

# **South Bay Goods Movement Study**

**Prepared for:**

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## Executive Summary

The movement of goods is an important part of the economy of the South Bay by serving industrial and commercial centers throughout the subregion, and providing jobs in the trucking and logistics industries. Given the projected future growth of goods movement in the subregion, the cities of the South Bay Cities Council of Governments (SBCCOG) are presented with a fundamental question: How does the South Bay enhance its transportation system by investing in infrastructure and operational improvements that facilitate goods movement while reducing its impact on the quality of life in communities?

To respond to this challenge, the South Bay Goods Movement Study was conducted for SBCCOG and also the Southern California Association of Governments (SCAG). The Study examines goods movement issues in the subregion and provides recommendations related to goods movement planning and infrastructure in the South Bay. The study has a time dimension, identifying transportation improvements that can be realized in the near-term (early-action projects) to address existing impacts of goods movement in the subregion, and what ones will be needed in the future if the anticipated increases in goods movement come to pass.

Issues examined in the study include the movement of goods on the highway (freeway and arterial roadway) system in the South Bay, goods movement on the rail system, air cargo movement, sea cargo movement, goods-movement related industrial activity and employment, regulations, and ordinances related to goods movement as well as environmental issues associated with the movement of goods.

This study has resulted in the following key conclusions:

- The South Bay has a high percentage of manufacturing, transportation, warehousing, and wholesale trade employees located: north of Torrance Airport, south of Interstate 405 in Torrance between Western Avenue and Crenshaw Boulevard, Rancho Dominguez, and El Segundo.
- South Bay distribution centers and warehouses are clustered in a few major areas: Carson, El Segundo, Gardena, Harbor City, Inglewood, Rancho Dominguez, San Pedro, and Wilmington.
- By far the greatest concentration of general warehouse/distribution activity is in Carson.
- The two arterial locations with the highest truck volumes are Alameda Street north of Carson Street (City of Carson), 32.7 percent of the midday peak, and Wilmington Avenue north of Carson Street (City of Carson), 20.2 percent of the midday peak. Other streets with high truck percentages include:
  - 109<sup>th</sup> Street in Torrance
  - Crenshaