedro Bay Ports CAAP, 2007 SCAQMP, and statewide GMAP)	Respective environmental agencies	I, C	Reduce air quality impacts of goods movement	All goods movement vehicles (truck, rail, intermodal equipment, ships)	\$2B for the CAAP	State General Obligation Bonds (potential source), secure greater share of Federal and state funding and work with San Pedro Bay ports to negotiate funding plan with private sector
1.2. Develop guidelines for local jurisdictions to use in siting and designing goods movement related land uses and facilities	MCGMAP partners (in cooperation w/ local agencies)	I	Minimize adverse impact between goods movement & local communities to balance impacts with economic opportunities	All goods movement projects	TBD	Use the Goods Movement Environmental Justice Grant to initiate process and identify potential fund sources
1.3. Accelerate broad regional environmental mitigation strategies	County Commissions, MPO, state and federal agencies; private industry	S,M	Reduce emissions and improve public health	All goods movement vehicles (truck, rail, intermodal equipment, ships)	TBD	Moderate/high opportunity for regional fair share and private sector funding
1.4. Initiate a follow-on effort to identify more aggressive goods movement environmental initiatives to achieve regional air quality conformity and complement the State Implementation Plan	MCGMAP partners	I	Full implementation of current proposals is will not achieve conformity	All goods movement projects	TBD	Use discretionary planning funds to conduct research The challenge will be lack of understanding of new innovative solutions
1.5. Accelerate regional emission reduction measures and strategies	County Commissions, MPO, state and federal agencies	S	Reduce emissions and improve public health	All goods movement projects	TBD	Moderate/high opportunity for regional fair share and private sector funding

**Table 8
Roles and Responsibilities**

ACTION DESCRIPTION(S)	RESPONSIBLE AGENCIES	TIME FRAME ¹	GOAL/OBJECTIVE	MARKET SEGMENT	COST	FUNDING STRATEGIES & CHALLENGES
1.6. Accelerate project specific environmental mitigation strategies	Project sponsors/owners	S,M,L	Reduce localized/community impacts	All goods movement projects	TBD	Moderate/high opportunity for regional fair share and private sector funding
ACTION SET 2: RELIEVE CONGESTION AND IMPROVE MOBILITY						
2.1. Fund and implement the use of on-dock rail and near-dock as needed	Ports and railroads	I, C as needed	Reduce truck traffic volumes, congestion, and emissions for port communities	Regional, national intermodal markets	\$631M on-dock SCIG \$500M near-dock ICTF	Private sector implementation and funding. Near-dock fully funded by industry. Significant funding shortfall for on-dock improvements (61% funding gap, assuming 39% from TCIF). The challenge is limited available acreage due to many competing operations at the ports
2.2. Increase Intermodal Lift Capacity	Ports and railroads	S	Reduce congestion and emissions	Regional, national intermodal markets	TBD	High opportunity for negotiated project fee
2.3. Participate with railroads to eliminate key bottlenecks and increase capacity of mainline rail system - Mainline Rail Plan (MLRP)	County Commissions, Metrolink, Class I railroads	S, and as needed	Increase regional passenger & freight rail service and reduce vehicular traffic	Regional, national intermodal markets	\$2.1B for MLRP; \$280M for Colton Xing	Secure more Federal and state funding. Significant funding shortfall – 100% gap for both. TCIF-potential source for additional 20% for each. Potential private sector and railroads participation.
2.4. Increase Mainline Rail Capacity	Railroads and rail agencies	S	Reduce congestion and emissions	Regional, national intermodal markets	TBD	High opportunity for private sector funding

**Table 8
Roles and Responsibilities**

ACTION DESCRIPTION(S)	RESPONSIBLE AGENCIES	TIME FRAME ¹	GOAL/OBJECTIVE	MARKET SEGMENT	COST	FUNDING STRATEGIES & CHALLENGES
2.5. Develop framework to provide ongoing improvements to mainline track. (e. g. Colton grade separation, highway-rail grade separations, locomotive emission reductions, and other rail corridor related mitigations)	Railroads/rail agencies and State, regional or local agencies	S	Reduce congestion and emissions	Regional, national intermodal markets	TBD	High opportunity for private sector funding (increased contributions)
2.6. Implement the multi-county Alameda Corridor East (ACE) Trade Corridor railroad grade crossing improvement program	County commissions	I, C as funding comes available	Reduce the congestion, emissions, and the impact of regional rail movements on local communities	Local communities	\$4.3B	Secure greater share of Federal and state funding. Significant funding shortfall – 86% gap. TCIF a potential source for additional 20%.
2.7. Grade Separation	County commissions	S,M,L	Reduce congestion and emissions	Local communities	TBD	High opportunity for regional fair share; low for private sector funding

**Table 8
Roles and Responsibilities**

ACTION DESCRIPTION(S)	RESPONSIBLE AGENCIES	TIME FRAME ¹	GOAL/OBJECTIVE	MARKET SEGMENT	COST	FUNDING STRATEGIES & CHALLENGES
2.8. Implement high-priority freeway capacity and safety operational improvement projects included in county transportation plans. (e.g., Gerald Desmond Bridge, I-710...)	County commissions and state agencies; ports	I, C as funding comes available	Improve mobility, operations and safety	Local, regional and transload markets	\$1.531 B, excl. I-710 & High Desert corridor	Work with the San Pedro Bay ports to negotiate a fair-share funding plan with shippers. Significant funding shortfall (52% gap). Industry user fee and TCIF a potential source.
2.9. Initiate RSTIS to evaluate the feasibility of a dedicated freight guideway on east-west corridor bounded by I-710, SR-60, I-10, and I-15, from SR-60 to U.S.-395	MCGMAP partners	S	Reduce congestion, emissions, and impact of truck related traffic relative to other East/West corridors and for the specific factors analyzed. This corridor has the least impact on schools and the greatest revenue potential	Local, regional and transload markets	\$4-5M for study	Discretionary planning fund The challenge is the community acceptance of a dedicated freight guideway and filling the funding gap to implement it – only 20% available through traditional tolling methods
2.10. Implement key highway projects	County commissions and state agencies; ports	S,M	Congestion reduction, truck trip reduction, air quality improvement	Local, regional and transload markets	TBD	Moderate/high opportunity for regional fair share and private sector funding
2.11. Continue planning of I-710 dedicated freight guideway facility Or is it the EIR and EIS	LA County agencies (Metro, Caltrans, SCAG, Gateway COG)	S	Congestion reduction, truck trip reduction, air quality improvement	Local, regional and transload markets	\$5.5B	Moderate/high opportunity for regional fair share and private sector funding

**Table 8
Roles and Responsibilities**

ACTION DESCRIPTION(S)	RESPONSIBLE AGENCIES	TIME FRAME ¹	GOAL/OBJECTIVE	MARKET SEGMENT	COST	FUNDING STRATEGIES & CHALLENGES
2.12. Develop inland port / concentrate inland warehouse and distribution locations	County and City planning agencies	S,M	Reduce trucks; improve air quality; minimize community impacts	Local, regional and transload markets	TBD	Moderate/high opportunity for development impact fee
2.13. Improve highway system	County commissions and state agencies	S,M,L	Promote safe and efficient mobility for all users	All goods movement market segments	TBD	Low opportunity for negotiated fair share
2.14. Increase Border Trade Capacity and Efficiency	Project sponsors, County Transportation Commissions, U.S. Customs and Border Protection	S	Reduce congestion and emissions	Regional, national, and international markets	\$1.5B	Moderate / high opportunity for regional fair share and private sector funding
ACTION SET 3: IMPROVE OPERATIONAL EFFICIENCY						
3.1. Implement efficiency improvements contained in the San Pedro Bay Ports Master Plans.	Ports and port tenants	I, C in step with new innovations and approaches	Minimize community impacts and accommodate trade	International container market	TBD	Private sector implementation and funding The challenge is institutional barriers...
3.2. Improve terminal productivity, truck turn times, and intermodal operations	Ports, railroads, intermodal terminal operators	S	Improve operations, increase mobility and reduce emissions	International container market	TBD	Moderate/high opportunity for private sector funding

**Table 8
Roles and Responsibilities**

ACTION DESCRIPTION(S)	RESPONSIBLE AGENCIES	TIME FRAME ¹	GOAL/OBJECTIVE	MARKET SEGMENT	COST	FUNDING STRATEGIES & CHALLENGES
3.3. Highway operational improvements	County commissions and state agencies	S.M	Improve operations, increase mobility and reduce emissions	All goods movement market segments	TBD	Low opportunity for regional fair share and private sector funding
3.4. Develop public/private partnerships to research and develop advances in goods movement transportation technologies.	MCGMAP partners and others	S	Conventional modes do not have the capacity to reduce future community and environmental impacts. Private sector lacks long-term solutions	All goods movement market segments	TBD	Planning funds. Partner with private sector and university-based transportation technology research centers
3.5. Implement Ontario International Airport's air cargo cross-dock facility	Airport agencies	S	Airport and Belly Cargo Shift	Air cargo	TBD	Low opportunity for regional fair share and private sector funding
3.6. Initiate goods movement supply chain logistics study on the link between industry supply chain trends and trade related transportation patterns and movements	The San Pedro Bay Ports and the MCGMAP partners	S	Data modeling of supply chain impacts on transportation patterns, particularly of first, secondary, and tertiary trips	All goods movement market segments	\$2-4M	Discretionary planning funds. Partner with ports and private sector The challenge is generating reliable data
ACTION SET 4: DEVELOP EQUITABLE PUBLIC/PRIVATE FUNDING STRATEGY						
4.1. Maximize the Study Area's Fair-share of State and Federal Funds	County and state agencies	S	Increase funding capability to complete projects	Regional and national goods movement market segments	TBD	Federal dollars maybe federal participation or federal grants and loan?

**Table 8
Roles and Responsibilities**

ACTION DESCRIPTION(S)	RESPONSIBLE AGENCIES	TIME FRAME ¹	GOAL/OBJECTIVE	MARKET SEGMENT	COST	FUNDING STRATEGIES & CHALLENGES
4.2. Negotiate user fees with industry that can be included in a project-specific finance plan to improve goods movement and air quality.	MCGMAP partners and the ports	I	Increase goods movement funding from private sector. Ensure health and economic well being of the region	Regional and national goods movement market segments	TBD	Work with the San Pedro Bay ports to negotiate a fair-share funding plan with importers/exporters and licensed motor carriers
4.3. Establish institutional arrangements to collect and disburse funds.						The challenge is agency interests competing with institutional barriers
4.4. Pursue self-help public-private funding arrangements	County and state agencies	S	Increase funding capability to complete projects	Regional and national goods movement market segments	TBD	TBD
4.5. Implement the SCNFG MOU among regional, state, and federal agencies to facilitate the actions contained in the MCGMAP	MCGMAP partners, state and Federal agencies	I	Facilitate a coordinated approach to implementing and monitoring the action plan	Local, regional, national goods movement market segments	TBD	Establish a joint working group (regional state & fed agencies) to lead coordination and implementation The challenge is multiple agencies' broad range of operational objectives
4.6. Develop Institutional Structure for Managing User Fees and Revenue	County and state agencies	S	Increase funding capability to complete projects	Regional and national goods movement market segments	TBD	TBD
4.7. Develop and coordinate a comprehensive regional legislative support program for goods movement	MCGMAP partners	S	Increase the region's chances of securing Federal and state funding	Regional and national goods movement market segments	TBD	Deploy as part of overall project programming process
4.8. Maintain a database of high priority goods movement						The challenge is many competing interests

Note 1: S = Short-term (2007-2015), M = Mid-term (2015-2025), L = Long-term (post 2025), I = Immediate, C = Continuous

**Table 9
Detailed Actions**

TYPE OF ACTION	ACTION SET	TIME FRAME ¹
ACTION SET 1: ACCELERATE ENVIRONMENTAL MITIGATION		
PROJECT SPECIFIC	Promote coordinated CEQA/NEPA review of regional goods movement projects. Increase public involvement and notification to expand CEQA/NEPA process to a regional level.	S,M,L
	Develop specific mitigation plans for proposed projects.	S,M,L
	Achieve compliance w/ natural resource statutes (fed & state Endangered Species Acts and Clean Water Acts, Migratory Bird Treaty Act, etc.)	S,M,L
	Include “smart” design and good planning principles in the short-term, such as: <ul style="list-style-type: none"> – Landscaped buffering – Noise barriers – Exterior light shielding and positioning – Facility orientation to minimize light and noise spillover – Pedestrian crossing improvements – Paleontological and archeological surveys and monitoring – Separation of incompatible land uses – Wetlands protection 	S
REGIONAL CONFORMITY	Aggressively seek reductions in diesel emissions.	S
	Consider market-based approaches to emissions reduction, such as that recommended by the Maritime Goods Movement Coalition.	S
	Initiate a follow-on effort to identify more aggressive goods movement initiatives to achieve regional air quality conformity.	S
	Undertake an initiative to generate public and/or private funds to accelerate implementation of the air quality strategies contained in the Ports' Clean Air Action Plan, the California Air Resources Board's Emission Reduction Plan, & the South Coast AQMD's Air Quality Management Plan.	S
BROADER REGIONAL STRATEGIES	Fund and implement the State Implementation Plan including the San Pedro Bay Ports Clean Air Action Plan (CAAP), the 2007 South Coast Air Quality Management (AQMP), and the California Air Resources Board (ARB) statewide Goods Movement Action Plan (GMAP).	S,M,L
	Develop guidelines for local jurisdictions to use in siting and designing goods movement related land uses and transportation facilities.	S

**Table 9
Detailed Actions**

TYPE OF ACTION	ACTION SET	TIME FRAME ¹
	Strongly encourage EPA to rapidly finalize its proposed rulemaking for the Control of Emissions of Air Pollution from New Locomotive Engines and New Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder.	S
	Urge adoption of a Sulfur Emission Control Area (SECA) for the west coast.	S
	Achieve full implementation of emerging technologies that have air quality benefits, including, but not limited to: – Low-sulfur diesel fuels – Shore-based electrical power (cold ironing) – Diesel particulate filter and diesel oxidation catalyst retrofits – Fuel cells – Fleet modernization/replacement – On-board engine diagnostics – Diesel-electric hybrids	S S, M, L S L S S M
	Investigate feasibility of advanced transportation technologies such as Maglev and linear induction motors.	L
	BROADER REGIONAL STRATEGIES	Promote short term coordinated institutional policies for: – Quiet zones for rail corridors – Stricter zoning and land use regulations (buffering) – Strengthened mandatory emissions controls and engine performance standards – Mitigation banking and/or development of pooled funds for mitigation (Time frame to be determined) – Research funding (Timeframe to be determined) – Community health investment (e.g., health clinics) (Time frame to be determined)
ACTION SET 2: RELIEVE CONGESTION AND IMPROVE MOBILITY		
INTERMODAL LIFT CAPACITY ENHANCEMENTS	Fund and implement the full use of on-dock rail according to the San Pedro Bay Ports Master Plans, as well as increase intermodal rail lift capacity near-dock as needed.	S,M,L
	Implement Ports Rail Systems (on-dock rail development)	S

**Table 9
Detailed Actions**

TYPE OF ACTION	ACTION SET	TIME FRAME ¹
	Implement BNSF's near-dock rail yard.	S
	Modernize the UPRR's ICTF.	S
	Build new BNSF intermodal yard in Victorville.	S
	Consider a comparable facility in Banning/Beaumont area along UPRR.	S,M
MAINLINE RAIL CAPACITY ENHANCEMENTS	Participate with the railroads in eliminating key bottlenecks along the mainline rail system, such as the Colton Crossing, and in the capacity expansion along the mainline system according to the Mainline Rail Plan (MLRP).	S
	Develop the appropriate institutional arrangements and negotiating framework to provide simultaneous and continuous improvement to mainline track improvements, the Colton grade separation, highway-rail grade separations, locomotive emission reductions, and other rail corridor related mitigations.	S
	Grade separate Colton Crossing.	S
	Triple track the BNSF Transcon from Redondo Junction to San Bernardino.	S
	Triple track the Cajon Pass.	S
	Double track segments of the UPRR Los Angeles and Alhambra Subdivisions.	S
	Implement Santa Paula Branch Line gap closure.	M
GRADE SEPARATIONS	Implement the Alameda Corridor East (ACE) Trade Corridor railroad grade crossing improvement program for all counties involved.	S,M,L
	Grade separate SR-118 over UPRR coast mainline near Somis.	S
	Grade separate 5th Street (SR-34/Rice Avenue) over UPRR Coast Mainline in City of Oxnard.	S
	Implement Port of San Diego Tenth Avenue/National City Marine Terminals Access program, including grade separation.	M

**Table 9
Detailed Actions**

TYPE OF ACTION	ACTION SET	TIME FRAME ¹
<p>COMPREHENSIVE INNOVATIVE APPROACH (HIGHWAY)</p>	<p>Implement the following key highway projects:</p> <ul style="list-style-type: none"> – Gerald Desmond Bridge replacement – SR-47 Expressway, including Schuyler Heim Bridge replacement – I-110 Connectors Program – Navy Way/Seaside Avenue Interchange – I-710 Corridor, including two truck lanes in each direction – East-west truck corridor (I-710 to I-15) – I-15 truck lanes (from east-west corridor to Victorville) – SR-57 climbing lanes – Truck lanes through Cajon and San Gorgonio Passes – High Desert Corridor – Widen Rice Road Interchange and ramps to improve access to the Port of Hueneme to U.S.-101. 	<p>S S S S M M M M M M S</p>
	<p>Initiate a Regionally Significant Transportation Investment Study (RSTIS) focused on increasing freight moving capacity along a dedicated freight guideway (DFG) on the east-west corridor generally bounded by I-710, SR-60, I-10, and I-15, from SR-60 to U.S.-395. To include possible inland ports and staging areas, innovations in transport modes, and alternative energy uses.</p>	<p>S</p>
	<p>Continue with analysis and planning of I-710 dedicated facility.</p>	<p>S</p>
	<p>Evaluate feasibility of Long Combination Vehicles (LCVs) on truck lanes.</p>	<p>S,M</p>
	<p>Give serious consideration to the option of private ownership and operations for key facilities such as truck-only toll lanes.</p>	<p>S</p>
	<p>Develop inland port / concentrate inland warehouse and distribution locations.</p>	<p>S,M</p>
	<p>GENERAL HIGHWAY IMPROVEMENTS</p>	<p>Proceed with planned operational and safety improvements throughout the region.</p>
<p>Evaluate corridor-specific operational and safety improvements across jurisdictional boundaries.</p>		<p>M</p>
<p>Combine operational and safety improvements with corridor-specific master plans.</p>		<p>L</p>

**Table 9
Detailed Actions**

TYPE OF ACTION	ACTION SET	TIME FRAME ¹
BORDER TRADE CAPACITY ENHANCEMENTS	Implement the following key highway projects: <ul style="list-style-type: none"> – SR-905 Freeway, from Otay Mesa Border Crossing to I-805 (S) – SR-78 Brawley Bypass, the Calexico East Border Crossing Corridor (M) – Construct East Otay Mesa Port of Entry and highway SR-11 from Mexico Border to SR-905 (S) – Construct truck routes/bypasses at Otay Mesa and Tecate Ports of Entry (S) 	S M S S
ACTION SET 3: IMPROVE OPERATIONAL EFFICIENCY		
PORT TERMINALS	Implement the efficiency improvements contained in the San Pedro Bay Ports Master Plans. Establish common chassis pools to improve productivity and turn times within terminals. Extend hours of operation. Implement Advanced Transportation Management, Information, and Security (ATMIS) system.	S S S S
HIGHWAY OPERATIONS & NEW TECHNOLOGIES	Develop partnership between public and private entities to research and develop advances in goods movement transportation technologies. Expand regional ITS system – Incident management and variable message signs (VMS) Increase enforcement of trucking operations on highways ORT Congestion pricing Implement regional weigh-in-motion (WIM) stations combined with stricter enforcement of truck weight restrictions Initiate Regional Goods Movement Supply Chain Logistics Study (GMSCLS) focused on the linkage between industry supply chain trends and port and trade related transportation patterns and movements. Evaluate feasibility of advanced technologies, such as Maglev and linear induction motors.	S S S,M S S
AIRPORT & BELLY CARGO SHIFT	Implement Ontario International Airport’s air cargo cross-dock facility.	S

**Table 9
Detailed Actions**

TYPE OF ACTION	ACTION SET	TIME FRAME!
ACTION SET 4: DEVELOP EQUITABLE PUBLIC/PRIVATE FUNDING STRATEGY		
MAXIMIZE FAIR-SHARE	Focus on maximizing the region's share of the upcoming federal transportation reauthorization in 2009.	S
	Continue formula-based funding from regional and local agencies for highway capacity and general-purpose lane enhancement projects.	S
PROJECT-SPECIFIC USER FEES	Negotiate user fees with industry that can be included in a project-specific plan of finance for goods movement and air quality improvements. Develop the institutional structure to collect and disburse funds for the projects.	S
	Focus on a "short list" of high priority projects.	S
	Pursue "self-help" public-private funding arrangements to increase state and federal funds, focusing on projects to increase intermodal lift capacity, increase mainline rail and specialized (e.g., focused market-segment) truck capacity improvements, and corridor-wide grade separations.	S
INSTITUTIONAL ARRANGEMENT	Implement the GM MOU among regional, state, and federal agencies to facilitate the actions contained in the MCGMAP.	S
LEGISLATIVE ACTIONS	Initiate a joint powers agency of key stakeholders, potentially similar to the structure developed for ACTA, to administer the fee collection and fund disbursement program. This will reassure the private sector that a government entity will not attempt to use fee revenue for non-project related uses.	S
	Develop a comprehensive legislative program supportive of goods movement. Coordinate legislative efforts at a regional level to communicate and promote needs for goods movement improvements at the state and federal levels. Maintain a running list of high priority goods movement infrastructure and air quality projects and promote those projects at the regional, state, and federal levels.	S
	Urge Congress to develop and pass legislation that would implement a national goods movement policy	S
	Develop a California consensus position on goods movement development, then work closely with the entire California congressional delegation, the West Coast Corridor Coalition, CALMITSAC, the Waterfront Coalition and other stakeholders to develop a unified approach to lobbying for additional federal support for goods movement related projects, port security and environmental programs.	S

**Table 9
Detailed Actions**

TYPE OF ACTION	ACTION SET	TIME FRAME ¹
	Establish short-term programs that will encourage private sector investment in essential infrastructure, including, but not limited to: <ul style="list-style-type: none"> – Investment tax credits – Loans – Expansion of tax-exempt bonding to projects of both public and private benefit. 	S
	Encourage market-based approaches similar to the REACH program and the Carl Moyer Program.	S
	Extend design-build authority to ports, transportation joint powers authorities, county and city public works departments, and local and regional transportation agencies.	S

Note ¹: S = Short-term (2008-2015), M = Mid-term (2015-2025), L = Long-term (post 2025)

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
High Priority Project Earmark	Discretionary program. Provides designated funding for specific projects identified in SAFETEA-LU. Approximately \$15 billion for 5,173 projects was identified in SAFETEA-LU.	Highway, Port and Rail Projects
Projects of National and Regional Significance	Discretionary program. Provides funding for high cost projects (in excess of \$500 million) of national or regional significance. Projects selected by competitive evaluation process based on ability to generate national economic benefits, reduce congestion, improve safety, leverage non-federal funding, stability of financial plan, use of new technology, and maintain/ protect the environment. Total in federal program: \$1.8 billion	Highway, Port and Rail Projects
National Corridor Infrastructure Program	Discretionary program. Provides funding for construction of corridors of national significance to promote economic growth and international or interregional trade. Competitive selection process based on criteria including: extent to which corridor links two existing segments of the interstate system; facilitates major mobility, economic growth, development in area underserved by highway investment, significant commercial traffic; reduce commercial or other travel time through a major freight corridor. Total in federal program: \$1.95 billion.	Highway,
Interstate Maintenance (IM) Program	Discretionary program. Provides for the on-going work necessary to preserve and improve Interstate highways. This includes funding for resurfacing, restoring, rehabilitating and reconstructing (4R) most routes on the Interstate System. For FY 06, seven projects named in California with funding levels ranging from \$750,000 to \$1 million.	Highway
Highway Bridge Program	Discretionary Program. Provides funding to enable states to improve the condition of their highway bridges through replacement, rehabilitation, and systematic preventive maintenance.	Highway
Transportation Improvements	Discretionary program. Provides funding for earmark projects identified in SAFETEA-LU ranging in cost from \$75,000 to \$30 million. Project sponsors could consider securing a Transportation Improvements earmark in the next reauthorization bill (federal fiscal year 2010-2016).	Highway, Port and Rail Projects
Transportation , Community, and System Preservation (TCSP) Program	Competitive program with funds earmarked for projects that integrate transportation, community, system preservation, and the environment. Limited levels of funding total and by project.	Highway, Port and Rail Projects
Formula Programs		

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
Federal "Core" Programs: - Surface Transportation Program (STP) - National Highway System (NHS) - Highway Safety Improvements	Funds are distributed through the STIP and SHOPP. For STIP, 75 percent of funds are programmed at discretion of the MPOs in RIP and 25 percent by Caltrans in IIP. Of these, 88.53% are federal.	Highway
Congestion Mitigation and Air Quality (CMAQ)	For projects that improve air quality and reduce congestion. Funds are programmed by OCTA for bus/rail capital, highway, and bus/rail operations (first 3 yrs of start-up). Newly proposed FHWA guidelines in circulation as of February 2007 would eliminate start-up operations as an allowable use.	Highway, Port and Rail Projects
Loan and Financing Programs		
Transportation Infrastructure Finance and Innovation Act (TIFIA)	The TIFIA program provides project sponsors with secured loans, loan guarantees, and lines of credit from the federal government for surface transportation infrastructure projects of national or regional significance. Under SAFETEA-LU, eligibility extends to any highway, transit or railroad project in excess of \$50 million in cost, and can include intermodal facilities, border crossing infrastructure, expansion of multi-state highway trade corridors, and other investments with regional and national benefits.	Highway, Port and Rail Projects
Section 129 Loan	The National Highway System Designation Act (NHS) established the Section 129 Loan Program as a mechanism to allow states to offer low interest loans to project sponsors. States can use the funds from the program for any federal-aid highway project and can offer loans to either public or private project sponsors.	Highway, Port and Rail Projects
Railroad Rehabilitation and Improvement Financing	This program provides up to \$35 billion for direct loans and loan guarantees with up to \$7.0 billion reserved for projects benefiting freight railroads other than Class I carriers.	Rail
Freight Programs		

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
Freight Intermodal Distribution Pilot Grant Program	<p>Provides grants to states to facilitate and support intermodal freight transportation initiatives. Pilot projects are designed to reduce congestion into/out of ports and establish/expand intermodal facilities and inland freight distribution centers.</p> <p>SAFETEA-LU provided \$30 million over 5 years (2005-2009) for 6 designated projects: (A) Short-haul intermodal projects, Oregon, \$5,000,000; (B) The Georgia Port Authority, \$5,000,000; (C) The ports of Los Angeles and Long Beach, California, \$5,000,000; (D) Fairbanks, Alaska, \$5,000,000; (E) Charlotte Douglas International Airport Freight Intermodal Facility, North Carolina, \$5,000,000; (F) South Piedmont Freight Intermodal Center, North Carolina, \$5,000,000</p>	Highway, Port and Rail Projects
Capital Grants for Rail Line Relocation Projects	<p>SAFETEA-LU establishes a new capital grants program for local rail line relocation and improvement projects. A state is eligible for a grant for any construction project for the improvement of the route or structure of a rail line that either is carried out for the purpose of mitigating the adverse effects of rail traffic on safety, motor vehicle traffic flow, community quality of life, or economic development; or involves a lateral or vertical relocation of any portion of the rail line.</p> <p>Approximately \$350 million per year (2006-2009) is available with a \$20 million maximum grant for a project.</p>	Rail
Department of Defense		
DHS Preparedness and Recovery Preparedness	<p>Discretionary grant program, as determined by the Secretary of Homeland Security, which will provide \$1.15 billion in grant to state and local agencies in FY 2006. Of this total, \$765 million will be for use in high-threat, high density urban areas; \$175 million will be for port security grants; and \$150 million will be for intercity passenger rail transportation, freight rail, and transit security grants.</p>	Highway, Port and Rail Projects
DOD Railroads for National Defense Program	<p>The Department of Defense established a special program to identify and protect commercial railroad infrastructure important for defense purposes. The program is administered by the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA). SDDCTEA's mission is to "provide the DOD with the research, engineering, and analytical expertise to improve the deployability of U.S. Armed Forces, the transportability of military equipment, the infrastructure of the defense transportation system, and the management and execution of the DOD transportation programs for national defense."</p>	Rail

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
STATE SOURCES		
State Transportation Improvement Program: Interregional Improvement Program (Cash)	25 percent of the federal and state funds in the State Highway Account funds are prioritized and programmed by Caltrans for projects of regional significance. These funds are programmed in the Interregional Transportation Improvement Program (IIP) component of the State Transportation Improvement Program (STIP).	Highway, Port and Rail Projects
STIP: Grant Anticipation Revenue Bonds (GARVEES)	Federal grant revenue anticipation bond proceeds pledged to projects. Annual debt service programmed in the STIP, with source from IIP (or RIP) funds.	Highway, Port and Rail Projects
	It is anticipated that the earliest GARVEE issuance would be during Fiscal Year 2006-2007, although it is possible that issuance could be delayed even further. Based on an April 2006 report from the State Treasurer, the state capacity to issue GARVEE bonds is approximately \$2 billion.	
Transportation Finance Bank (TFB) Revolving Loan Program	Program which provides flexible, short-term financing to public entities and public/private partnerships for the purpose of accelerating the delivery of transportation projects in California. Any local transportation planning agency or county transportation commission may apply for a loan. Additionally, recipients of fuel tax revenue monies are eligible for a TFB loan.	Highway, Port and Rail Projects
State Infrastructure Bond Program	On November 7, 2006 voters approved \$19.925 billion in bonds for transportation projects. The program consists of the following: 1) \$17.25 billion for mobility, transit, congestion relief; (of which \$4 billion is for bus, rail, and transit improvements) 2) \$1.525 billion for safety, security, disaster preparedness; and 3) \$1.2 billion for air quality.	Highway, Port and Rail Projects
Public Utilities Commission Section 130 Program	The Section 130 Program provides federal funds to improve safety at existing at-grade highway-rail crossings. The purpose of Section 130 Program is to reduce the number, severity and potential of hazards to motorists, bicyclists, and pedestrians at highway-rail at-grade	Highway and Rail Projects

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
	crossings The Section 130 program is a cooperative effort between the FHWA, Caltrans, California Public Utilities Commission, railroad companies and local agencies. FHWA delegated the authority to manage this program to Caltrans in cooperation with the California Public Utilities Commission.	
Public Utilities Commission Section 190 Program	The Section 190 Program provides \$15 million annually in state funds for proposed grade separation of existing or proposed highway-rail crossings, at grade crossings in need of elimination, and existing grade separations in need of alteration or reconstruction.	Highway and Rail Projects
REGIONAL SOURCES		
State Transportation Improvement Program: Regional Improvement Program (Cash)	75 percent of the federal and state funds in the State Highway Account funds are prioritized and programmed by regional agencies (such as OCTA). These funds are programmed in the Regional Transportation Improvement Program (RTIP) component of the State Transportation Improvement Program (STIP).	Highway, Port and Rail Projects
LOCAL SOURCES		
Transportation Impact Fee (for Annual Debt Service)	Creation of Transportation Impact Fee, with fees pledged for payment of annual debt service	Highway, Port and Rail Projects
Tax Increment Financing (for Annual Debt Service)	Creation of Tax Increment Finance District, with tax increments pledged for payment of annual debt service	Highway, Port and Rail Projects
USER FEES		
Tolls	Tolls could provide a mechanism to generate revenue, moderate traffic demand, and/or provide incentive to use particular facilities. Tolling could be part of an overall funding strategy with toll revenues providing part of a larger revenue stream pledged for debt repayment. Facility could be designed, built, and/or operated as public, private, or public-private partnership.	Highway Projects

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
Transportation Development Credits	Transportation Development Credits (TDCs), formerly known as toll credits, allow states which have toll road facilities that are part of the state and national highway system to utilize revenues derived from the facilities as a "credit" or "match" to any federally funded highway and/or transit related program.	Highway Projects
Shadow Tolls	A shadow toll occurs on a roadway typically constructed under a DBFO arrangement where the government entity will pay the private contractor on an annual basis depending upon the volume of traffic using the road. The term "shadow tolling" is used since there are no tollbooths and the users do not pay tolls.	Highway Projects
Pass-Through Tolling	Pass through tolling is an agreement between local communities and TxDOT where the local communities provide funding to build a state highway project and the state partially reimburses the community over time by paying a fee for each vehicle that drives on the new highway.	Highway Projects
Truck Toll (TOT) Lanes	Truck only toll (TOT) lanes are highway lanes that are reserved for the use of commercial vehicles, primarily trucks and buses. Commercial vehicles can pay a fee to use the lanes if so desired, or they can continue to use the regular lanes. TOT lanes can either be newly constructed facilities, or they can be created by reallocating the use of existing lanes.	Highway Projects
Regional Freight Fees	If part of larger goods movement network, could potentially be part of any program funded through container fees or other freight fee program.	Rail Projects
Pier Pass	PierPass is a not-for-profit organization created by marine terminal operators to reduce congestion and improve air quality in and around the Ports of Los Angeles and Long Beach. The off peak program provides an incentive for cargo owners to move cargo at night and on weekends, in order to reduce truck traffic and pollution during peak daytime traffic hours and to alleviate port congestion.	Highway, Port and Rail Projects
Container Fees	Container fees can be assessed for the use of infrastructure either directly or indirectly. Fees could be charged by users of port and freight movement corridors could be used to support transportation and air quality improvement projects.	Highway, Port and Rail Projects
Impact Fees	The implementation of impact fees associated with the movement of cargo or sources (i.e., trucks, locomotives, vessels, etc.) could provide funding for projects in order to accelerate emission reductions from all source categories	Highway, Port and Rail Projects
INNOVATIVE FINANCING MECHANISMS		
General Obligation Bonds	General obligation bonds (GO bonds) are bonds that are legally backed by the full faith and credit of the issuing government. GO bonds are considered the most secure type of revenue bond, and therefore has the lowest interest rates. The security is based on the issuing government's ability to raise property taxes to assure payment.	Highway, Rail, or Port Projects

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
Revenue Bonds	Revenue bonds are municipal bonds distinguished from other bonds by the guarantee of repayment exclusively from revenues generated by a project. Interest rates may be slightly higher for revenue bonds since the security pledge is not as great as GO Bonds, however, they are usually considered the second-most secure type of municipal bonds.	Highway, Rail, or Port Projects
Certificates of Participation (COPs)	COPs are tax-exempt bonds, issued by a state-authorized, tax-exempt entity (typically called Finance Corporation) that allows government entities to finance capital projects. The proceeds of the bond sale are used to acquire capital assets. The capital assets are leased to a government entity, which makes semi-annual lease payments using a combination of local funds and federal grant funds.	Highway, Rail, or Port Projects
Private Activity Bonds	Private Activity Bonds are bonds that allow a portion of the proceeds to be used for non-governmental purposes.	Highway, Rail, or Port Projects
INNOVATION AND MANAGEMENT OF RESOURCES		
Tapered Match	The tapered match approach allows project sponsors to seek federal reimbursement of expenditures as high as 100 percent in the early phases of a project provided that by the time the project is complete, the overall federal contribution does not exceed the statutory federal-aid limit for the project.	Highway, Rail, or Port Projects
Flexible (or Soft) Match	The Flexible Match approach allows certain public donations of cash, materials, and services to satisfy the non-federal matching requirement.	Highway, Rail, or Port Projects
Advanced Construction Authority	Advance construction authority provides a project sponsor the ability to request and receive approval to construct federal-aid projects in advance of the apportionment the federal dollars	Highway, Rail, or Port Projects
INNOVATIVE PROJECT DELIVERY AND MANAGEMENT/PUBLIC PRIVATE PARTNERSHIP		
Design-Build Project Delivery	Design-Build is a project delivery method that combines two, traditionally separate services into a single contract. With design-build procurements, project sponsors execute a single, fixed-fee contract for both architectural/engineering services and construction.	Highway, Rail, or Port Projects

**Table 10
Potential Funding Sources for Goods Movement Projects**

SOURCES	DESCRIPTION	Eligible Project Types
Federal Sources		
Design-Build-Operate-Maintain Project Delivery	The Design-Build-Operate-Maintain (DBOM) model is an integrated partnership that adds operations and maintenance to the design and construction responsibilities of design-build procurements.	Highway, Rail, or Port Projects
Design-Build-Finance Project Delivery	The Design-Build-Finance-Operate (DBFO) approach transfers to the private sector the responsibilities for a project's design, construction, finance and O&M.	Highway, Rail, or Port Projects
Leasing of Publicly Owned Assets	This PPP approach involves the long term lease of an existing, publicly-financed toll facility to a private sector concessionaire for a prescribed period during which they have the right to collect tolls on the facility. In exchange for the lease, the private partner must operate and maintain the facility and in some cases make improvements. The private partner must also pay an upfront concession fee.	Highway

Source: Sharon Greene & Associates, March 2007

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN VOLUME 1, APPENDIX C: COMPENDIUM OF PUBLIC COMMENTS AND PROJECT PARTNER RESPONSES

Prepared for:

Los Angeles County Metropolitan Transportation Authority (Metro)
Orange County Transportation Authority (OCTA)
Riverside County Transportation Commission (RCTC)
San Bernardino Associated Governments (SANBAG)
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California Department of Transportation (Caltrans) Districts 7, 8, 11 & 12
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April 2008
A31418

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN
APPENDIX C- COMPENDIUM OF PUBLIC COMMENTS AND PROJECT PARTNER RESPONSES

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California Railroad Industry
City Heights Community Development Corporation
Gateway Cities Council of Governments Excerpts
Inland Empire Economic Partnership
Majestic Realty Co.
National Association of Industrial and Office Properties
South Coast Air Quality Management District
Watson Land Company

March 17, 2008 marked the conclusion of the 30 day period for stakeholder comments on the draft Multi-County Goods Movement Action Plan ("MCGMAP" or "Action Plan"). To solicit input throughout the development of the MCGMAP, a series of multi-county stakeholder advisory group meetings were held from the outset of the project. In addition, two anecdotal opinion surveys were conducted, several briefings and presentations were made to key stakeholders and twelve multi-county public workshops were held.

In general, stakeholders view this Action Plan as a good initial step toward addressing multi-county goods movement issues and consider the multi-jurisdictional partnership to be the catalyst for establishing the Southern California Consensus Group and other collective efforts that have proven to be successful in addressing good movement challenges throughout the region. Throughout the development of the Action Plan, stakeholders stressed the importance of developing plans for localized studies that go beyond the macro-analysis that was done in the MCGMAP. In addition, stakeholders expressed that they would like the project partners to maintain an open dialogue with all stakeholders; explore the use of community friendly alternative technologies to transport goods; secure new goods movement fund sources; and expand outreach and dialogue to the goods movement industry to assure there will be a balanced approach to improving mobility, mitigating community and environmental impacts and preserving economic vitality throughout the region.

This Appendix C contains copies of letters that were written about the Action Plan for which broad topical responses have been provided. The written comments, as well as the feedback obtained during the multi-county public workshops, reflect a variety of issues, perspectives and concerns expressed by stakeholders that are in some instances beyond the scope of this study effort. The attached letters also contain comments about issues that were not addressed in the MCGMAP and suggestions for subsequent study efforts. The letters and comments received will further define local priorities and the next steps needed to develop projects and requisite mitigation measures throughout the multi-county study region.

Also included in this appendix are Tables 1 and 2. Table 1 contains the source of written comments about the draft Action Plan. Table 2 contains abbreviated comments received during the multi-county public workshops. Both tables are sorted by the following topical response categories for ease in matching comments to responses:

- 1- Planning Processes and Community Outreach,
- 2- Potential Goods Movement Improvements, Strategies and Projects
- 3- Impacts and Mitigation
- 4- Rail-Related
- 5- Alternative Technologies for Freight
- 6- Funding
- 7- Security
- 8- Environmental Justice
- 9- Next Steps

Attached herein are Tables 1 and 2, a summary of the comments followed by general topical responses and copies of the letters that were received.

COMMENT SUMMARY & TOPICAL RESPONSES

1- Comment Summary for Planning Processes and Community Outreach Topic: there were a number of inquiries about the MCGMAP, its relationship to other regional plans and local project programming documents/processes, the role and purview of the agencies that were involved in developing the plan, and the outreach and plan approval process.

RESPONSE: The Multi-County Goods Movement Action Plan (MCGMAP or Action Plan) provides an overview of the region's goods movement challenges, the partner agencies' collective vision, and principles, recommended actions, and strategies. It also contains lists of recommended preliminary regional and county specific goods movement infrastructure improvements that are in various planning stages and in some instances controversial. Participating County Transportation Commissions and other agencies will continue with the development of projects and strategies identified in the MCGMAP. There is no priority to the projects/strategies included on the lists contained in the Action Plan for funding or any other purpose. Inclusion on any list does not imply approval of any project/strategy until public participation has concluded and environmental and other clearances are obtained from regulatory agencies.

Discussions with regional stakeholders will continue in an effort to move forward with the actions proposed in the MCGMAP. More detailed technical analyses will be completed, as recommended by the MCGMAP, in order to identify and prioritize regional goods movement projects and environmental and community mitigation measures that stretch across county and jurisdictional boundaries. Further, the MCGMAP is not intended to supplant local planning efforts. Local agencies and jurisdictions are encouraged to use the MCGMAP as a roadmap for future planning efforts. The project partners will continue to act as regional planning entities and will work with local jurisdictions to ensure that the principles and actions of the MCGMAP are implemented at all levels.

The MCGMAP partners are the transportation and planning agencies that co-managed the development of the Action Plan. These agencies include Los Angeles County Metro (Metro), Orange County Transportation Authority (OCTA), Riverside County Transportation Commission (RCTC), San Bernardino Associated Governments (SANBAG), San Diego Association of Governments (SANDAG), Southern California Association of Governments (SCAG), Ventura County Transportation Commission (VCTC), and Caltrans Districts 7, 8, 11, and 12. The MCGMAP partners plan, fund, maintain, operate, construct and implement multi-modal transportation projects which include goods movement related projects. The project partners developed four core mandates and six implementation principles (described in the Action Plan) that build upon the principles set forth in the Statewide Goods Movement Action Plan and provided the framework for the MCGMAP.

Other organizations, such as the Ports of Los Angeles and Long Beach, have authority to plan and construct transportation and facility improvements within their respective jurisdictions, while the South Coast Air Quality Management District (SCAQMD) and other air districts develop and implement plans to improve air quality throughout the region. Also, regional, state, and federal agencies have varying regulatory authorities over the trucking and rail industries, but the MCGMAP partners have little ability to regulate the operations, business practices, or pollutant emissions of the private sector goods movement operators, and no authority to regulate shippers and ocean carriers. As a result, the MCGMAP partners have focused primarily on goods movement infrastructure including environmental mitigation while acknowledging the essential roles and responsibilities of others.

Stakeholder participation and outreach was an essential component in the development of the MCGMAP. Two survey instruments were utilized and a project website (<http://www.metro.net/mcgmap>) was established to inform and engage stakeholders. Meetings and workshops were convened to gather input and share findings. Representatives from community advocacy and health organizations, air quality regulatory agencies, the ports, the trucking and railroad industries and other transportation agencies at all levels of government were invited to participate in the Stakeholder Advisory Group (SAG) meetings. Additionally, smaller one-on-one meetings were held with many of these groups to confirm data and obtain individual perspectives on issues related to goods movement. SAG meetings and county workshops provided a forum for stakeholders to comment on the content of the Action Plan and to express concerns about the impact on local communities, air quality, the environment and the transportation system.

The MCGMAP is a living document that will be revised and updated when major changes occur and if resources are made available. Adoption of this Action Plan by the project partners indicates regional consensus on a program of improvements and mitigation strategies that are needed to effectively address goods movement. As the goods movement system in the region continues to develop more outreach and coordination must occur among the project partners and stakeholders, including reaching out to new stakeholder groups not initially included in the MCGMAP effort.

2- Comment Summary for Potential Goods Movement improvements, Strategies and Projects Topic: Stakeholders were particularly interested in the level of detailed analysis that was performed, the range of alternatives and options that were studied and the existing capacity of the infrastructure. There were also a number of comments about factors and issues that were not addressed in the MCGMAP (e.g. air quality analysis, clustering of warehouses and other logistics practices, reverse flows, inland ports, east-west freight corridor definition, and the plan's evaluation criteria). Additionally, some stakeholder inquired about specific projects contained (and not contained) in the MCGMAP and specific route improvements.

RESPONSE: Given the broad scope and large study area of the MCGMAP, analyses of potential strategies and investments were done at a regional level rather than a local or project-specific level. While detailed project-level analyses were not a part of this effort, they are nevertheless critical and will be conducted as part of subsequent project development efforts. Through the stakeholder outreach process additional items were identified as needing further study (e.g., secondary and tertiary truck movements, reverse flow or empty containers, clustering of warehouses and the feasibility of inland ports remote from residences and sensitive land uses). These items will be analyzed in subsequent study efforts as referenced in the Next Steps section of the Action Plan. Further, SCAG will be conducting the comprehensive Regional Goods Movement Plan and Implementation Strategy that will include environmental mitigation and analysis of alternative technologies for transporting freight, reverse flows and a needs assessment of warehousing to augment the MCGMAP effort. The SCAG study will also serve as a precursor to a Regionally Significant Transportation Improvement Study (RSTIS) that will evaluate the feasibility of implementing a dedicated east-west freight guideway system and/or regional truck lanes on and off current freeway alignments. The RSTIS project area will extend the I-710 South study to an inland destination, possibly in the High Desert Area. The Action Plan notes that many projects and strategies described are at different stages of development; therefore,

substantial additional evaluation and analyses must occur as a part of required environmental clearance procedures, as well as to fully address the concerns of the region's stakeholders.

In terms of capacity of the existing infrastructure, all indications point to a future demand in international freight flows that will exceed even the most aggressive efforts by the ports, railroads, and transportation agencies to accommodate it. As referenced in the Action Plan, container volumes through the San Pedro Bay ports are projected to nearly triple from 15.7 million TEUs (twenty-foot equivalent units) in 2006 to 42.5 million TEUs by 2030. These forecasts are constrained by anticipated port capacity at a level significantly below the TEU demand projected for the ports in federally sponsored analyses. The study area's ports, airports, rail lines and intermodal terminals have existing capacity constraints that undermine the efficiency and productivity of the system as a whole. Furthermore, the existing roadway and rail networks are at or reaching capacity. As a result, the system today is susceptible to disruptions to the movement of goods, causing delays that reduce the quality of services and increase costs to consumers, not to mention substantial delays and congestion for all highway users. This mobility challenge is further exacerbated by the fact that the roadways, and rail networks that accommodate the movement of goods are often the same as those utilized by motorists and passengers for the movement of people.

Regarding the evaluation criteria, a qualitative evaluation of goods movement projects/strategies was conducted for the Action Plan. This analysis grouped a comprehensive list of 249 projects/strategies (the complete list is included in Appendix B of the Action Plan) into 15 categories of projects ranging from increased highway and rail capacity to changes in operational and institutional practices. The 15 categories of projects were then qualitatively evaluated using 26 evaluation criteria.

In the qualitative analysis of the categories of projects/strategies, the evaluation examined each category independently. The purpose of this independent evaluation was to show that each category of project/strategy performed differently across a variety of evaluation criteria. Many stakeholders indicated, and the MCGMAP recognized, that many projects/strategies within various categories may complement or contradict each other; therefore, combinations of projects/strategies and or categories would better serve the region. In order to evaluate the complex relationships of combined projects/strategies or categories, more detailed analysis was required.

This detailed analysis examined the relationship of various projects/strategies or categories when implemented together, as a bundle of projects. Five of the 15 categories (construction of additional freeway lanes/capacity, freeway operational/safety improvements, shuttle trains / alternative technologies including additional intermodal terminals, construction of dedicated truck lanes, and the use of Long Combination Vehicles on dedicated facilities) were modeled using the SCAG Travel Demand Forecasting Model and other more detailed analytical tools. This analysis modeled 12 bundles of projects/strategies and estimated potential cost which was kept constant at a cost per mile basis, quantified truck volumes, the number of hours of delay reduced for both autos and trucks, the number of warehouse acres in proximity to each corridor, the number of schools within 1/3 mile of the bundle, and the number of residential acres within 1/2 mile of the bundle.

However, due to the limitations of the analytical tools available, all bundles were modeled using a container forecast volume of 42.5 million TEUs by 2030. All analyses were completed from a regional perspective. Analyses were completed with the understanding that further detailed corridor-specific analyses would be required. It is recommended that the future detailed analysis should quantify factors

not included as part of this effort, such as design, right-of-way considerations including number of displaced properties, impact on commercial properties adjacent to corridors, right of way, cost, etc. The macro level analysis of dedicated truck lane systems, advanced technology and other bundles rendered preliminary information that warrants further investigation and outreach to affected communities to be conclusive. For more information about this analysis, refer to Chapter 6 of the Action Plan.

To support the actions, vision and market segmentation approach, the partner agencies identified two project lists: regional and county specific. The projects identified vary in terms of stage of development and implementation timeline; some can be implemented in the short-term while others require additional planning and project development. The projects on both lists are considered essential; neither list is viewed as taking precedence over the other but rather as complementary efforts to address the effects of goods movement in the region. The list of "Preliminary Regional Goods Movement Projects/Strategies" focuses on region-wide projects that provide environmental mitigation or ground access (rail, highway, and intermodal) improvements to and from the international gateways and the multi-county goods movement distribution centers and corridors (existing and proposed) within the Southern California region. The list of "Preliminary County-Specific Goods Movement System Projects/Strategies" includes improvements that are located within a single county and connect to the regional and statewide goods movement system of corridors and distribution centers and fill in gaps in the goods movement network. In addition, each of the Action Plan County chapters contain additional projects and strategies of a more localized nature. Queries about project selection, additional projects and specific route improvements should be directed to the appropriate transportation planning agencies.

3- Comment Summary for Impacts and Mitigation Topic: There were a number of questions and concerns about the goods movement impacts that were analyzed (e.g. community, air quality, economic, health and other local impacts) in the MCGMAP. There was also a question about the number of jobs that have been created as a result of the goods movement industry. In terms of mitigation, there were a number of questions from stakeholders that were interested in air quality and emissions control measures including comments on how to accelerate implementation of those measures that were noted.

RESPONSE: The region is faced with multiple mobility, environmental, community impact, funding, and economic challenges. While the scope of work for the Action Plan was limited to identifying the economic impacts of goods movement in terms of the logistics industry, and best existing practices to mitigate goods movement impacts, the project partners established a multi-county environmental working group to obtain more guidance from professionals that work in the environmental planning field. It was determined that this group will be an excellent resource for the project partners when the follow-up work pertaining to environmental and community mitigation begins. Further, the Action Plan identified two types of mitigation measures that must occur: Project-specific and Regional Mitigation Measures. The Action Plan suggests examples of project specific mitigation measures include use of the best available technology and best practices during construction; compliance with natural resource statutes and adopting "smart" design and good planning principles (e.g. landscaped buffering, noise barriers, exterior light shielding and positioning, separating incompatible land uses, and wetlands protection). The Action Plan recommends regional mitigation measures that can include accelerating funding and implementation of air quality plans, strengthening fuel and engine standards and adopting

institutional policies that support environmental and community benefits (e.g. designate quiet zones for rail corridors, amend zoning to avoid incompatible land uses and establish mitigation banking and/or a pool funds to alleviate impacts). Regional mitigations by their nature, will require continued coordination among goods movement stakeholders to ensure success. The MCGMAP also recommends a coordinated effort among the public and private sector to simultaneously and continuously improve the movement of goods and the associated environmental and community impacts. This is especially important given the CARB 2005 statistic that cites approximately \$20 Billion expended in healthcare costs related to health effects from PM and Ozone pollution from freight transport.

In addition, the Action Plan supports the air quality plans prepared by the Ports, the California Air Resources Board (CARB), and the South Coast Air Quality Management District (AQMD). However, as stated in the Action Plan Executive Summary, the MCGMAP partners cannot fully implement many of the plan's recommended strategies on their own. Therefore, to fully realize the benefits of this plan, continued collaboration and consensus building among the MCGMAP partners and other public and private sector stakeholders will be critical. To that end, one of the next steps in MCGMAP is to initiate an activity, in conjunction with the ports, CARB, and AQMD, to generate public and/or private funds to accelerate implementation of air quality improvement strategies being undertaken by these and other entities. Many of the air quality improvement plans are in place, but substantial funding is needed to enable and incentivize the acceleration of the emissions cleanup. It is expected that some of these implementation-oriented discussions will occur through the Southern California National Freight Gateway (SCNFG) Cooperation Agreement. The SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy will also provide some additional support in this direction. Furthermore, aircraft emissions are also a contributing source of emissions and will be addressed as part of ongoing emission reduction efforts.

The Action Plan does not specifically propose modifications to the dates in the current SIP (State Implementation Plan), Ports of Los Angeles and Long Beach Clean Air Action Plan (CAAP), or Air Quality Management Plan (AQMP). However, it is supportive of other actions that can be taken to accelerate the emissions cleanup, such as relocating the cleanest available train engines and truck fleets to Southern California facilities where that opportunity exists, generating additional funds for enabling and incentivizing the location of newer goods movement technology in Southern California, and using the leasing oversight of the ports to incentivize reduced emissions from marine vessels.

Reference was made in the prior responses to possible mechanisms for accelerating air quality initiatives, including expediting vehicle retrofit or replacement. In addition, the Environmental Justice Analysis and Outreach for the MCGMAP has been initiated, one products will be a guidebook of strategies that local governments and other agencies may use to avoid, minimize, and/or mitigate the impacts of goods movement. (Refer to #8, for more information.)

The MCGMAP partner agencies expect to be involved in discussions, through the SCNFG and other means on actions that can be taken to expedite the implementation of various emission reduction strategies. Concepts for accelerating emission reduction strategies will need to be brought forward and discussed with the public and private sector entities that are in a position to take action and implement the needed changes.

As stated in the Action Plan, implementation of the recommended goods movement projects rests with the individual entities, both public and private, that have funding and implementation responsibility. Most of these projects are multiple years from being implemented, and project-level environmental reviews will be conducted at the appropriate time. The Action Plan views the recommended infrastructure projects to be needed to keep up with the growing freight demand, but also recognizes that each project will need to move forward in a way that avoids, minimizes, and/or mitigates environmental impacts.

In terms of employment and other economic gains, it was found that despite its impacts, international trade provides significant benefits to the region. The logistics industry provides both direct and indirect benefits to the region's economy. Economic studies show that logistics activity is responsible for \$90.7 billion, or 6.6%, of the nearly \$1.4 trillion in economic activity annually in Southern California. The indirect or induced impact represents another \$170 billion or 12.4%. Each logistics job supports 2.2 new jobs in the economy. This contribution to the economy is significant and is important to achieving the MCGMAP vision and maintaining the economic vitality of the region.

4-Comment Summary for Rail-Related Topic: There were a number of stakeholders interested in the railroads, railroad operations and rail capacity improvements (e.g. intermodal facilities, on dock and near dock facilities). In addition, some stakeholders inquired about specific grade separation projects and passenger rail services, train idling and electrification that was noted.

RESPONSE: The railroads have been an active participant in the SAG meetings. The MCGMAP recognizes the importance of freight rail to the region's goods movement system. Therefore, the Action Plan calls for increased intermodal and on-dock and mainline rail capacity in order to maximize the share of goods moving by rail. However, while there is a need for additional rail intermodal capacity, any such facility must undergo required environmental impact analyses before implementation. It is important to note that rail projects must demonstrate public benefits in order to qualify for public funding. Also, given the importance of rail for goods movement, it is important to continue dialogue and cooperation between the public and private railroad companies in order to implement the most efficient, cost-effective, and environmentally friendly solution possible.

Also, the MCGMAP does not endorse any specific advanced technology, but recommends additional evaluation of technology options. The MCGMAP partners recognize that any specific operational solution or technology option dealing with line-haul freight is highly complex, will be driven by the operational needs of the logistics industry, must involve cost-effective solutions, and must represent a feasible transition from current technologies. At the same time, the MCGMAP partners recognize the need to make major advances in freight-hauling capacity while at the same time improving the environment. Both the public and private sectors must be involved in exploring these options. In conjunction with rail capacity improvements, the MCGMAP also recommends strategies and projects to reduce the community and environmental impacts of goods movement. For example, the Action Plan recommends construction of grade separation projects as well as expediting fuel and engine standards. Queries about specific grade separation projects should be directed to the appropriate transportation planning agencies.

The MCGMAP seeks to build upon successful rail projects already undertaken in the region, including the Alameda Corridor and the Alameda Corridor East. Through similar coordinated efforts, the project partners believe that the goals of the MCGMAP can be achieved.

5- Comment Summary for Alternative Technologies for Freight Topic: There were a number of comments from stakeholders requesting more analysis of alternative technologies. In addition, there was interest in maglev systems and zero emission technology.

RESPONSE: Assessment of specific types of technology was not within the scope of MCGMAP. Efforts underway by the Ports of Los Angeles and Long Beach, SCAG, as well as the I-710 Environmental Impact Report/Environmental Impact Statement will focus on analysis of alternative technologies and alignments based upon further evaluation. However, as part of MCGMAP analyses, an alternative technology bundle was modeled to reflect impacts as a result of reduction in truck trips due to the utilization of an alternative technology. The MCGMAP analyzed the potential benefits of an unspecified alternative technology system extending from the Ports of Los Angeles and Long Beach to an inland port generally located at the intersection of the I-10 and I-15 freeways. An operational target of 1.35 million annual container lifts was used, which translates into 5,400 trucks per day. This is approximately the volume handled by the BNSF Hobart Yard in Commerce, which is currently the largest such facility in the study area. An estimate of 5,400 trucks per day appears reasonable, given that the Southern California Association of Governments' "Inland Port Feasibility Study" Task 1 and 2 report estimates that in 2010, 4,500 truck trips per day will occur between San Bernardino and Riverside Counties and the Ports of Los Angeles and Long Beach. However, it is possible to increase the volume handled by an inland port and associated alternative technology system if distribution centers are clustered around the inland port and the port can attract other market segments. As a result, the MCGMAP recommends further analysis of the inland port strategy and evaluation of the feasibility of implementing a dedicated freight guideway system and /or regional truck lanes in the study area. This analysis would include a comparative evaluation of the air quality impacts and related benefits for each alternative, as well as the identification of market conditions required to develop an inland port facility. Market conditions will ultimately drive the decisions for location, system connectivity, and lift capacity of an inland port.

6-Comment Summary for Funding Topic: Stakeholders were particularly interested in the region getting its fair share of funding for goods movement infrastructure improvements and mitigation measures. A number of stakeholders inquired about user fees, collection of user fees, incentives and disincentives, and the potential for seeking other funding sources including the private sector.

RESPONSE: The goods movement system is significantly underfunded. Projects and programs identified in this Action Plan show funding needs on the order of \$50 billion over the next 25 years. This will require funding commitments from all levels of government as well as the private sector.

Despite accommodating most of the nation's international trade volumes, Southern California has received a disproportionately low share of federal and state funding for goods movement. Moreover, the private sector's role in funding regional and nationally significant goods movement projects to date has been limited. It is imperative that new avenues of goods movement funding for projects be pursued, including other state appropriations, federal funds, and private sector contributions consistent

with the impacts of the benefits they derive from the use of the transportation system. For example, next year the Congress is expected to act on national transportation reauthorization legislation. While it is unclear at this point what direction that legislation will take regarding meeting the nation's goods movement needs, organizations such as the Coalition for America's Gateways and Trade Corridors and the American Road Transportation Builders' Association have developed recommendations regarding goods movement issues that could be considered by the Congress. Among those recommendations are:

- A separate title dedicated to goods movement policy issues including potential funding sources
- Potential freight-related funding sources to be considered are:
 - a fee on containers entering our ports
 - an increase in federal customs fees
 - a mileage tax on truck travel
 - a ton-based freight fee on all modes (truck and rail)

On the state level, with the passage of Proposition 1B, a \$19.9 billion transportation bond issue, in November 2006, \$2 billion was made available for goods movement projects. (Some of the projects submitted for funding appear in the Action Plan). Working with the California Transportation Commission (CTC), the Southern California Trade Corridors Improvement Fund (TCIF) Working Group, a partnership of public sector goods movement stakeholders garnered \$1.64 billion out of a total of \$3 billion made available by the CTC for TCIF. Furthermore, the San Diego Border Region received \$400 million of this amount for goods movement projects (For more information on TCIF, please refer to Appendix D.)

User Fees are an approach for obtaining additional funding from specific users of designated facilities or systems. In some cases user fees can be synonymous with tolls or congestion charges, while others may view user fees as the cost associated with transporting goods using a specific or preferred mode of transport. The underlying premise is that specific users pay for the privilege of using a system or facility which provides some benefits in terms of increased speeds or reduced congestion. Ongoing efforts by the private sector, Ports, state, the federal government, and other stakeholders to obtain fair-share contributions and user fees must be coordinated and developed to work in concert together. Any discussions of fair-share contributions or user fees must ensure that economic, environmental, and operational impacts are addressed in an equitable and balanced manner. If agreed upon there would be a need to establish structures to manage user fees and revenue that are acceptable to both public and private sector stakeholders.

Also on the state level, the Legislature is considering container fee legislation to be implemented in 2009, which would impose a \$30 fee on each shipping container processed at the Ports of Long Beach, Los Angeles and Oakland. The fee would fund congestion management and air quality projects related to the ports. It is estimated that for the Ports of Los Angeles and Long Beach, \$100 million would be generated in 2008-09 and \$340 million annually thereafter. The legislation would also permit the ports to bond up to \$5 billion of the proceeds from the container fee.

The MCGMAP proposes a strategic approach for involving public and private sector groups. The MCGMAP also recommends methods for public and private sector entities at various levels, from initial planning to project operations. The participation of the private sector, particularly our nation's railroads, in the development of solutions to our region's goods movement problems is essential. Forging a

partnership with private corporations who own the rail rights-of-way will be put to the test with the implementation of Proposition 1 B grade separation projects. A major topic to be discussed at that time will be the sharing of the cost of those projects based on which party benefits and which party is the most impacted.

7- Comment Summary for Security Topic: There was one inquiry about homeland security and whether the new security measures have resulted in more traffic delays at the ports.

RESPONSE: MCGMAP Tech Memo 3 and Chapter 3 in the Action Plan reference the importance and significance of goods movement security, as well as programs that have been initiated to enhance the safety and security of goods movement. The MCGMAP partners do not have any direct authority over goods movement security. Instead, security is handled by a collection of federal, state, and local agencies, such as the U.S. Department of Homeland Security/Customs and Border Protection, U.S. Coast Guard, and other local, state, and federal law enforcement agencies. As a result, the MCGMAP emphasizes the importance of goods movement security but recognizes that security is beyond the scope of this plan as well as the partner agencies' roles and responsibilities. There are, however, significant losses of output and jobs as a result of increased delays at seaports, landports, and airports. These delays could be attributed in part to changing security measures, causing an impact on local, regional, and national productivity.

8- Comment Summary for Environmental Justice Topic: There was one inquiry about the multi-county environmental justice study.

RESPONSE: The MCGMAP partners recognize the local and community impacts of goods movement. As a result, the project partners have embarked upon the Goods Movement Environmental Justice Analysis and Community Outreach project. The goal of the project is to expand the region's understanding of goods movement impacts, and identify best practices and/or solutions that support community based approaches to address the disproportional impacts of goods movement that are largely borne by minority and low income communities. The project will result in a guidebook that documents the strategies for minimizing the impacts of goods movement. In addition, the guidebook will contain one case study in each county (Los Angeles, Riverside, San Bernardino and Ventura) that will examine impacts and potential mitigation strategies. This project is expected to be completed in late 2008/early 2009. Depending on the outcome of this project, it is possible that the MCGMAP partners could embark on subsequent phases of this work.

9- Comment Summary for Next Steps Topic: There were a number of stakeholders that offered comments and suggestions about the next planning steps. In addition, there were views expressed about landuse conflicts, port diversion and private sector planning horizons versus public transportation planning horizons that were noted.

RESPONSE: The project partners are particularly mindful of the various roles that the ports, railroads, regulatory agencies, business community and the logistic industry play in the goods movement system. It is with the utmost respect that the project partners, acting on behalf of the communities that are

impacted by the decisions that are made by this industry, develop short and long term transportation plans to improve mobility so that Southern California residents can continue to enjoy a superior quality of life. While it is not the intention of the partner agencies to engage in strategic planning for the goods movement industry, collective efforts such as this provide a better understanding of a very complex system and allow planners to make more informed decisions.

Further, the success of the partnership between public and private sector interests that has developed through this study rests with all of the participants. It is for that reason that all stakeholders will play an integral role in the next steps in terms of promoting partnership and advocacy, reducing environmental and community impacts, improving mobility and securing funding as described in the Action Plan. Also ongoing support to groups such as Mobility 21 and the Coalition for America's Gateways and Trade Corridors and others in their efforts to develop dedicated federal and state goods movement funding sources will be crucial.

COPIES OF CORRESPONDENCE

TABLE 1: WRITTEN COMMENTS ON ACTION PLAN SORTED BY TOPICAL RESPONSE CATEGORIES

1. PLANNING PROCESSES AND COMMUNITY OUTREACH		
Topic	Perspectives & Concerns	Source – Correspondence
MCGMAP Plan Approval and Integration into Other Plans	<ul style="list-style-type: none"> ▪ "It appears that our comments to the SANDAG Freight Working Group and actions of the SANDAG Board of Directors in adoption of the 2030 Regional Transportation Plan update in November 2007 have NOT been incorporated into the MCGMAP." ▪ "...the MCGMAP Draft Executive Summary 2007's Implementation Principles...appear to run counter to representations that the San Diego SANDAG 2030 RTP takes precedence in transportation planning and funding. If the MCGMAP is to be used as noted, it would appear that it requires proper environmental review. By not expressly noting this at all points in the MCGMAP this document is inaccurate and misleads other jurisdictions and agencies in their planning and budgeting." ▪ [The MCGMAP does not reflect the 2007 San Diego adopted 2030 RTP showing the deletion of the GMAP designation for the area between the I-15 – I-805 intersection and the I-15 – SR-163 intersection.] 	City Heights Community Development Corporation
	<ul style="list-style-type: none"> ▪ "Approval of the Plan should not include approval of specific projects that have not undergone all environmental reviews." 	South Coast Air Quality Management District
Implementation Principles	<ul style="list-style-type: none"> ▪ "...impacts from any proposed facility (such as impacts to sales tax base from any freeway widenings) should also be an implementation principle." ▪ "Another implementation principle should also the active input and participation from the private sector and include an environmental principle stating that all projects or strategies be environmentally protective or mitigate existing environmental deficiencies be considered for as the number one Implementation Principle." 	Gateway Cities Council of Governments

2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS		
Alternatives and Factors Analyzed and/or Considered	<ul style="list-style-type: none"> ▪ Does the MCGMAP discussion of a dedicated freight guideway facility] “refer to I-15 all the way South into San Diego?” 	City Heights Community Development Corporation
	<ul style="list-style-type: none"> ▪ “In general some of the conclusions [shown on the summary of qualitative evaluations] with respect to the “most” benefit overlook the inter-dependency of the goods movement industry and the benefits of other aspects of goods movement – most notably the use of alternative technologies, improved railroad systems improvements, port hours of operations, efficiencies and ITS.” ▪ “[The] section [that] recommends truck lanes on I-710 and SR-60 freeways and is not acceptable to GCCOG.” ▪ [The discussion of mainline rail capacity increase] “...should have also mentioned other railroad systems that are needed to be able to use additional railroad mainline capacity.” ▪ “This [situation with the potential short-fall in Intermodal lift capacity which could be as much as 10.25 million TEUs annually] is significant and the plan should discuss or evaluate the situation of mode transfer to trucks if these railroad systems capacity constraints are not addressed.” ▪ “[The] discussion about the situation with truck lanes acceptability but should have referenced the guiding principles with respect to this issue from the SR-91/I-605/I-405 Corridor Cities Committee.” ▪ [Major items need to be adequately addressed, such as detailed technical analyses of truck lane feasibility, more input from the logistics sector, the capacity of freight movement corridors, detailed community impacts, safety for truck and rail, institutional building, other goods movement factors, improved data, inter-dependence of various logistics movements, goods movement emissions reductions, quantitative cost/benefit analyses of freight guideway facilities, alternative technologies, port growth, and environmental and community impact mitigation measures.] ▪ “Secondary/tertiary truck trips [should be] developed [and] evaluated as well as ultimate destination analyses.” ▪ “Logistics sector changes [should be evaluated].” 	Gateway Cities Council of Governments

2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS - CONTINUED

<p>Alternatives and Factors Analyzed and/or Considered</p>	<ul style="list-style-type: none"> ▪ "...we urge that any proposed infrastructure proposals include comparative analysis of implementation feasibility [e.g., available right-of-way or adaptability to zero or near zero emissions technologies]." ▪ "...we urge that the Action Plan also present an analysis of the air quality impacts and benefits of major alternative goods movement proposals, such as truck lanes and 'Alternative Technology' rail alternatives, or a combination of the two." ▪ "Despite the promise of this multi-county planning effort, we are concerned that an insufficient range of potential transportation systems has been analyzed to enable policy makers to design an optimal freight transportation system. In addition, the alternatives that were analyzed were not analyzed for air quality impacts, limiting key information available to policymakers. The Action Plan also needs to more fully describe mechanisms to achieve air quality goals, and must ensure that full project level review occurs before specific projects are assumed to be appropriate." 	<p>South Coast Air Quality Management District</p>
	<ul style="list-style-type: none"> ▪ "It should also be noted in the MCGMAP that according to page 6-30 in the same adopted SANDAG 2030 RTP 'Dedication or construction of additional lanes for HOV or other uses in the SR 15 Mid-City segment of I-15 is contingent on the completion and operation of BRT stations and system improvements pursuant to agreements between the State and City of San Diego.'" 	<p>City Heights Community Development Corporation</p>
	<p>[Reverse Flow – Empty Containers]</p> <ul style="list-style-type: none"> ▪ "The plan does not address the impacts of reverse flow of goods (empty containers and exports)." ▪ "In the future, data should be developed for daily volumes for 40' containers as that is the most useful for planning purposes. Also, the time of day these containers are moved (or relocated) should have been analyzed." 	<p>Gateway Cities Council of Governments</p>
<p>Action Sets</p>	<ul style="list-style-type: none"> ▪ [More detail should have been developed for the four action sets.] 	<p>Gateway Cities Council of Governments</p>
<p>Logistics Industry Practices</p>	<ul style="list-style-type: none"> ▪ "Rethinking existing warehousing and defining new paradigms for storage and transloading should be discussed with the logistics users." 	<p>Gateway Cities Council of Governments</p>

2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS - CONTINUED		
Project information	<ul style="list-style-type: none"> ▪ "The 2030 San Diego RTP clearly states that 'I-15 between I-805 and SR 163 was removed from the GMAP network in November 2007.'" 	City Heights Community Development Corporation
3. IMPACTS AND MITIGATION		
Community, Environmental, Health and Other Local Impacts	<ul style="list-style-type: none"> ▪ "The MCGMAP does not appear to consider the problems of communities that are dissected by freeways that are designed for Goods Movement." ▪ "Clearly prioritize health of sensitive receptors, e.g. 'Health over Freight'" ▪ "Redirect – Reroute trucks and other mobile freight pollutants when schools are within 500 feet to the more restrictive 1/3 mile from a dedicated Freight Guideway or other designated GMAP." ▪ "A clearer strategy should be implemented to address [the problem of people closer to the pollution sources suffering greater health issues due to higher levels of pollution]" 	City Heights Community Development Corporation
	<ul style="list-style-type: none"> ▪ "In order to this plan to garner the public support needed to succeed, it must demonstrably improve current unacceptable environmental conditions, both regionally and in locations affected by specific goods movement facilities." ▪ "...aircraft emissions are described as not being a significant source of pollutants compared to other mobile sources. We disagree. Aircraft will soon be in the top ten NOx categories." 	South Coast Air Quality Management District

3. IMPACTS AND MITIGATION - CONTINUED		
Accelerating Control Measures	<ul style="list-style-type: none"> “The current SIP, CAAP, and AQMP Plans already contain unrealistic assumptions regarding the availability of new locomotive technology. The Draft Plan should not propose that the dates in the current SIP, CAAP, or AQMP be accelerated in advance of the dates promulgated by US EPA.” 	The California Railroad Industry
Control Measures	<ul style="list-style-type: none"> [The action plan must address key emission control issues such as] “how to ensure implementation of advanced control technologies for [emission] sources...how to expedite retrofit or replacement of heavy-duty trucks, locomotives and marine vessels...[and] how to ensure that the goods movement facilities are designed and sited so as to avoid unacceptable local and cumulative impacts.” “Such mechanisms [to implement the Action Plan’s environmental goals] should seek to implement any control measures that have not been adopted as regulations or other enforceable instruments by international, federal or state agencies, ports or other governments.” 	South Coast Air Quality Management District
4. RAIL-RELATED		
Electrification	<ul style="list-style-type: none"> “All previous studies of electrification in southern California raise insurmountable operational and cost-effectiveness issues that must be thoroughly considered in any public policy discussion. Electrification is cost prohibitive and would result in limited reduction of emissions.” 	The California Railroad Industry
Grade Separations	<ul style="list-style-type: none"> “Construction of the Colton Crossing grade separation will provide significant public benefits.” “Standard grade separation projects do not enhance velocity, throughput or capacity for railroad operations. Instead, such projects provide a distinctly public benefit by moving vehicles resulting from nearby development over or under rail lines. The National Highway Trust Fund, other federal sources, and contributions by the state and local sector are possible sources for funding these proposed improvements.” 	The California Railroad Industry
Intermodal Facilities	<ul style="list-style-type: none"> “Without the development and modernization of [the ICTF and SCIG] facilities, more containers will move by truck rather than by train. The development of the SCIG and the modernization of the ICTF are necessary to ensure that intermodal lift capacity is increased to minimize modal shift and maximize the use of rail transportation with its inherent environmental benefits.” 	The California Railroad Industry
	<ul style="list-style-type: none"> “Major Transportation Facilities – This section does not mention (and should have) the ICTF and other Intermodal yards in Commerce and Vernon.” 	Gateway Cities Council of Governments

4. RAIL-RELATED – CONTINUED		
Metrolink	<ul style="list-style-type: none"> “Any Metrolink expansion, if even possible on freight corridors, will have to be negotiated in the future by the interested parties.” 	The California Railroad Industry
On, Near Dock Rail Facilities	<ul style="list-style-type: none"> “The Railroads also support the conclusions from the Ports Rail Master Plan that even with full development of all on-dock rail facilities, additional near dock facilities will be needed in order to prevent more containers from moving by truck rather than rail.” 	The California Railroad Industry
	<ul style="list-style-type: none"> “Additional near-dock rail facilities should not be assumed in the MCGMAP as there is significant local opposition to these additional facilities.” 	Gateway Cities Council of Governments
Railroads	<ul style="list-style-type: none"> “Railroad system constraints (and resulting impacts)...need to be vetted with the railroads as a reality check.” 	Gateway Cities Council of Governments
Train Idling	<ul style="list-style-type: none"> “The Railroads, however, do not support local rules or regulations that restrict idle duration and such local rules and regulations are clearly preempted by Federal and State law.” 	The California Railroad Industry
5. ALTERNATIVE TECHNOLOGIES FOR FREIGHT		
Alternative Technology	<ul style="list-style-type: none"> “In general shuttle trains should not have been listed with alternative technology. “ 	Gateway Cities Council of Governments
	<ul style="list-style-type: none"> “While the Railroads are supportive of the development of new technology [such as maglev and linear induction motors], it seems unlikely that fixed guide-way system applications (such as maglev) will be feasible given costs, operating issues, and impacts on rail yard operations.” 	The California Railroad Industry
	<p>[Bundle Analysis]</p> <ul style="list-style-type: none"> [The evaluation of alternative technology options should be greatly expanded to address issues such as increasing the capacity of an inland port, clustering new warehouse construction around an inland port, using the inland port as an “agile port,” the proximity of the alternative technology corridor to sensitive receptors, considerations of emissions and potential emission reductions related to increased emission control or electrification, maximizing on-dock rail and minimizing rail operations near residential areas, and the elimination or drayage of containers by truck from the ports to railyards, or the electrification of all means of container transport.] [In regards to the assumptions for the alternative technology bundle and the assumption of an inland port with a capacity of 5,400 lifts per day] “One reason for [the assumption of 5,400 lifts per day capacity] is that the Action Plan envisions this inland port as being limited to containers destined for locations within the region; those destined outside of this region would not utilize the facility.” 	South Coast Air Quality Management District

6. FUNDING		
Funding	<ul style="list-style-type: none"> ▪ Where the benefits lie solely with the private railroad, the Railroad supports the principle that it pay for these improvements. However, a fee on rail container movements should not be utilized to pay for projects with predominantly public benefits. 	The California Railroad Industry
	<ul style="list-style-type: none"> ▪ Encourage and explore innovative and creative funding and project delivery solutions by both public and private sector groups. 	NAIOP
	<ul style="list-style-type: none"> ▪ [The MCGMAP discusses private sector funding strategies and private sector contributions targeted to support future projects.] "It is important for Metro to place this private sector role within the context of other 'fee' driven policy discussions currently under way." 	Watson Land Company
7. SECURITY - N/A		
8. ENVIRONMENTAL JUSTICE - N/A		
9. NEXT STEPS		
Planning	<ul style="list-style-type: none"> ▪ "The Draft Plan is flawed inasmuch as it recommends that governmental planning organizations with little or no expertise in national freight operations serve as strategic planning entity determining when and how private rail lines should be expanded. It is imperative Railroads retain authority, and the flexibility that comes with that authority, to make changes to capital investment plans as warranted by changing circumstances over time. Accordingly, the Railroads agree that continued investment in system capacity is necessary, having a public agency be involved in determining the need for investment and then taxing the industry to pay for these investments would not be economically efficient." 	The California Railroad Industry
	<ul style="list-style-type: none"> ▪ "...the time frames to implement the strategies and covers a period of over 25 years to implement. This is entirely too long, particularly for environmental mitigations and if the ports continue to grow. The ports are projected to double within the next ten years and that should be the longest period to implement the strategies in the plan." 	Gateway Cities Council of Governments

9. NEXT STEPS - CONTINUED		
	<ul style="list-style-type: none"> ▪ "...should any jurisdictions pursue such guidelines [for the siting and designing goods movement related land uses and transportation facilities], we strongly encourage that this be undertaken as a joint effort between the local jurisdictions and practitioner groups, such as NAIOP and the Building Industry Association, to be most effective." ▪ "We do not believe that diversion to other ports is necessary, but rather that more efficient ways, both logistically and environmentally, should be found to move the goods." 	NAIOP
	<ul style="list-style-type: none"> ▪ "Future logistics facilities will be greatly influenced by local land use decisions, which may not reflect regional goods movement needs and priorities. These barriers need to be anticipated and addressed" 	Watson Land Company
	<ul style="list-style-type: none"> ▪ Regarding the Goods Movement Strategic Plan for Los Angeles County ▪ "The GCCOG is recommending that a community-based plan working with the most affected communities is a necessity and a first step. This effort needs to include input from all public sector and private sector stakeholders." ▪ [There is no explanation of why the proposed next steps will work.] ▪ "A more specific 'next steps plan' is needed that includes community and perhaps equally important industry input." 	Gateway Cities Council of Governments

TABLE 2: WORKSHOP COMMENTS ON ACTION PLAN SORTED BY COUNTY & TOPICAL RESPONSE CATEGORIES

Los Angeles County Workshops – December 3, 6, 13, 2007 and February 20, 2008

1. PLANNING PROCESS AND COMMUNITY OUTREACH		
Topic	Questions, Perspectives and/or Concerns	Source of Comments
Agency Coordination	<ul style="list-style-type: none"> It would be beneficial to include Kern County and Central Valley in the study process. 	Marilyn Beardslee, Kern Council of Governments
MCGMAP Plan Approval and Integration with Other Plans	<ul style="list-style-type: none"> What is the relationship with SCAG? 	Marilyn Beardslee
Outreach/Agency Coordination (Roles and Responsibilities)	<ul style="list-style-type: none"> Has AQMD been involved? 	Marilyn Beardslee
Agency Coordination (Roles and Responsibility)	<ul style="list-style-type: none"> Has SCAG's Regional Transportation Plan incorporated the efforts of the Multi-County Goods Movement Action Plan? 	General Comments
MCGMAP Plan Approval Process and Integration with Other Plans	<ul style="list-style-type: none"> What approval is being requested from the Boards in March – seems premature? Does the Action Plan focus on local projects or regional projects? How does it relate to the RTP? 	LaDonna DiCamillo, BNSF Railway
	<ul style="list-style-type: none"> What effect does the Plan have? The use should be defined. 	Peter Greenwald, AQMD
Outreach	<ul style="list-style-type: none"> Gateway Cities has already adopted a mitigation plan for goods movement. Metro and other transportation agencies should work through area Councils of Governments to ensure strong local involvement in the above-mentioned grant program. 	General Comments
	Outreach & Agency Coordination <ul style="list-style-type: none"> What input have the ports and railroad had in the development of the plan process; and will there be one-on-one meetings held with these groups? 	Sharon Neely, Alameda Corridor-East

1. PLANNING PROCESS AND COMMUNITY OUTREACH - CONTINUED		
Future planning	<ul style="list-style-type: none"> ▪ Elected officials shouldn't be making all of the decisions. Let the public decide what types of transportation modes they would support through their taxes. We should ask the public questions, such as, "Should we invest in Maglev? Should we consider an underground tunnel for goods movement?" These kinds of questions and the survey results should be included in the Action Plan. 	Colleen Callahan, American Lung Association
2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS		
Alternatives and Factors Analyzed and/or Considered	<ul style="list-style-type: none"> ▪ Need to consider the agricultural business and warehouses in the Central Valley. ▪ A dedicated truck lane on Highway 58 eastbound would be a major elevation change, 350 to 4,000 feet. ▪ Consider the scenario of "What if Americans change their way of living through less consumption?" or if overseas industry/business bring manufacturing back to America. Americans may be forced into buying less because of increased prices. ▪ What would alternate be when Interstate 5 closes? Would Highway 58 be considered a safer route? 	Marilyn Beardslee, Kern Council of Governments

2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS - CONTINUED

Alternatives and Factors Analyzed and/or Considered	<ul style="list-style-type: none"> ▪ How are secondary and tertiary truck trips quantified in the Action Plan? ▪ How do we account for shifts in freight volumes due to the economy or other factors? ▪ The Action Plan focuses on goods flowing from the Ports of LA/Long Beach to other locations. What about interregional movement between cities? What percentage of truck traffic do these interregional trips comprise? ▪ Several potential freight corridors are included in the Action Plan. Does the plan suggest whether these corridors are elevated, trenched or grade-separated? ▪ Has a detailed analysis been performed of the types of jobs that goods movement creates? ▪ Better land use and vertical building need analysis. ▪ A feasibility study for Interstate 710 is underway. These study results need to be considered as part of the Action Plan. ▪ What about moving cargo by air – such as by dirigibles? This would be an effective way to bypass congested highways and roads. ▪ Gateway Cities is working with the San Gabriel Valley COG to represent 61 cities in the region. This group is opposed to the I-710/Route 60/I-15 goods movement route that is included as an option in the Action Plan. There is no reason for that alignment to be selected as a truck route. Alternative technology also should be a bigger component of the Action Plan. The report should focus on function – non-polluting, community-friendly options. More specifics are needed to quantify air quality studies. In addition, cities along the Route 91/Interstate 405/Interstate 605 alignment are not supportive of these freeways being widened to accommodate the movement of freight. 	Colleen Callahan, American Lung Association
	<ul style="list-style-type: none"> ▪ Support as much diesel out of goods movements as practical, i.e. through on-dock rail; electrify rail lines; grade separations through major arterial road crossings; cluster major distribution centers along rail lines (work with cities and counties – zoning). 	Michael Milroy, The Planning Center/Sierra Club
	<ul style="list-style-type: none"> ▪ Describe east-west corridor as "area" to be studied "not route 60" e-w corridor. 	Harry Baldwin, SGVCOG Governing Board
	<ul style="list-style-type: none"> ▪ Is there a maximum number to limit imports to Ports of LA and Long Beach? 	Gary Neely, Assemblyman Bob Huff's Office

2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS - CONTINUED		
	Reverse Flow <ul style="list-style-type: none"> ▪ Empty containers are a big problem. Stacked, rusting, empty containers create eyesores for the community and are "clutter." Empty containers should be spread around the nation, not left behind in our area. A complete inventory of containers is needed, included whether these containers are empty or full. 	Colleen Callahan, American Lung Association
	<ul style="list-style-type: none"> ▪ Requested a percentage breakdown for inbound and outbound containers. Also commented that in terms of the empty containers, these should be restricted to traveling on non-peak traffic hours. 	Gary Neely, Assemblyman Bob Huff's Office
	Warehouses <ul style="list-style-type: none"> ▪ Does the Action Plan address clustering of warehouses, more efficient use of roadways, trucks vs trains, or intermodal lift constraints? 	Colleen Callahan
Logistics industry practices	<ul style="list-style-type: none"> ▪ What is the break-even point for shippers to send goods directly to the Midwest or east coast, rather than shipping them to the west coast and transporting them by truck or rail from here? 	Colleen Callahan
Project Information	<ul style="list-style-type: none"> ▪ Suggested the development of a Fact Sheet that is specifically for elected officials, which identifies how many dollars (\$) it would take for improvements. 	Sharon Neely, Alameda Corridor-East
Project List	<ul style="list-style-type: none"> ▪ What use will the project list provide? 	Peter Greenwald, AQMD
3. IMPACTS AND MITIGATION		
Impacts (Community, Environmental, Health and Other local impacts)	<ul style="list-style-type: none"> ▪ Public health costs are a significant impact from goods movement. These costs should be factored into the recommendations. ▪ A more detailed analysis of public health impacts should be evaluated for the Action Plan. Not enough detail is provided about this important issue. ▪ Train noise is more than a nuisance. It is a serious health issue that causes lack of sleep and other problems. This should be given more consideration in the Action Plan. ▪ This is out of the purview for the moment, but in the near future there needs to be an allocation of resources to utilize existing methodologies to enhance projects, transportation options and land uses for their public health benefits and risks. 	Colleen Callahan, American Lung Association
	<ul style="list-style-type: none"> ▪ Get message (signals) to the rest of the country so that they understand the impacts of imports to our local Southern California community. 	Michael Milroy, The Planning Center/Sierra Club

3. IMPACTS AND MITIGATION – CONTINUED		
	<ul style="list-style-type: none"> – Concerned about impacts of truck replacement program, i.e. although rail will benefit the jobs for truck trips in moving freight will be reduced and/or eliminated. 	Pablo Ayala, Truck Driver
Mitigation	<ul style="list-style-type: none"> ▪ Seek changes to federal rules, i.e. ICC seeking to block part of the ports CAAP. 	Michael Milroy, The Planning Center/Sierra Club
4. RAIL-RELATED		
Grade Separations	<ul style="list-style-type: none"> ▪ [Need] more grade separations through the high desert corridor (from SR-14 to the I-15 where Highway 58 crosses to San Bernardino County. 	Marilyn Beardslee, Kern Council of Governments
Project list	<ul style="list-style-type: none"> ▪ What time period does the \$50 Billion in projects cover? 	Marilyn Beardslee
5. ALTERNATIVE TECHNOLOGIES FOR FREIGHT		
Alternative Technology	<ul style="list-style-type: none"> ▪ Are innovative projects like Maglev included in the plan for reducing vehicle emissions? 	Colleen Callahan, American Lung Association
Railroads	<ul style="list-style-type: none"> ▪ Zero emission rail should be considered; this project completion schedule doesn't seem to allow sufficient time for a proposal to conduct zero emission rail. 	Peter Greenwald, AQMD
6. FUNDING		
Funding	<p>[Cost Distribution and Container Fees]</p> <ul style="list-style-type: none"> ▪ How will project costs be distributed? Does the Action Plan recommend funding specifics, such as container fees? 	Colleen Callahan
7. SECURITY		
Security	<ul style="list-style-type: none"> ▪ Did the study address homeland security issues? 	Colleen Callahan

8. ENVIRONMENTAL JUSTICE		
Environmental Justice	<ul style="list-style-type: none"> ▪ What level of work is being done to promote environmental justice? ▪ Environmental justice organizations need to be invited to meetings that are being planned through the above-mentioned grant. The Los Angeles EJ Network and other groups should be invited. 	General Comments
9. NEXT STEPS		
Next Steps	<ul style="list-style-type: none"> ▪ What/Who will enforce the next steps? 	David Liu, City of Diamond Bar, Public Works Department

Orange County Workshops – January 14 and 17, 2008

1. PLANNING PROCESS AND COMMUNITY OUTREACH		
Topic	Questions, Perspectives and/or Concerns	Source of Comments
Agency Coordination	<ul style="list-style-type: none"> ▪ The new federal transportation act report was released two days ago. Can MCGMAP partner with this act? Agency Coordination & Alternatives and Factors Analyzed and/or Considered. ▪ Also, how about the High Speed Rail study and the Maglev study – are we coordinating with these studies? <p>Roles and Responsibilities</p> <ul style="list-style-type: none"> ▪ What is Orange County's role in goods movement? Orange County is not a major destination for the 40% of goods passing through Southern California. How much freight will be transported down I-5 and into Orange County? ▪ Is SCAG involved in this process? 	General Comments, OCTA Laguna Hills Public Workshop
	<ul style="list-style-type: none"> ▪ How does Mobility 21 fit in? 	General Comments
MCGMAP Plan approval and integration into other plans	<ul style="list-style-type: none"> ▪ What is the timeline and cost for implementing the types of improvements that are needed? 	

2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS		
Alternative technology	<ul style="list-style-type: none"> How can you compare a MAGLEV system to freight? 	General Comments
Alternatives and Factors Analyzed and/or Considered	<ul style="list-style-type: none"> Supervisor Pat Bates just had an accident on the freeway, due to a large truck. Trucks are not a safe, efficient way to transport goods. Need to take into account the opportunity costs and impact on safety and lives when preparing this plan. Need to separate trucks from cars on our roadways. Also need to separate passenger rail from freight. Have we researched the impact of the pipeline for LPG, and how air cargo affects the goods movement picture? 	General Comments
	<ul style="list-style-type: none"> Look at use of or conversion of carpool lanes to truck lanes (a) during non-peak hours (b) full conversion. 	Patrick Pepper
	<ul style="list-style-type: none"> Transportation and Mobility are not part of the top 5 challenges, why? I think they should definitely be included as the 6th challenge. 	Mayor Pringle (Anaheim)
	<ul style="list-style-type: none"> How are you counting the aggregates and cars? Did you include the empty container return in the study? There are huge costs related to loss of time/efficiency by commuters and delays by freight operators. Has this cost been calculated? Do we have a giant computer to come up with a cumulative loss figure? We really need to quantify this for the public. 	General Comments
	<ul style="list-style-type: none"> [Reverse Flow] Your study focuses on containers, not cars, correct? How did you include the impact from cars in the study? 	
Logistics industry Practices	<ul style="list-style-type: none"> It doesn't seem to make sense to pick up goods from the docks, put them on trucks and then move them to other loading facilities. Why is this done? 	General Comments
	<ul style="list-style-type: none"> Part of the problem is that everything may move to Mexico because they are building a Natural Gas facility. Due to the cheap labor, container shops may move as well. 	

3. IMPACTS AND MITIGATION

Impacts (community, environmental, health, and other local impacts)	<ul style="list-style-type: none"> ▪ There is too much emphasis here on emissions. Is the deck shared by the environmentalists? 	Roy Reynolds, PRT Strategies
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4. RAIL RELATED

Grade Separations	<ul style="list-style-type: none"> ▪ The Imperial Grade Crossing, I had terrible time gathering information and figuring out who's responsible for the project. I did find it costs about 70 million dollars, which is just too much for that type of construction. <p>[Environmental Mitigation]</p> <ul style="list-style-type: none"> ▪ More aggressive environmental mitigation is needed, especially grade separations. OCTA is trying to get funding. What is the status? ▪ What is easier and less costly for grade separations – raising the roadway to clear the railroad tracks, or raising the railroad tracks to clear the roadway? 	General Comments
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4. RAIL RELATED - CONTINUED		
Railroads	<ul style="list-style-type: none"> ▪ To what extent is BNSF cooperating, have they taken a position yet? I live about 200 yards from the rail yard. I receive announcements from Lena Kent regarding other subjects but never the goods movement effort. ▪ Is the BNSF rail yard at capacity? ▪ BNSF is using their third rail as a "parking lot" for trains lined up trying to get into their Hobart Yard. These idling trains have forced local cities to construct huge walls to block these unsightly trains from view, but this doesn't help with the noise or pollution. This is affecting cities like Yorba Linda, Anaheim and La Palma that are in this area. Once the Imperial Highway overpass is built, BNSF will be adding a third rail to Esperanza Street down to Kellogg Drive. BNSF is doing whatever it needs to do to move more trains, regardless of the impact on neighboring communities. That is their goal - moving the freight, regardless of the consequences. ▪ In all of your strategies, are you looking at ways to include rail capacity as well? What are the funding sources? Could an extra track help, such as the Colton crossing? ▪ Will you please summarize BNSF relation to this effort? ▪ Railroads seem indifferent to residents as the trains roll by, blowing their horns in the middle of the night. Can the railroads be made to understand how grade separations benefit the public, and they should be part of this solution? . ▪ Surprised that the railroads and ports are not more involved in this process. Have we considered congestion pricing as an alternative and to improve the flow of goods from the ports? 	General Comments
5. ALTERNATIVE TECHNOLOGIES FOR FREIGHT - N/A		

6. FUNDING		
Funding	<ul style="list-style-type: none"> ▪ Promote legislation through local (congress) and state (senators) representatives to require mitigation funds when trade agreements are signed. 	Patrick Pepper
	<p>[New Sources]</p> <ul style="list-style-type: none"> ▪ The MCGMAP seems to be a great study, but the bottom line is we can't build the improvements if we don't have the money. ▪ Is there any possibility of a consistent federal funding stream for goods movement? ▪ If we need \$50 billion in goods movement/mitigation improvements, we need to find a way of capturing \$5 billion per year for 10 years. What about private funding sources? 	General Comments
	<p>[Fair Share]</p> <ul style="list-style-type: none"> ▪ Can you please clarify what "Fair Share" means? Who decides what where "Fair Share" funding goes? 	General Comments
	<p>[Fair share, New Sources]</p> <ul style="list-style-type: none"> ▪ Are our legislators demanding our fair share of goods movement funding in Washington, DC? The next federal act is set for approval by late 2009, and Southern California needs a greater share for what we call "the nation's loading dock." ▪ What about the proposed new tax on gasoline? ▪ Congratulations to Wilbur Smith Associates for bringing together millions of people in seven counties – this helps us speak louder and say that "we're mad as hell and aren't going to take it any more." ▪ We need a big, fat dollar amount that we can tell the public – the cost of doing these projects vs. the cost of not doing them. 	General Comments
	<p>[Federal Role]</p> <ul style="list-style-type: none"> ▪ When is the Federal Government planning on getting involved? The CARB released studies that show 12,000 cases of cancer are registered yearly, this is serious! Safety is a great challenge! 	General Comments

7. SECURITY		
Security	<ul style="list-style-type: none"> ▪ Isn't security a factor in all of this? At least in terms of additional costs and delays in through the ports? 	Roy Reynolds,
Project information	<ul style="list-style-type: none"> ▪ Where can folks access the technical documents? 	General Comments
8. ENVIRONMENTAL JUSTICE – N/A		
9. NEXT STEPS		
Future Planning	<ul style="list-style-type: none"> ▪ I share Mayor Pringle's concern that traffic and congestion aren't separately shared issues and specific problems to solve. Also, container transit and local truck traffic are issues that can be separately planned for and dealt with. 	Roy Reynolds

Riverside County Workshop – December 10, 2007

1. PLANNING PROCESS AND COMMUNITY OUTREACH		
Topic	Questions, Perspectives and/or Concerns	Source of Comments
Outreach and Agency Coordination	<ul style="list-style-type: none"> ▪ Need to coordinate with railroads. 	General Comment
2. POTENTIAL GOODS MOVEMENT IMPROVEMENT, STRATEGIES AND PROJECTS		
Alternatives and Factors Analyzed and/or Considered	<ul style="list-style-type: none"> ▪ Factors to consider for SR-86 / Mexico include federal funding, inter-commerce, and national security. 	Steven Hernandez
	<ul style="list-style-type: none"> ▪ Conception Plan is ok, but there were not any specifics given to make comments possible. However, I think there are better places for railyard/head/spars than Mira Loma in terms of mobility and environment. 	Stephen Anderson, Resident
	<ul style="list-style-type: none"> ▪ Mira Loma is not the best location for a warehouse. 	
Inland Ports	<ul style="list-style-type: none"> ▪ What was the criteria for Inland Ports? Why are there not more in Riverside County? 	Steven Hernandez
	<ul style="list-style-type: none"> ▪ How can we become an Inland Port along SR-86? 	Tim Brown
General Project Information	<ul style="list-style-type: none"> ▪ Proposed sound walls do not mitigate freeways or any impacts related to trains or trucks. ▪ How are projects prioritized? 	Betty Anderson, Resident
Project Information	<ul style="list-style-type: none"> ▪ What are the limits for an additional lane on the I-10, east of Monterey? 	Tim Brown
Project List (Additions)	<ul style="list-style-type: none"> ▪ Riverside County Proposed Goods Movement Projects – add third lane (additional lanes) to SR-86 NAFTA Corridor Interchange Construction. 	General Comment

3. IMPACTS AND MITIGATION		
Control Measures	<ul style="list-style-type: none"> Emission reduction targets – theoretically, air quality can worsen despite mitigation efforts. 	Scott Novak, Resident
Impacts (Community, Environmental, Health and Others)	<ul style="list-style-type: none"> How will environmental concerns and mitigations be addressed? Riverside projects are prioritized based on factors such as safety; likelihood of construction within a specified timeframe; and cost. Only a limited number of projects can implemented within a short term, i.e. must consider impacts of construction and accessibility within the city. 	Thomas Boyd
	<ul style="list-style-type: none"> Cost distribution – mitigation benefits do not benefit the local community. Current improvements are not enough. Trains are still coming the local community, however, the proposed grade separations are only planned in other communities, Riverside, etc., but not in Mira Loma. Trucks from Mexico don't meet EPA standards – how will this be controlled? The proposed cleaner strategies will not offset the impact of increased truck traffic – the only solution would be to stop building. 	Rachel Lopez, Center for Community Action and Environmental Justice
	<ul style="list-style-type: none"> Has lived in Mira Loma for many years and has been affected by the encroachment on the quality of life - land use for development doesn't benefit Mira Loma (funds are used elsewhere) – there should be a benefit for infrastructure and improved quality of life. What type of requirements are imposed on trucks coming from the Mexican borders? Local frustration with trucks – submitted complaints to the City, however, there has been no change. Issue of local residents that drive out of area for employment; while those that work locally are driving from a distance. 	Colleen Smethers, Resident

4. RAIL RELATED		
Grade Separations	<ul style="list-style-type: none"> ▪ What grade separation project will be in Mira Loma, specifically in Bell Grave? 	General Comment
Train Idling	<ul style="list-style-type: none"> ▪ Idling is a problem for electric trains – electrification. 	Tim Brown
	<ul style="list-style-type: none"> ▪ What type of guarantee does the Action Plan provide? 	Colleen Smethers, Resident
	<ul style="list-style-type: none"> ▪ The Draft Action Plan only considers goods, what about people? 	Steven Hernandez
5. ALTERNATIVE TECHNOLOGIES FOR FREIGHT – N/A		
6. FUNDING		
Funding	<ul style="list-style-type: none"> ▪ Who decides how funds are distributed? 	Colleen Smethers,
	<ul style="list-style-type: none"> ▪ Out of 61 grade separations, can't fund all of them. 	Robert Tock, Jurupa Community Services District
	<ul style="list-style-type: none"> ▪ Attack a little bit at a time as funding is available. 	
	<ul style="list-style-type: none"> ▪ Has funding model changed? 	
7. SECURITY – N/A		
8. ENVIRONMENTAL JUSTICE – N/A		
9. NEXT STEPS – N/A		

San Bernardino County Meeting – January 9, 2008

1. PLANNING PROCESS AND COMMUNITY OUTREACH		
Topic	Questions, Perspectives and/or Concerns	Source of Comments
Outreach and Agency Coordination	<ul style="list-style-type: none"> ▪ As mentioned at the Palmdale workshop, Kern COG considers it of prime concern that Kern county's and the San Joaquin Valley's Goods Movement Plans and activities be wrapped into this Action Plan. SR58 from the coast to Barstow (and eastward when it becomes I-40) is one of the state's major corridors. Its role when I-5 closes at the Grapevine (because of weather or fires) is heightened. We have been working closely with SCAG's Goods Movement team for years and Kern COG very much desires that this relationship would be extended from Metro as that agency takes on an implementation role. ▪ BNSF/UP are expanding the Tehachapi pass – this means the trains will increase from 35 per day to 60. Action Plan needs to involve statewide strategies, including Kern County; the current partner agencies are not sufficient. 	Marilyn Beardslee, , Kern Council of Governments
2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS		
General Project Information	<ul style="list-style-type: none"> ▪ Define user fees, island port and evaluation criteria used in the Action Plan. 	Marilyn Beardslee
Alternative and factors analyzed and/or considered	<ul style="list-style-type: none"> ▪ Provide clarification on Dedicated Freight Guideway System – a high speed, high volume corridor, i.e. Maglev, Truck Lanes. 	Marilyn Beardslee
Alternatives and factors analyzed and/or considered	<ul style="list-style-type: none"> ▪ Define regional vs. intra-regional. ▪ Have there been noticeable changes since this Plan was developed, i.e. higher fuel prices. ▪ Infrastructure changes are long term – freight system, transportation system – given the projected growth, what will the capacity be? Will it accommodate projections? 	Marilyn Beardslee

3. IMPACTS AND MITIGATION		
4. RAIL-RELATED – N/A		
5. ALTERNATIVE TECHNOLOGIES FOR FREIGHT – N/A		
6. FUNDING		
Funding	<ul style="list-style-type: none"> [Need] more detail as to dollar allocation. 	Kent Hindes, Cushman & Wakefield
	<ul style="list-style-type: none"> Toll charges should be used to expand truck lanes and not wait for governmental funding. Private funding for projects such as E220, with toll charges, would allow this type of project to be built on a more timely basis. In addition, a truck toll lane Northbound on I15 from the Inland Empire to the High Desert (Victorville area) could be private funding to speed up the project. In summary, the users should pay for new freeways and widening of existing freeways for a toll truck lane, and not depend on taxpayers for funding. 	Harold Wright, TPM Investments
	<p>[Fair Share]</p> <ul style="list-style-type: none"> The solution would include federal support and recognition of the impact and burden of goods on the area despite the fact that the majority of goods leave the area or imposing fees on goods through the ports. 	Marilyn Beardslee, Kern Council of Governments
	<p>[Federal Role, User Fee]</p> <ul style="list-style-type: none"> Final report needs to emphasize as strongly as possible that 77% of San Pedro port related traffic goes outside the seven county region. A large proportion of funding should be federal or user fee based. 	Carlton Waters, Urban Crossroads, Inc.
	<p>[Project List]</p> <ul style="list-style-type: none"> For the San Bernardino project list, how do these projects intercept with the High Desert Corridor, Colton Crossing, Southern California Logistics Airport, and Intermodal Facilities. Does the San Bernardino project list included in the \$40 billion estimated cost identified in the Action Plan? <p>[User Fees]</p> <ul style="list-style-type: none"> Who would have the authority to impose user fees? A: Currently, it is the Ports or ACTA. This would still need to be defined. 	Marilyn Beardslee

7. SECURITY - N/A

8. ENVIRONMENTAL JUSTICE - N/A

9. NEXT STEPS - N/A

San Diego County Workshop – February 21, 2008

1. PLANNING PROCESS AND COMMUNITY OUTREACH		
Topic	Questions, Perspectives and/or Concerns	Source of Comments
Implementation Principles	<ul style="list-style-type: none"> ▪ Are your "Implementation Principles" the same as what is stated in the statewide goods movement plan? 	General Comments
MCGMAP Plan Approval and Integration with Other Plans	<ul style="list-style-type: none"> ▪ Which plan takes precedence? The MCGMAP or RTP? 	General Comments
2. POTENTIAL GOODS MOVEMENT IMPROVEMENTS, STRATEGIES AND PROJECTS		
Alternatives and Factors Analyzed and/or Considered	<ul style="list-style-type: none"> ▪ Are you targeting a truck strategy? 	General Comments
Alternative technology	<ul style="list-style-type: none"> ▪ Is the technology that you recommend that same as the State's plan? 	General Comments
3. IMPACTS AND MITIGATION		
Impacts (Community, Environmental, Health and Others)	<ul style="list-style-type: none"> ▪ You need to outreach to neighborhoods, such as Barrio-Logan, that are heavily impacted by truck traffic. ▪ There is a new border crossing (in San Diego County); you should be aware of this and reach out to this community. ▪ The City Heights (or "Mid-City") community off the I-15 Freeway is heavily affected. We will not allow truck traffic through this stretch of the freeway. The environmental and community impacts in the area are severe. This community wants to remain very involved with this process. ▪ Are "our" issues included in your Existing Issues document? Or just the macro issues? 	General Comments

4. RAIL-RELATED - N/A		
5. ALTERNATIVE TECHNOLOGIES FOR FERIGHT - N/A		
6. FUNDING		
Funding	▪ What are the private sector funding strategies [did] you assume?	General Comments
7. SECURITY - N/A		
8. ENVIRONMENTAL JUSTICE - N/A		
9. NEXT STEPS - N/A		



The Forum for Commercial Real Estate

SoCal Chapter

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March 17, 2008

Ms. Shahrzad Amiri
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2393

Re: Multi-County Goods Movement Action Plan

Dear Ms. Amiri:

The SoCal Chapter of the National Association of Industrial & Office Properties (NAIOP) is the largest commercial real estate organization in Southern California and one of the largest chapters in the United States, encompassing more than 1,200 members in Orange and Los Angeles Counties. The Chapter provides a unified voice to protect and enhance the commercial real estate industry and quality of life in Southern California. NAIOP SoCal is proactively involved in public policy and provides members with comprehensive educational programs and interactive business relationship opportunities. We appreciate the opportunity to provide our input on the draft Multi-County Goods Movement Action Plan.

Improving transportation and goods movement is NAIOP SoCal's highest priority because of the impact the issue has on NAIOP members and the overall economic vitality and quality of life in the region. As the representative of the Chapter's over 1,200 members and the 5.4 million workers who travel on the roadways to work in the office and industrial buildings in Los Angeles and Orange Counties and who provide the distribution facilities for the distribution of goods throughout the country.

NAIOP SoCal commends the Multi-County Goods Movement Action Plan ("MCGMAP") partners for guiding the preparation of this strategic plan, and is pleased to be a participant in the Stakeholders Advisory Group. We support efforts to have the Plan adopted by public agencies and to work closely with private sector organizations and individuals in its implementation.

NAIOP SoCal has reviewed the draft Plan, dated October 2007, from the perspective of our members, the majority of whom live and work in Southern California. We also have viewed the draft Plan as developers, owners and operators of industrial and office facilities. We find the Plan to be a well-prepared and constructive effort to address monumental challenges in the movement of goods facing our region in the coming decades. Our appreciation is extended to all the MCGMAP partners and Metro staff for this effort.

*An alliance of Southern California chapters serving the commercial real estate community:
Orange County / Los Angeles • Inland Empire • San Diego*

As a result of our review we would like to offer the following observations, comments and recommendations:

1. We agree that MCGMAP partners have defined roles and responsibilities, and cannot fully implement many of the strategies alone. We also agree with your recommendation that continued collaboration and consensus building is needed. However, we would like to encourage a high level of involvement with both private sector organizations, such as NAIOP, and elected officials at the state and federal levels, to effectively design and implement recommendations of the Action Plan. We feel this is critical, since the support from these two groups is essential in advocating that other regions that benefit from goods moving through Southern California should bear a share of the costs for various infrastructure and other improvements.
2. The Stakeholder Advisory Group has questioned whether our Los Angeles and Long Beach ports should necessarily shoulder the capacity burdens that have been projected in the MCGMAP. The question has been raised as to whether some of this port demand should be diverted to alternate locations, either along the West Coast or Mexico. We do not believe that diversion to other ports is necessary, but rather that more efficient ways, both logistically and environmentally, should be found to move the goods.
3. The MCGMAP recommends the development of guidelines for local jurisdictions to use in siting and designing goods movement related land uses and transportation facilities. We believe that sufficient guidelines already exist and are being utilized by local jurisdictions for zoning and land use planning. However, should any jurisdictions pursue such guidelines, we strongly encourage that this be undertaken as a joint effort between the local jurisdictions and practitioner groups, such as NAIOP and the Building Industry Association, to be most effective.
4. In view of the complexity of confronting the challenges of goods movement in Southern California over the next 25 years, we feel that the MCGMAP should encourage and explore innovative and creative solutions by both public and private sector groups. The MCGMAP takes a step in this direction by encouraging vehicle and equipment manufacturers to find cleaner alternatives to oil-based fuels, and by supporting the Regionally Significant Transportation Investment Study to evaluate the feasibility of a dedicated freight guideway system. We applaud this effort and encourage the MCGMAP partners to aggressively pursue these ideas.
5. NAIOP SoCal supports voluntary efforts to embrace sustainable building practices that will result in lowering greenhouse gas emissions, conserve water, non-renewable resources and produce more environmentally friendly workplaces. We feel that it is essential to work together with the MCGMAP and Stakeholder members to adequately address environmental issues associated with goods movement facilities, including warehousing and distribution buildings, offices and transportation improvements. NAIOP supports reasonable and attainable modifications to the California building codes to assist in the implementation of AB 32.
6. We agree that Southern California has been receiving a disproportionately low share of federal funding for transportation improvements, despite efforts by our elected and appointed officials, as well as private sector organizations. With the adoption of the MCGMAP, we feel that pertinent and salient data and analysis are now available to more adequately make a case for not only more federal funds, but also increased collaboration and cooperation at the

state and federal level for cost sharing of proposed improvements that provide benefits well beyond Southern California.

7. We agree that there should be continued discussions with private sector and stakeholders to seek support in addressing goods movement impacts and filling funding gaps. We believe that the discussions should focus on the use of incentives and the delivery of tangible system-wide improvements, and not a focus on user fees. It is vitally important to develop a clear and concise message on this issue and effectively communicate this to the public and policy and funding decision makers

We recognize that considerable effort has gone into the preparation of the MCGMAP and strongly urge the MCGMAP partners to aggressively pursue implementation through a concerted effort of public and private sector collaboration. NAIOP has been proactive in facilitating solutions to goods movement issues not only in Southern California, but nationally, through our national headquarters staff and proactive organizations, such as the Coalition for America's Gateway's and Trade Corridors. We look forward to the opportunity to assist in the implementation of the MCGMAP.

Thank you for the opportunity to comment on the final draft of the Multi-County Goods Movement Action Plan.

Sincerely,



James V. Camp
Legislative Action Committee Chair



Vickie Talley
Director of Legislative Action

cc: NAIOP SoCal Board of Directors
Orange County Transportation Authority Board of Directors and Executive Officer
Los Angeles County Metropolitan Transportation Authority Board of Directors and Executive Officer



MAJESTIC REALTY CO.

13191 Crossroads Parkway North, Sixth Floor • City of Industry, CA 91746-3497

Office (562) 692-9581 • FAX (562) 695-2329

DATE: March 17, 2008

TO: Multi-County Goods Movement Action Plan – Agency Partners:
Los Angeles County Metropolitan Transportation Authority
Orange County Transportation Authority
Riverside County Transportation Commission
San Bernardino Associated Governments
Ventura County Transportation Commission
California Department of Transportation – Districts 7,8,11 &12
San Diego Association of Governments
Southern California Association of Governments

RE: Multi-County Goods Movement Action Plan Comments

In response to your request for comments regarding the final draft of the Multi-County Goods Movement Action Plan (MCGMAP), Majestic Realty Co. would like to begin by acknowledging the significant work that has gone into the preparation of this multi-county effort. We have appreciated the opportunity to participate as a member of the Stakeholder Advisory Group and look forward to our continued collaborations.

We believe that this focused effort speaks volumes to the importance of goods movement to our regional and national economy. In fact, it was this effort that laid the ground work for our region's timely TCIF submission. Without the work that had previously been done in bringing the various counties and agency partners together to discuss these complex issues, we do not believe that our region would have been able to submit a consensus request.

As we all know, our region's needs significantly outpace our current levels of available funding. Collaboration will be key as we continue to pursue integrated solutions. Future progress will require continued coordination across regional jurisdictions and levels of government, and with industry and community groups alike.

We encourage you to keep pressing forward for "simultaneous and continuous" system-wide solutions. Our multi-faceted supply chain is complex and this effort clearly reveals the need for comprehensive solutions.

Moving forward, we are committed to remain active stakeholders, working together to find solutions that are essential to support the future economic prosperity and enhance the quality of life throughout our region. We encourage you to continue to engage a broad base of industry partners in future efforts, so that we may continue to work toward systems-solutions that are comprehensive and sustainable.

Sincerely,

MAJESTIC REALTY CO.

A handwritten signature in cursive script that reads "Fran Inman".

Fran Inman
Senior Vice President

cc: Edward P. Roski, Jr.



March 17, 2008

RE: Multi-County Goods Movement Action Plan (MCGMAP) Draft

Dear MCGMAP Member Agencies,

On behalf of the Inland Empire Economic Partnership, I would like to express our support and appreciation for the efforts of your agencies to develop a comprehensive and collective Southern California approach to our mutual issues.

The detailed technical analyses provided by the MCGMAP team has been ground breaking in the scope of details explored, and will certainly prove to the foundation of future endeavors in this area.

Beyond the technical merits of the draft plan and the effort involved, we would like to highlight the salutary benefits this process has brought to the Southern California region. By creating a mechanism to convene the disparate agencies for specific discussions related to goods movement and trade infrastructure, the MCGMAP process has doubtlessly helped to create and encourage the regional unity exemplified in the Southern California Consensus Group and its stalwart advocacy on Proposition 1B's TCIF on behalf of the impacted agencies and the residents and businesses contained within their areas of responsibility.

In this spirit, I congratulate you for the success of your efforts and for their contributions to Southern California. We look forward to the future progress of the MCGMAP collective and its individual agencies.

Sincerely,

Bill Carney
President & CEO



CITY HEIGHTS

Community Development Corporation

March 17, 2008

Michelle Smith, Metro Project Manager
South Counties GMAP Project Partners
One Gateway Plaza, MS 99-22-8
Los Angeles, Ca 90051

BY: Fed Ex and Email : goodmoves@metro.net

RE: Comments on Multi-County Goods Movement Action Plan

This is to provide comments on behalf of the City Heights Community Development Corporation (CHCDC) on the "Multi-County Goods Movement Action Plan" (MCGMAP). We have been directed to submit comments to you by Sam G. Morrissey, PE of Wilbur Smith Associates.

CHCDC has participated in a number of working groups (including the SANDAG Freight Working Group) and submitted testimony and formal comments to the San Diego Association of Governments (SANDAG) regarding the Goods Movement Action Plan (GMAP) for San Diego County with special concerns regarding the SR 15 segment of I-15. We also participated and presented comments and materials to the MCGMAP Public Workshop held in San Diego on February 21, 2008. It appears that our comments to the SANDAG Freight Working Group and actions of the SANDAG Board of Directors in adoption of the 2030 Regional Transportation Plan update in November 2007 have NOT been incorporated into the MCGMAP.

The MCGMAP Executive Summary (ES) repeatedly makes reference to the problems related to truck traffic pollution in neighborhoods and communities. This is mostly discussed in regard to trucks exiting freeways and intruding into local neighborhood streets. The MCGMAP does not appear to consider the problems of communities that are dissected by freeways that are designated for Goods Movement.

The SR-15 Mid City segment of I-15 in San Diego, between SR-94 and I-8, was reviewed and constructed in the late 1980s to 1990's. The freeway was opened for service in 2000. Memoranda of Agreement (MOA) in 1985 and of Understanding (MOU) in 1993 were signed between the City of San Diego and the State of California to provide for mitigations to some of the significant effects of the construction of a freeway cutting through the densely populated Mid City San Diego communities of City Heights, Normal Heights and Kensington. A summary is attached with includes pertinent excerpts of the 1985 MOA and 1993 MOU.

One of those mitigations in Section 9 in the SR 15 (40th Street Corridor) Memorandum of Agreement from May 1985 states that, "The State will, to the extent feasible, sign and direct truck traffic to the I-805 facility as an alternative to Route 15 through Mid City."

The 2007 San Diego adopted 2030 RTP clearly recognizes the significance of a high density community being dissected by a freeway. In recognition of the preexisting mitigation to divert truck traffic from I-805 the RTP section on GMAP and Appendix B, Figure 1b show the deletion of the GMAP designation for the area between the I-15 – I-805 intersection and the I-15 – SR-163 intersection. No alternative route is provided to provide for Goods Movement related traffic to reenter the I-15 freeway. A route was suggested to the SANDAG Freight Working Group and reiterated at FWG meeting in September 2007. This gap leaves an incomplete network by not providing a specific route for trucks running through the I-15. Page B-6, Table B.1 in the 2030 San Diego RTP clearly states that "I-15 between I-805 and SR 163 was removed from the GMAP network in November 2007".

It should also be noted in the MCGMAP that according to page 6-30 in the same adopted SANDAG 2030 RTP "Dedication or construction of additional lanes for HOV or other uses in the SR 15 Mid-City segment of I-15 is contingent on the completion and operation of BRT stations and system improvement pursuant to agreements between the State and City of San Diego."

The MCGMAP ES, Page 6 in the Draft Summary mentions that 1.4 million trucks worth of goods cross the Otay Mesa POE in both directions. Those trucks are mainly fed into freeways I-5, I-805 and I-15. Various combinations of these freeways connect San Diego (the border and the Port) with Los Angeles and Riverside respectively. Since the current RTP GMAP does not call out a specific route to take, trucks seeking to use the designated GMAP route up I-15 will be likely to take SR-15 Mid-City segment, because it may appear to be the shortest route. Recommending an alternative route (such as taking I-805 north – SR-163 North – I-15 North or vice-versa) would appear longer but it may in fact be quicker and reduce air pollution levels in high density adjacent Mid City communities, including City Heights which has two schools located within 500 feet of the freeway.

MCGMAP ES Page 24.- Table 4: indicates the number of schools within 1/3 of a mile from identified Southern California route "bundles". According to studies, schools should not be located within 500 feet from a freeway. Special attention should be given to rerouting trucks along routes which are at least 500 feet away from schools and proper monitoring should be provided to assure that there are not adverse impacts to the sensitive receptors at these locations. In addition, the alternative routes suggested here to move freight from the Port of San Diego and the Border to Riverside should be identified as other "bundles" in the MCGMAP.

The MCGMAP states at page 2, "Given their defined roles and responsibilities, the MCGMAP partners cannot fully implement many of the plan's recommended strategies on their own...", but according to the MCGMAP Draft Executive Summary 2007's Implementation Principles, Page 5, "1. **Guideline:** The Action Plan is the master plan for goods movement in Southern California and is intended to be used as guidance in the preparation of state, regional, and local transportation plans. The Action Plan can also be a tool for local jurisdictions to make informed land use decisions." This would appear to run counter to representations that the San Diego SANDAG 2030 RTP takes precedence in transportation planning and funding. If the MCGMAP is to be used as noted, it would appear that it requires proper environmental review. The 2030 San Diego RTP has a certified EIR completed and it excludes the GMAP designation for the Mid City SR-15 segment of I-15. By not expressly noting this at all points in the MCGMAP this document is inaccurate and misleads other jurisdictions and agencies in their planning and budgeting.

The MCGMAP can and should include the following guidelines and provisions :

1.- Clearly prioritizing health of sensitive receptors , e.g. "Health over Freight"

2.- Providing specific recommendations, e.g. "Redirect – Reroute trucks and other mobile freight pollutants when schools are within 500 feet to the more restrictive 1/3 of mile from a dedicated Freight Guideway or other designated GMAP

With these priorities explicit it will be easier for cities (regions) to create local plans that are compatible with specific restrictions already in place and produce a multi county plan with gaps such as the one that can be found in the 2007 San Diego RTP.

Please clarify if MCGMAP Page 17, the Specific Actions, last point, "implement a dedicated Freight Guideway system...I-15 to Victorville", refers to I-15 all the way South into San Diego? If that is the case it should be considered that the 2007 San Diego RTP has deleted a segment of the I-15 as part of the Goods Movement Network between the I-15 – I-805 intersection and the I-15 – SR-163 intersection and an alternative has not been identified.

This issue should be clarified.

Page 20-21, Figure 6: Map of Potential Future System identifies the San Diego segment of the I-15 as a Dedicated Freight Guideway. Again, it should be noted that the adopted 2007 San Diego RTP has deleted a segment of the I-15 as part of the Goods Movement Network (between the I-15 – I-805 intersection and the I-15 – SR-163 intersection).

Page 3 in the Draft Action Plan – San Diego, Figure 1 is inconsistent in the I-15 segment between the SR-163 intersection and the SR-94 intersection of the San Diego Region GMAP.

Michelle Smith, Metro Project Manager RE: COMMENTS ON MCGMAP

Page 4 of 4

Table 9 in the Draft Action Plan – San Diego, which is based on Table B.1 of the San Diego Region RTP appendix B (Goods Movement Action Plan) does not take in consideration the Note on the bottom where it is stated that the I-15 between I-805 and SR 163 removed from GMAP in November 2007. This should be considered in order to draft a better and accurate Southern California GMAP.

Page 22. Stakeholders Outreach “Some stakeholders indicated that regional environmental and community impacts must be addressed and mitigated to a level beyond existing air quality attainment goals. However, the authority to increase air quality attainment goals rests with regulatory agencies such as the SCAQMD and CARB, not the MCGMAP partner agencies.”

Air quality attainment goals are regional and are measured within air basins, but we know that people closer to the pollution source directly breathe many pollutants before they spread outward. Those people are exposed to high levels of pollution and suffer the health issues described in page 7. A clearer strategy should be implemented to address this problem.

Thank you for the opportunity to comment about the Multi-County GMAP.

Sincerely,



Jay Powell, CHCDC Executive Director

Enc CHCDC Comments letter San Diego RTP
 CHCDC Comment letter San Diego RTP EIR

CHCDC Fact Sheet Summary Excerpts of Mitigations

SANDAG RTP documents and maps

THE CALIFORNIA RAILROAD INDUSTRY

March 17, 2008

Michelle Smith
Metropolitan Transportation Authority
1 Gateway Plaza
Los Angeles, CA 90012
Mailstop: 99-22-3

Re: Freight Railroad Comments on 2008 Draft Multi-County Goods Movement Action Plan

Dear Michelle:

On behalf of the Association of American Railroads and its Class 1 member freight railroads operating in California (BNSF Railway and Union Pacific Railroad, or the Railroads), we appreciate the opportunity to comment on the Draft Multi-County Goods Movement Action Plan (Draft Plan) strategies related to freight railroad operations. The Draft Plan addresses four (4) "action sets:"

1. Accelerate regional environmental mitigation
2. Relieve congestion and improve mobility
3. Improve operational efficiency
4. Develop equitable public/private funding strategy

The comments presented here will address the items pertaining to railroad operations in each of the action sets. Note that failure to comment on a particular item or portion of the Action Plan should not be interpreted as concurrence by AAR or the Railroads.

Action Item 1: Accelerate Regional Environmental Mitigation

Draft Plan	Strongly encourage EPA to rapidly finalize its proposed rulemaking for the Control of Emissions of Air Pollution from New Locomotive Engines and New Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder.
Railroad Comment 1	EPA issued final regulations on March 14, 2008. The Railroads support these technology-forcing regulations. Leaders of environmental groups lauded the US EPA on their adoption of tough new locomotive standards. Janea Scott, staff attorney for Environmental Defense Fund, remarked "EPA deserves praise for issuing a final rule that is stronger than its original proposal." Richard Kassel, director of NRDC's Clean Fuels and Vehicles project said, "EPA has delivered a strong program that will go a long way towards solving the problem of diesel train and ship pollution in the future."

- Draft Plan** **Generation of public and/or private funds to accelerate the implementation of the air quality strategies contained in the Ports' Clean Air Action Plan, the California Air Resources Board's Emission Reduction Plan, the California Air Resources Board's Goods Movement Action Plan & the South Coast AQMD's Air Quality Management Plan.**
- Railroad
Comment 2 The current SIP, CAAP and AQMP Plans already contain unrealistic assumptions regarding the availability of new locomotive technology. In some instances, these Plans propose that Tier 4 engines be introduced as early as 2012. However, When US EPA reviewed the technical information available, they concluded the new locomotive technology would not be available until 2015 at the earliest. The Railroads cannot dispatch new units to Southern California if they cannot purchase them. Even if Tier 4 locomotives were available earlier, because of the small number of brand-new locomotives produced annually the availability of these locomotives as early as 2012 would not make an appreciable difference in the region's air quality. The Draft Plan should not propose that the dates in the current SIP, CAAP or AQMP be accelerated in advance of the dates promulgated by US EPA.
- Draft Plan** **Investigation of the feasibility of advanced transportation technologies such as maglev and linear induction motors.**
- Railroad
Comment 3 While the Railroads are supportive of the development of new technology, it seems unlikely that fixed guide-way system applications (such as maglev) will be feasible given costs, operating issues, and impacts on rail yard operations. The Railroads submitted comments to SCAG on the infeasibility of using a High Speed Rail Technology (HSRT) freight system in June and October 2007, and these comments are attached for your review.
- Draft Plan** **Implement engine idling restrictions for rail.**
- Railroad
Comment 4 The Railroads support the reduction in unnecessary idling and have invested in idle reduction technologies since 2003. All new Tier 1 and Tier 2 locomotives are equipped with idle reduction devices. The Railroads are also retrofitting the intrastate locomotive fleet with devices to comply with the 2005 MOU with CARB. By June 30, 2008, all intrastate locomotives will be retrofitted with idle reduction devices that limit idling time to no more than 15 consecutive minutes unless extended idling is necessary for operational reasons. In addition, the Railroads voluntarily agreed in the 2005 MOU with CARB to exert their best efforts to limit the non-essential idling of locomotives not equipped with automatic idling reduction devices to no more than 60 consecutive minutes. The Railroads, however, do not support local rules or regulations that restrict idle duration and such local rules and regulations are clearly preempted by Federal and State law.
- Draft Plan** **Use low emission train engines or electrification.**

Railroad
Comment 5

The Railroads have continuously invested in low emitting diesel and alternative fuel technologies for the past decade. BNSF currently operates four LNG switcher units in southern California, UP and BNSF have developed (with CARB) a diesel particulate filter application for two switcher locomotives, both BNSF and UP have invested in “green goat” hybrid battery switcher locomotives, and both BNSF and UP are currently operating low emitting “genset” switchers locomotives. Furthermore, both railroads have invested over \$300 million to purchase the cleanest available locomotives to comply with the South Coast fleet average agreement. As the Railroads purchase Tier 3 and Tier 4 locomotives, the fleet will continue to become even cleaner.

All previous studies of electrification in southern California raise insurmountable operational and cost-effectiveness issues that must be thoroughly considered in any public policy discussion. Electrification is cost prohibitive and would result in limited reduction of emissions.

In addition, ingress and egress from an electrified system presents safety and operational challenges relative to inadvertent contact with electric lines and lift machines avoiding catenaries.

The Railroads submitted comments to SCAG on the feasibility of freight electrification on February 15, 2008. A copy of these comments is attached to this letter. Please review these comments for more detail.

Action Item 2: Relieve Congestion and Improve Mobility

Draft Plan **Fund and implement the use of on-dock rail according to the San Pedro Bay Ports Master Plans (Increase intermodal lift capacity).**

Railroad
Comment 6

Both BNSF and UP are on record supporting on-dock rail expansion at the Ports of Los Angeles and Long Beach. The Railroads also support the conclusions from the Ports Rail Master Plan that even with full development of all on-dock rail facilities, additional near dock facilities will be needed in order to prevent more containers from moving by truck rather than rail.

Draft Plan **Increase intermodal rail lift capacity at near dock facilities**

- **Modernize the Union Pacific Intermodal Container Transfer Facility (ICTF).**
- **Construct BNSF’s Southern California International Gateway (SCIG) near dock facility.**

Railroad
Comment 7

Both BNSF and UP support the development of additional lift capacity near the Ports of Los Angeles and Long Beach. As indicated by the Draft Plan, and as clearly shown

in the Ports Master Rail Plan, even if all on-dock rail facilities are constructed in a timely manner, there still will be a need for additional lift capacity at both ICTF and SCIG. Without the development and modernization of these facilities, more containers will move by truck rather than by train. Both the BNSF and the Union Pacific projects are needed to increase intermodal rail lift capacity because container traffic moves under long term contracts to one Railroad or the other. Selection of rail carrier is often dependent as to which rail carrier serves a destination most efficiently, and each carrier does not serve all destinations. For this reason container traffic will not necessarily switch from one railroad to another but rather will move from train to truck. Both BNSF and UP have proposed to develop the cleanest intermodal facilities in the world. The Railroads agree with the Draft Plan when it states: "The biggest constraint to the movement of goods is intermodal lift capacity. Shifting freight from trucks to rail will require increased capacities and systems to allow more goods to quickly transfer from various modes (intermodal lifts); thereby minimizing the interim drayage truck movements." (chapter 6 pages 6-11) The development of the SCIG and the modernization of the ICTF are necessary to ensure that intermodal lift capacity is increased to minimize modal shift and maximize the use of rail transportation with its inherent environmental benefits.

Draft Plan
Railroad
Comment 8

Increase mainline rail capacity.

The Draft Plan recommends significant expansion of the railroad mainlines operating in the study region. The Railroads recognize that investment in rail expansion and rail efficiency is necessary to accommodate projected freight levels, but object to being taxed to fund those improvements. The Draft Plan proposes that the private railroads pay fees to a public entity to fund those investments. The Draft Plan is flawed inasmuch as it recommends that governmental planning organizations with little or no expertise in national freight rail operations serve as a strategic planning entity determining when and how private rail lines should be expanded. Network development and design is complicated and involves analysis of more than just mainline expansion in a single region. Decisions concerning investment in terminals, rail yards, locomotives, freight cars and siding capacity must be considered in light of trends across the spectrum of national freight demands, along with other investments in other areas outside of the SCAB region to prevent bottlenecks. While international intermodal freight is an important component of rail business, the Railroads have critical network needs (and capital demands) for a host of other customers around the country: wheat, corn and other agricultural products from the Midwest; coal and other minerals from mining operations around the country; industrial products; and automobiles. When and where rail capacity investment on individual rail systems is needed is a question that requires constant review and revision, is affected by changes in market demands and business cycles, and does not lend itself to the sort of long-term planning that may be more appropriate for a regional government agency

planning improvements to an existing highway system. It is imperative Railroads retain authority, and the flexibility that comes with that authority, to make changes to capital investment plans as warranted by changing circumstances over time. Accordingly, while the Railroads agree that continued investment in system capacity is necessary, having a public agency be involved in determining the need for investment and then taxing the industry to pay for these investments would not be economically efficient.

Draft Plan Eliminate rail bottlenecks - Construction of the Colton Crossing rail-rail grade separation.

Railroad
Comment 9 Construction of the Colton Crossing grade separation will provide significant public benefits. The Railroads have submitted a Public Benefits Analysis (January 2008) of the Colton Crossing project to Caltrans and the CTC, and this study is attached for further review.

Draft Plan Grade Separation - Implement the Alameda Corridor East (ACE) Trade Corridor railroad grade crossing improvement program for all counties involved.

Railroad
Comment 10 The Draft Plan identifies many new grade separation projects (projects which separate rail and road intersections). Standard grade separation projects do not enhance velocity, throughput or capacity for railroad operations. Instead, such projects provide a distinctly public benefit by moving vehicles resulting from nearby development over or under rail lines. The National Highway Trust Fund, other federal sources, and contributions by the state and local sector are possible sources for funding these proposed improvements.

Draft Plan Metrolink - "Passenger train (commuter rail) volumes [are projected to] escalate to 140 by 2025 from 58 in 2000, an increase of one and half times or 150%."

Railroad
Comment 11 The Draft Plan proposes a significant increase in the number of Metrolink trains that would operate on private rail lines. Although the Draft Plan may provide for a funding mechanism to generate revenue to assist in the funding of such service, the assumption that such service level is achievable is premature. Any Metrolink expansion, if even possible on freight corridors, will have to be negotiated in the future by the interested parties.

Action Item 3: Improve Operational Efficiency

Draft Plan Develop public/private partnerships to research and develop advances in goods movement transportation technologies.

Railroad
Comment 12 The Association of American Railroads has published a "position paper" on public/private partnerships which is attached to these comments for your review.

Action Item 4: Develop Equitable Public/Private Funding Strategy

Draft Plan **Negotiate user fees with industry that can be included in a project-specific finance plan to improve goods movement and air quality. Fees discussed include container fees, fees to support revenue bonds, and gate fees.**

Railroad Comment 13 There are many freight projects that provide extensive public benefits—such as environmental enhancements and improved freight efficiency— that a private railroad would not otherwise fund, due to the constraints of capital budgets or the lack of a sufficient return on investment. Public funding in these instances is appropriate and does not represent a public subsidy of private beneficiaries, since a rail carrier would contribute financially commensurate with its benefit, if any.

Where the benefits lie solely with the private railroad, the Railroad supports the principle that it pay for these improvements. However, a fee on rail container movements should not be utilized to pay for projects with predominantly public benefits.

Thank you for the opportunity to provide comments. If you have any questions or concerns, please call me at 415-421-4213 x 12 or Peter Okurowski at 925-339-3500.

Sincerely,



Kirk Marckwald
Principal, California Environmental Associates
On behalf of the California Railroad Industry

cc:
Hasan Ikhrata, SCAG
Mary Nichols, CARB

March 14, 2008

Ms. Shahrzad Amiri
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2393

Re: Multi-County Goods Movement Action Plan

Dear Ms. Amiri:

On behalf of Watson Land Company, I would like to offer support for public agency adoption and implementation of the "Multi-County Goods Movement Action Plan" (MCGMAP). As a Southern California based company with interests in diverse parts of the region, Watson Land Company understands the imperative of a strong and effective logistics system, which will generate unprecedented economic benefits for our area and the country. We are pleased to be a member of the MCGMAP Stakeholders Advisory Group and actively participating in the development of the Draft Plan.

We have reviewed the final version of the draft MCGMAP, dated January 31, 2007, which contains a very constructive framework for confronting the complex challenges associated with the movement of goods in the Southern California region. We believe that the MCGMAP has already stimulated a positive set of "actions" by initiating the Southern California Consensus Group, which is targeting the region's "fair share" of Proposition 1B Trade Corridor Improvement Fund (TCIF) revenues. It is our understanding that the high priority projects identified by Consensus Group and nominated for TCIF funding by the California Transportation Commission are consistent with the MCGMAP program. Both public agencies and the private sector now have a unique opportunity to build on this Consensus Group program foundation, and aggressively pursue other elements of the MCGMAP.

Let me offer a few additional comments on implementation of the MCGMAP:

- 1). While the Plan contains an "Implementation Principle" regarding land use compatibility, we strongly urge that more consideration be given to implementing creative and effective solutions associated with market driven land use decisions. Future logistic facilities will be greatly influenced by local land use decisions, which may not reflect regional goods movement needs and priorities. These potential barriers need to be anticipated and addressed.

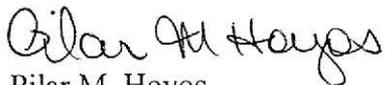
- 2). In the section of MCGMAP identifying the "action sets," there is a proposal for development of a private sector funding strategy. Further, "Action Set 4" proposes a "private sector contribution" targeted to support future projects. It is important for Metro to place this private sector role within the context of other "fee" driven policy discussions currently under way. For example, Metro has been developing a congestion impact fee for future consideration by the Board of Directors. To date, there has been no discussion on how the potential impact fee would relate to the "user fee" envisioned in the MCGMAP. In addition, as currently drafted the proposed impact fee could be imposed on some of the same facilities indemnified in the MCGMAP as important elements of the regional logistics system. In addition, we want to emphasize that the collection of fees without a streamlined process for building the infrastructure for which it is intended would render this only a "plan" without action and results.

- 3) MCGMAP contains a section entitled "Next Steps" which references a proposal to include Mobility 21 and other organizations in the development of new federal funding sources to support priority goods movement projects in Southern California. While this advocacy activity is important, we urge that the role for Mobility 21 and other organization including the Southern California Leadership Council be extended into other aspects of the MCGMAP. It is important to forge a sustained and effective working framework for wide-range private sector participation, in order to translate this policy document into reality.

Thank you for the opportunity to comment on the MCGMAP.

We look forward to our continued working relationship with Metro.

Sincerely,



Pilar M. Hoyos
Vice President, Public Affairs



South Coast Air Quality Management District

21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • <http://www.aqmd.gov>

March 17, 2008

To: MCGMAP Project Partners and Consultants

Re: SCAQMD Staff Comments on Draft
Multi-County Goods Movement Action Plan

Thank you for the opportunity to submit these comments on the Draft Multi County Goods Movement Action Plan ("Action Plan"). The staff of the South Coast Air Quality Management District has participated in the Stakeholder Advisory Group for the Plan since its inception. This planning effort holds great promise because the project partners are multijurisdictional and can take a regional perspective to create *a vision for an optimal freight transportation system for Southern California*. The infrastructure that the project partners construct is important for air quality because the public health impacts of diesel exhaust are significant and localized, making infrastructure design, capacity and emissions control critical. Moreover, controlling emissions from goods movement is essential if this region is to attain federal air quality standards, and key emission control technologies such as rail electrification are inextricably tied to infrastructure.

We commend the project partners for their thought and analysis, and, in particular, for including the following among the objectives of the plan: achievement of "simultaneous infrastructure and air quality improvement;" accelerating regional environmental mitigation through project-specific mitigation *and* broader regional "powertrain" cleanup strategies; maximizing on-dock rail; and encouraging land use decisions that separate goods movement infrastructure and sensitive receptors such as residential areas, schools, and hospitals.

Despite the promise of this multi-county planning effort, we are concerned that an insufficient range of potential transportation systems has been analyzed to enable policy makers to design an optimal freight transportation system. In addition, the alternatives that were analyzed were not analyzed for air quality impacts, limiting key information available to policymakers. The Action Plan also needs to more fully describe mechanisms to achieve air quality goals, and must ensure that full project level review occurs before specific projects are assumed to be appropriate.

We thus urge that the Action Plan be augmented, as described below. We appreciate that some of the issues described below are designated in the Action Plan for further study.

The AQMD staff would be pleased to assist in any way we can in this effort. Our goal in providing these comments is to assure that the Action Plan fulfills its potential and garners the public consensus necessary for successful implementation. These comments are consistent with AQMD staff comments submitted by letter dated August 1, 2007.

Background: Air Quality Needs. The 2007 SCAQMD *Air Quality Management Plan* (AQMP) plainly shows that expeditious implementation of advanced control technologies for goods movement sources will be needed for this region to timely attain federal annual PM_{2.5} and 8-hour ozone ambient air quality standards by applicable deadlines (2015 and 2024, respectively), and to reduce local toxics risks. Even with aggressive implementation of advanced control technologies, the AQMP still contains a substantial “black box” of yet-to-be-defined NO_x and VOC measures. These black box measures account for 54% of the total emission reductions needed to attain the federal ozone standard in 2024. In addition, EPA recently established a new 24-hour PM_{2.5} ambient standard with a likely attainment deadline of 2019, as well as a more stringent ozone standard. Preliminary analysis indicates that implementation of the AQMP measures to achieve the annual PM_{2.5} and previous 8-hour ozone standards will leave the region 49% above the new 24 hour standard in 2020 unless further emissions controls are implemented. Finally, recent health risk assessments have found high cancer risks – over 700 in a million – near Southern California railyards, due to diesel particulate matter emissions from locomotives, trucks and cargo handling equipment. The AQMD’s recent Multiple Toxics Exposure Study (MATES III) similarly found regional cancer risks of 1,200 in a million, again primarily due to diesel particulates.

Key Goods Movement Emission Control Issues. In light of the above factors, the key air quality issues that the Action Plan must address are —

- how to ensure implementation of advanced control technologies for sources such as marine vessels and locomotives since federal and international standards for such sources have historically been inadequate to meet the needs of this region,
- how to expedite retrofit or replacement of heavy-duty trucks, locomotives and marine vessels since the most stringent regulatory emissions standards generally apply only to new units, and these sources have long useful lives, and
- how to ensure that the goods movement facilities are designed and sited so as to avoid unacceptable local and cumulative impacts from toxic air contaminants, chiefly diesel particulate matter.

Comments on Action Plan. We submit the following comments in the spirit of seeking an Action Plan that will successfully reduce congestion and address the issues described above.

1. **Public Support is Critical.** As is recognized in the technical memoranda, many goods movement plans and projects have been met with community concerns and

opposition due to environmental impacts. Such concerns have been grounded in forecasts of doubling and even tripling of cargo movement, and in the large and growing body of evidence that air emissions related to goods movement activities — notably particulates and diesel exhaust — are contributing to serious health impacts. These impacts include thousands of premature deaths per year from regional particulates, significant cancer risks near transportation corridors, asthma, risk of permanently reduced lung function among children growing up in high particulate areas, heart disease, and other impacts. Concerns over such impacts have delayed implementation of goods movement infrastructure projects perceived as capacity enhancing. *In order for this plan to garner the public support needed to succeed, it must demonstrably improve current unacceptable environmental conditions, both regionally and in locations affected by specific goods movement facilities.* Comments to assist in achieving these goals follow.

- 2. Defining a Vision for an Optimal Freight Transportation System: Additional Infrastructure Scenarios Should be Considered and Air Quality Analysis is Needed.** A key potential benefit of the Action Plan is that it can take a multi-jurisdictional perspective and define an optimal transportation system for the region as a whole. A key question presented is what infrastructure to include, particularly whether truck lanes, shuttle trains or “more of the same” freeway and rail corridors should be used to transport containers to and from the ports.

To help answer this question, the project consultant modeled and compared the hours of delay for vehicles and trucks considering nine scenarios (“bundles”) of truck lanes, one mixed flow toll expressways scenario, and one “Alternative Technology” rail scenario. The latter scenario involved use of a shuttle train (possibly maglev) to transport containers to a new “inland port” railyard in the high desert or other parts of San Bernardino County. (We will use the Action Plan’s term “Alternative Technology” in referring to this scenario, but we note that it could be implemented by traditional electrified rail, a well-established technology in many parts of the world, or, less desirably from an air quality perspective, by “Tier 4” diesel locomotives that EPA rules will mandate).

The Alternative Technology scenario analyzed in the Action Plan is based on an inland port with limited capacity -- a maximum of 5,400 containers per day -- about the capacity of the existing BNSF Hobart yard. This is but a small portion of the containers transported through the region every day. One reason for this limitation is that the Action Plan envisions this inland port as being limited to containers destined for locations *within* the region; those destined out of this region would not utilize the facility.

Under these circumstances, this Advanced Technology alternative showed worse performance than any of the truck lane scenarios in limiting hours of congestion delay. No comparison of air quality impacts and benefits of the scenarios was made. (Qualitative comparisons of Project Categories are made in Chapter 6, but they are

too general to be useful and are subject to misinterpretation¹). We have the following concerns:

- **Lack of Air Quality Analysis of Alternatives.** We acknowledge the importance of the congestion analysis, but for policymakers to be able to knowledgeably decide what course of action to take, *we urge that the Action Plan also present an analysis of the air quality impacts and benefits of major alternative goods movement proposals, such as truck lanes and “Alternative Technology” rail alternatives, or a combination of the two.* From an air quality perspective, trucks and rail each have pros and cons, depending on the technology utilized, proximity to warehouses, proximity to pollutant receptors, and whether grade separations are constructed. The issue of whether to utilize truck lanes, rail shuttle, or a combination of the two, thus requires more thorough analysis, including air quality impacts and benefits.
- **Only One, Relatively Limited, Alternative Technology Configuration was Analyzed.** Transporting containers to and from the ports by clean, zero or near zero emission rail, has the potential to take trucks off the highways and reduce emissions. Moreover, it may be technologically, economically, and logistically more feasible to control emissions from locomotives than from trucks because fewer locomotives can move relatively large numbers of containers and because technologies such as rail electrification have been in use for decades, while electric trucks are just now being developed for limited types of service.

The draft Action Plan, however, only considers one, relatively limited, configuration for moving containers by clean rail. The analysis portrays that alternative as less beneficial than truck lanes in reducing hours of highway delay, but this is due to analysis that does not completely describe potential benefits. The key problem is that the analysis does *not* consider –

- a larger capacity inland port than one roughly equal to the existing Hobart yard (representing a small portion of all TEUs)
- the benefits of clustering the considerable amount of projected *new warehouse construction* (tripling by 2030) next to such an inland port,² or
- use of such a facility as an “agile port” to create destination trains for containers *bound outside of the region* which were quickly removed

¹ For example, it is said that the greatest PM emission reduction would result from alternative technologies (probably true) and the least reduction would result from improvements not enhancing capacity (may or may not be true depending on technologies used, current vehicle speeds, and other factors).

² The Action Plan does suggest such clustering (p. 7-6), but there is no quantitative analysis of the benefits of this strategy.

from the docks unsorted by destination using low emission rail (thereby eliminating truck drayage to near and off-dock yards).

The lack of quantitative analysis of such options imposed substantial and probably unnecessary limitations on the ability of this alternative to reduce truck traffic and congestion, as well as emissions and community impacts adjacent to near and off-dock yards.

We emphasize that AQMD is not in this letter taking a position regarding the desirability of any particular inland port, or of the concept of inland ports. Rather, we believe this concept holds sufficient promise to warrant considerably more thorough study. We note that, at a minimum, any inland port would have to be remote from residential and other receptors to avoid toxics impacts, unless it was fully electrified.

Analysis of "Alternative Technology" systems should be conducted which considers alternatives involving greater capacity, greater implementation of on-dock rail, and clustering new transload warehouse space near inland ports. More, specifically, the factors that should be evaluated are as follows:

- ***Proximity to Receptors.*** The analysis should also determine proximity to residential and school sites (as was done for all of the truck lane options) so this basic comparison can be made between truck lanes and rail.
- ***Rail Emissions Control Technologies and Electrification.*** The analysis should include consideration of the emissions expected from (1) use of locomotives meeting EPA's proposed "Tier 4" emissions standards (e.g. 90% control of PM by 2015 model year), (2) emissions rates that could be achieved by accelerating to the year 2012 introduction of line haul locomotives meeting such standards (as assumed by SCAQMD and CARB in the State Implementation Plan, and (3) electrification of the existing rail system.

Regarding electrification, as was noted earlier, the AQMP contains a substantial black box of undefined control measures, and the current air plan does not include sufficient measures to attain the new 24-hour PM_{2.5} standard by the likely federal deadline of 2019. Electrification of the current rail system, potentially including a shuttle route to an inland port, is a strategy that should be evaluated as a means of further reducing emissions to meet the federal standards, as well as to address local toxics impacts from diesel particulates. The 2007 State Implementation Plan for the Basin calls for significant reductions from locomotives, equivalent to the accelerated deployment of 100% Tier 4 locomotives by 2014. While these reductions are substantial, system-wide rail electrification could achieve even higher reductions, as much

as 22 tons per day of NOx, surpassing the overall long-term benefits of such a system over Tier 4 engines. *Given the level of emission reductions needed by 2015 and beyond, as well as climate change impacts of diesel use, our region has no choice but to seriously consider the reduction of emissions from diesel locomotives through electrification.*

Further, discussions between AQMD, SCAG and CARB leading to the development of the white paper identifying long term “black box” strategies to reduce 200 tons per day of NOx and the upcoming 24-hour PM_{2.5} standards must be considered. Direction proposed in the white paper will undoubtedly include strategies that fully support zero and near zero emission systems.

We agree that where electrification is not feasible, that Tier 4 is the preferred strategy. However, we recommend that the project partners analyze zero emission technologies including anticipated costs, benefits, timelines, etc. for the electrification of the existing rail system.

We also support considering *phasing* such electrification, if needed to commence implementation. For example, a high-volume rail link that has already been built to accommodate rail electrification is the Alameda Corridor. Railyards near each end of the corridor have the highest and second highest railyard cancer risks found by CARB in the state. This link is thus an obvious candidate to begin a phased electrification of the rail system.

- ***Evaluation of Clustering Development of New Transloading and Warehousing Facilities Adjacent to Inland Ports Remote from Residential Areas.*** One key purpose of a comprehensive, multijurisdictional plan such as this should be to assist the region to develop a sensible distribution of goods movement-related facilities. Given the tremendous projected growth in international cargo imports, it is fair to assume that the recent growth in transloading and warehousing facilities will continue. The growing body of studies showing the health impacts of diesel particulates on persons living near transportation facilities counsel that the plan should consider and analyze the benefits of focusing such development in locations that will avoid concentrations of diesel emissions near residential areas. The plan should thus evaluate the feasibility and impacts of clustering development of new transloading and warehousing facilities adjacent to inland ports that are remote from residential areas.

Such a “more comprehensive approach” is briefly alluded to in Technical Memo 6b as having substantial potential benefits, but is not

elucidated other than to state that the advanced technology corridor could be a viable alternative if land-use polices were strengthened to encourage warehouse clustering near inland staging areas. (e.g. pages 2-29, 3-20). *Given the enormous projected increase in cargo, the limitations on in-basin railyard capacity, and the community impacts of siting railyards near residential areas, it is essential that this approach be further analyzed and considered.*

- ***Maximizing On-Dock Rail to Minimize Rail Operations Near Residential Areas; Evaluation of “Agile Port.”*** The current practice of draying significant numbers of containers by truck to “near-dock” and off-dock railyards where they are transferred to trains is inefficient, causes truck VMT and congestion, as well as local air quality impacts near residential areas. For example, the California Air Resources Board recently released risk assessments for several intermodal railyards that show significant cancer risks for thousands of persons, e.g. increases of approximately 700 in a million risk in some areas. For perspective, AQMD rules for stationary sources generally limit cancer risks to 25 in a million. To handle increasing cargo volume, new and expanded near-dock railyards have been proposed for locations close to residential areas that are already impacted by pollution from the ports. For example, an AQMD monitor at an elementary school just east of the proposed Southern California International Gateway railyard site has shown the highest elemental carbon levels (a surrogate for toxic diesel particulate) monitored in the region. The AQMD MATES III analysis showed this area to have some of the highest cancer risks in the region – well over the 1,200 in a million regionwide average. While some emission control programs are being implemented for railyards, *any use of diesel equipment in already impacted areas exacerbates unacceptable health risks.*

In order to minimize congestion and air quality impacts, the Action Plan should seek to eliminate drayage of containers by truck from the ports to railyards, or alternatively, to electrify all means of container transport.

We appreciate that the Action Plan states as a goal the reduction of reliance on trucks. However, we have not seen any indication that the Plan will seek to achieve this goal through means involving changes to rail operating practices. For example, one limitation on the Alternative Technology scenario is on-dock rail capacity. However, to our knowledge, there has not been any quantitative analysis by the ports or project partners of on-dock rail capacity that considers a key alternative: transporting *unsorted* containers out of the ports by rail to inland yards remote from residential areas. This procedure (sometimes titled an “agile port”) could potentially free up dock space currently

devoted to sorting destination trains, and allow more on-dock rail. The ports stated in the *San Pedro Bay Clean Air Action Plan* that they would evaluate the potential to ship unsorted containers by rail as a means of maximizing on-dock rail (Measure RL-3).

We thus urge the Action Plan to evaluate and incorporate every means of maximizing on-dock rail in order to reduce the reliance on near and off-dock railyards nearer to residential areas, unless all means of container transport are electrified.

It is only with such a full evaluation of alternatives that this Action Plan can fulfill its promise of providing policymakers with sufficient information to define an optimal transportation system for this region.

- 3. The Action Plan Needs to Include More Thorough Description of Mechanisms to Implement its Environmental Objectives; Approval of the Plan Should *Not* Include Approval of Specific Projects that Have Not Undergone all Environmental Reviews.** We commend the project partners for stating their support for agency environmental plans such as the AQMP and the San Pedro Bay Ports' Clean Air Action Plan. We also support the Action Plan's call for accelerated funding and implementation of control measures in such plans, strengthening of fuel and emissions standards, and project-specific mitigation. However, the Action Plan includes little detail regarding how these ends would be achieved. Indeed, much of the environmental mitigation portion of the plan is left to future development.

By contrast, the scores of infrastructure projects proposed in the plan are described with relative specificity. All described as being "essential." (p. 7-17). Some of those projects are highly controversial and subject to ongoing environmental review regarding (e.g. proposed "near-dock" railyard projects adjacent to residential areas north of the ports). We thus are concerned that the Action Plan -- including specific projects but largely undetermined mitigation -- is proposed to be "approved" by the agencies involved in its development. We appreciate that the project partners have responded to our workshop comments and have stated that "approval" of the plan will not include approval of specific projects. However, given the description of all projects as "essential," we urge that the scope of approval be made explicitly clear to the Boards that will be considering the Action Plan.

More fundamentally, however, the Action Plan needs to be augmented by specific mechanisms to implement its environmental goals. We would be pleased to work with the project partners to accomplish this. *Such mechanisms should seek to implement any control measures that have not been adopted as regulations or other enforceable instruments by international, federal or state agencies, ports or other governments.* Mechanisms to include are requirements to use clean trucks and locomotives as conditions of public funding, differential use fees for relatively high emitting equipment, coordinated advocacy by the project partners, air districts and stakeholders for more stringent federal emissions standards and for federal funding of

emission controls, conditions of port leases with marine terminal or railyard operators, etc.

4. **Evaluation of Infrastructure and Emission Control Feasibility.** Because we want the Action Plan to be successful, we urge that any proposed infrastructure proposals include comparative analysis of implementation feasibility. For example, the truck lane and alternative rail proposals raise obvious issues of availability of right-of-way space. Decisionmakers should be able to compare problems in securing sufficient space for the truck lane and rail alternatives. Another example would be the issue of truck lanes versus shuttle trains. Decisionmakers should consider which transport mode could more readily be adapted to zero or near zero emissions technologies.
5. **Other Comments: Aircraft Emissions.** On page 7-22, aircraft emissions are described as *not* being a significant source of pollutants compared to other mobile sources. We disagree. Aircraft will soon be in the top ten NO_x categories. Other categories in the top ten are relatively well controlled with the notable exceptions of locomotives and marine vessels. Aircraft emit quantities of NO_x comparable to locomotives and all sources in the "RECLAIM" program – the top 320 stationary sources of NO_x, including all refineries and power plants. The fact is that all source categories must be controlled if we are to achieve attainment, and there are virtually no source categories with quantities of emissions that predominate over all others.

Thank you for the opportunity to provide these comments. We look forward to providing further input in support of an effective and successful Action Plan.

Sincerely



Peter Greenwald
Senior Policy Advisor

**MULTI-COUNTY GOODS MOVEMENT ACTION PLAN
DRAFT ACTION PLAN COMMENTS
COMMENTS BY GATEWAY CITIES COUNCIL OF GOVERNMENTS
FEBRUARY, 2008**

EXCERPTS

The following comments are provided on the draft action plan.

The draft plan states that the plan is “just a guide in preparation of plans.” However, from reviewing the draft plan many of the ideas for a framework are nebulous and lack specific steps for moving the plan forward. A more specific “next steps plan” is needed that includes community and perhaps equally important industry input. The draft plan also states that “communities are calling for slower growth (of the ports) and mitigation of existing impacts.” The second part of this statement is correct but GCCOG is commenting and performing its own evaluations to see if ultimate port growth can be accommodated by the local communities. Therefore, we would disagree with the first part of the previous statement.

The GCCOG can support the Implementation Principles listed on page 1-5. However, the input of the communities is vital and an accurate portrait of community impacts from any proposed facilities (such as impacts to sales tax base from any freeway widenings) should be an implementation principle. Another implementation principle should also be the active input and participation from the private sector and include an environmental principle stating that all projects or strategies be environmentally protective or mitigate existing environmental deficiencies be considered for as the number one Implementation Principle.

Page 2-3 includes the following statement – “Respondents also demonstrated support for dedicated truck lanes between the ports and the Inland Empire.” This is not the overall position of GCCOG. Dedicated truck lanes are an element of the I-710 Major Corridor Study hybrid design but this does not indicate a universal acceptance, particularly where the expansion of freeway ROW is required. On this page it is also stated that “majority of respondents felt an east-west corridor should be the focus of goods movement infrastructure improvement.” While generally supporting this statement, there needs to be a lot of input from GCCOG (and SGVCOG) in order to successfully address this issue. That has not been the case to date.

Railroad systems capacity limitations are not analyzed and a plan to implement those that are identified is not included in the plan. The railroad systems improvements should be analyzed collectively to determine if all of the needed improvements to various aspects for rail movement can be improved (and the impacts or results if they are not).

The plan does not address the impacts of reverse flow of goods (empty containers and exports).

In the future, data should be developed for daily volumes for 40' containers as that is the most useful for planning purposes. Also, the time of day these containers are moved (or relocated) should have been analyzed.

The draft action plan still does not address the locations for future warehousing/distribution centers (or a potential inland port). Without that information, the effectiveness of any "action plan" cannot be determined.

Air quality and emission reduction strategies are much more thoroughly addressed than in previous drafts. However, without a quantitative analysis of all the proposed air pollution reduction measures combined with an analysis of additional air pollution reduction measures, it is difficult to assess the impacts of these measures on the health of the nearby communities.

The plan does not address all the impacts of constructing truck lanes along various freeways.

Alternative technologies are not adequately addressed or evaluated in the plan. However, they are included as the "solution" for many of the implementation strategies. This dichotomy should have been addressed in the plan.

Table 21 from the plan is attached and shows changes or modifications recommended by GCCOG. In general shuttle trains should not have been listed with alternative technology. Shuttle trains have been dismissed by others (ACTA and SCAG) as being ineffective. The revisions or changes shown in Table 21 show the following:

- Alternative technology has much more benefits for the various categories.
- Mainline rail capacity improvements have many more benefits (as long as combined with all other railroad systems aspects needed to be improved along the mainline).
- Port hours and modifications of delivery hours have much more significant benefits than shown previously.
- ITS technologies (based on work being done by GCCOG) have the very real potential of much more benefits than shown in the original table.

Pages 6-11 to 6-18 – **Summary of Qualitative Evaluation** – Attached are the referenced pages on which GCCOG has shown our comments in red. In general some of the conclusions with respect to the "most" benefit overlook the inter-dependency of the goods movement industry and the benefits of other aspects of goods movement – most notably the use of alternative technologies, improved railroad systems improvements, port hours of operations, efficiencies and ITS. The changes shown on the attached pages reflect the previous comments by GCCOG and the changes suggested in Table 21. The specific comments for use of the evaluation categories are shown on the attached pages.

Page 7-9 – Table 24 – Example Actions Targeted by Market Segment – This table is included with changes or comments by GCCOG that reflect our previous comments.

Page 7-19 lists the time frames to implement the strategies and covers a period of over 25 years to implement. This is entirely too long, particularly for environmental mitigations and if the ports continue to grow. The ports are projected to double within the next ten years and that should be the longest period to implement

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN VOLUME 1, APPENDIX D: TRADE CORRIDORS IMPROVEMENT FUND SUMMARY FOR SOUTHERN CALIFORNIA AND SAN DIEGO BORDER REGIONS

Prepared for:

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April 2008
A31418

MULTI-COUNTY GOODS MOVEMENT ACTION PLAN

APPENDIX D – TRADE CORRIDORS IMPROVEMENT FUND SUMMARY FOR SOUTHERN CALIFORNIA AND SAN DIEGO BORDER REGIONS

Proposition 1B was approved by California voters in November 2006 and authorized the State to issue almost \$20 billion in bonds that will be spent on transportation projects. One component of Proposition 1B is the Trade Corridors Improvement Program (TCIF), which allocated \$2 billion of the \$20 billion specifically to goods movement projects such as highway, freight rail, seaport, airport, and border access infrastructure improvements. The Southern California Consensus Group and San Diego Border Region transportation agencies separately convened to develop a list of projects to submit to the California Transportation Commission, who recommended the programming of TCIF funds. The list of projects recommended for funding by the CTC in both the Southern California and San Diego Border regions can be found on the following pages.

Southern California Consensus Group

The southern California goods movement project list recommended for TCIF funding was developed through a collaborative effort by the region's transportation agencies. The agencies involved in this process included the Alameda Corridor East Construction Authority, Alameda Corridor Transportation Authority, Los Angeles County Metropolitan Transportation Authority, Southern California Regional Rail Authority (Metrolink), Orange County Transportation Authority, Port of Hueneme, Port of Long Beach, Port of Los Angeles, Riverside County Transportation Commission, San Bernardino Associated Governments, Southern California Association of Governments, and Ventura County Transportation Commission.

The projects nominated for TCIF are rooted in prior initiatives collaboratively undertaken by the Southern California Consensus Group such as Multi-County Goods Movement Action Plan, the Alameda Corridor East Trade Corridor Plan (2001), the SCAG Regional Transportation Plan (2004 and draft 2008) as well as the State Goods Movement Action Plan and the Cal-MITSAC report.

The CTC has recommended that the Southern California region receive \$1.65 billion in TCIF funds out of a total of \$3 billion made available by the CTC. The projects selected for funding include grade separations, highway and arterial improvement projects, bridge replacement, and port access improvements.

San Diego Border Region

The San Diego goods movement project list recommended for TCIF funding was developed through a collaborative effort by the San Diego region's transportation agencies. The agencies involved in this process included Caltrans District 11, the Port of San Diego, and the San Diego Association of Governments.

The CTC has recommended that the San Diego Border region receive \$400 million in TCIF funds out of a total of \$3 billion made available by the CTC. The projects selected for funding include highway and arterial improvement projects, border crossing and port access improvements, and rail projects.

Trade Corridors Improvement Fund (TCIF)
Adopted Program of Projects (Dollars in Thousands)
Southern California and San Diego Regions

<u>Project Category</u>	<u>Nominated By</u>	<u>Project Title</u>	<u>County</u>	<u>Total Project Cost (000)</u>	<u>Recommended TCIF Funding (000)</u>
Southern California					
Grade Sep	ACE	San Gabriel Valley Grade Separation Program	LA	\$700,000	\$336,600
Highway	ACTA	SR 47 Expwy-Schuyler Heim Bridge Replace/Construct Expwy & Flyover	LA	\$687,000	\$158,000
Grade Sep	City of Santa Fe Springs	ACE: Gateway-Valley View Grade Separation	LA	\$79,084	\$25,570
Rail	SCRRA/Metrolink	New Siding on the Antelope Valley Line (MP44 to MP61) For Freight Trains	LA	\$14,700	\$7,200
Highway	Port of Los Angeles	I-110 Fwy Access Ramp Imp SR 47/I-110 NB Connector Widening	LA	\$48,200	\$14,700
Highway	Port of Los Angeles	C Street Access Ramps Improvements	LA	\$28,300	\$8,300
Grade Sep	City of Commerce	Washington Blvd Widening & Reconstruction Project	LA	\$28,898	\$5,800
Highway	Port of Los Angeles	South Wilmington Grade Separation	LA	\$65,500	\$17,000
Port	Port of Long Beach	Gerald Desmond Bridge Replacement	LA	\$851,500	\$250,000
Port	Port of Long Beach	Ports Rail System - Tier I (Pier F Support Yard)	LA	\$27,240	\$4,650
Port	Port of Long Beach	Ports Rail System - Tier I (Track Realignment @ Ocean Blvd)	LA	\$75,390	\$23,960
Port	Port of Long Beach	Ports Rail System - Tier I (Pier B St. Realignment)	LA	\$25,670	\$4,180
Port	Port of Long Beach	Ports Rail System - Tier I (Terminal Island Wye Track Realignment)	LA	\$11,950	\$3,790

**Trade Corridors Improvement Fund (TCIF)
Adopted Program of Projects (Dollars in Thousands)
Southern California and San Diego Regions**

Port	Port of Long Beach	Ports Rail System - Tier I (Reconfigure Control Point / Computerized Train Control)	LA	\$37,260	\$11,850
Port	Port of Long Beach	Ports Rail System - Tier I (Reeves Ave Closure and Grade Separation)	LA	\$96,860	\$31,180
Port	Port of Long Beach	Ports Rail System - Tier I (Navy Mole Storage Yard)	LA	\$18,280	\$5,930
Port	Port of Long Beach	Ports Rail System - Tier I (New Cerritos Rail Bridge / Triple Track S. of Thenard)	LA	\$168,640	\$38,330
Port	Port of Long Beach	Ports Rail System - Tier I (West Basin Road Rail Access Improvements)	LA	\$173,090	\$47,560
Port	Port of Long Beach	Ports Rail System - Tier I (Pier 400 Second Lead Track)	LA	\$11,490	\$3,670
Highway	OCTA	SR 91 connect aux lanes through IC ON WBR SR 91 btwn SR 57 & I-5	ORA	\$73,400	\$34,950
Grade Sep	OCTA	State College Grade Separation	ORA	\$62,083	\$30,731
Grade Sep	OCTA	Placentia Avenue Undercrossing	ORA	\$39,369	\$14,934
Grade Sep	OCTA	Orangethorpe Avenue Grade Separation	ORA	\$83,957	\$41,666
Grade Sep	OCTA	Kraemer Blvd Undercrossing	ORA	\$45,910	\$22,642
Grade Sep	OCTA	Raymond Avenue Grade Separation	ORA	\$63,739	\$12,757
Grade Sep	OCTA	Lakeview Avenue Overcrossing	ORA	\$58,525	\$28,685
Grade Sep	OCTA	Tustin Avenue / Ross Drive Overcrossing	ORA	\$63,400	\$31,387
Grade Sep	City of Riverside	Columbia Avenue Grade Separation	RIV	\$29,100	\$6,000
Grade Sep	RCTC/City of Corona	Auto Center Drive Separation	RIV	\$32,000	\$16,000

**Trade Corridors Improvement Fund (TCIF)
Adopted Program of Projects (Dollars in Thousands)
Southern California and San Diego Regions**

Grade Sep	City of Riverside	Magnolia Avenue Grade Separation - UPRR	RIV	\$51,160	\$20,000
Grade Sep	City of Riverside	Iowa Avenue Grade Separation	RIV	\$32,031	\$13,000
Grade Sep	City of Banning	Project No. 2006-05, Sunset Avenue Grade Separation	RIV	\$36,500	\$10,000
Grade Sep	City of Riverside	Streeter Avenue Grade Separation	RIV	\$36,800	\$15,500
Grade Sep	CVAG	Avenue 56 Grade Separation on Yuma Subdivision of UPR Mainline	RIV	\$60,000	\$10,000
Grade Sep	CVAG	Avenue 66 Grade Separation on Yuma Subdivision of UPR Mainline	RIV	\$33,500	\$10,000
Grade Sep	County of Riverside	Grade Separation at Clay Street Railroad Grade Crossing	RIV	\$37,350	\$12,500
Grade Sep	City of Riverside	Riverside Avenue Grade Separation	RIV	\$30,300	\$8,500
Grade Sep	City of Riverside	3rd Street Grade Separation	RIV	\$40,161	\$17,500
Highway	County of Riverside	Grade Separation at Magnolia Avenue Railroad Grade Crossing - BNSF	RIV	\$81,750	\$13,700
Highway	County of Riverside	March Inland Cargo Port Airport-1215 Van Buren Blvd-Ground Access Imp	RIV	\$97,550	\$10,000
Highway	SANBAG	I-15 Widening and Devore Interchange Reconstruction	SBD	\$238,888	\$118,012
Highway	SANBAG	I-10 Corridor Logistics Access Project (IC reconst @ Cherry)	SBD	\$76,886	\$30,773
Highway	SANBAG	I-10 Corridor Logistics Access Project (IC reconst @ Citrus)	SBD	\$54,458	\$23,600
Grade Sep	SANBAG	I-10 Corridor Logistics Access Project (IC reconst @ Riverside)	SBD	\$34,000	\$14,096
Grade Sep	SANBAG	ACE Glen Helen Pkwy Railroad Grade Separation	SBD	\$26,868	\$7,172
Grade Sep	SANBAG	ACE North Milliken Ave Railroad Grade Separation at UPRR	SBD	\$74,210	\$6,490

Trade Corridors Improvement Fund (TCIF)
Adopted Program of Projects (Dollars in Thousands)
Southern California and San Diego Regions

Grade Sep	SANBAG	ACE South Milliken Grade Separation at UP Los Angeles	SBD	\$30,083	\$8,031
Grade Sep	SANBAG	ACE Valley Grade Separation at BNSF/UP San Bernardino	SBD	\$28,686	\$7,658
Grade Sep	SANBAG	ACE Palm Grade Separation at BNSF/UP Cajon	SBD	\$35,176	\$9,390
Grade Sep	SANBAG	ACE Vineyard Grade Separation at UP Alhambra	SBD	\$25,075	\$6,694
Grade Sep	SANBAG	ACE Lenwood Grade Separation at BNSF/UP Cajon	SBD	\$25,786	\$6,884
Highway	City of Oxnard	US 101 Rice Avenue Interchange	VEN	\$86,993	\$30,449
Southern California Total Recommended TCIF Funding:					\$1,647,971
San Diego Border Region					
Highway	SANDAG	State Route 905	SD	\$104,700	\$91,605
Highway	SANDAG	State Route 11 and Otay Mesa East Port of Entry (POE)	SD	\$708,820	\$75,000
Highway	SANDAG/Port of San Diego	Bay Marina Drive at I-5 At-Grade Improvements	SD	\$2,380	\$910
Highway	SANDAG/Port of San Diego	10th Avenue at Harbor Drive Grade Separated Improvements	SD	\$67,200	\$30,910
Highway	SANDAG/Port of San Diego	32nd Street at Harbor Drive Grade Separated Improvements	SD	\$118,460	\$50,665
Highway	SANDAG/Port of San Diego	Civic Center Drive at Harbor Drive and I-5 At Garde Improvements	SD	\$3,260	\$1,150
Port	SANDAG/Port of San Diego	Port of San Diego National City Marine Terminal (Wharf Extension)	SD	\$34,300	\$15,000
Rail	SANDAG / Metropolitan Transit System	Southline Rail Improvements/San Ysidro Yard - Yard Expansion	SD	\$40,460	\$25,900

Trade Corridors Improvement Fund (TCIF)
Adopted Program of Projects (Dollars in Thousands)
Southern California and San Diego Regions

Rail	SANDAG / Metropolitan Transit System	Southline Rail Improvements/San Ysidro Yard - Mainline Improvements	SD	\$107,030	\$98,060
Rail	SANDAG/NCTD	LOSSAN N Rail Corridor-Sorrento to Miramar Double Track-Phase 1	SD	\$23,700	\$10,800
San Diego Border Region Recommended TCIF Funding					\$400,000

Source: California Transportation Commission, <http://www.catc.ca.gov/programs/tcif.htm>

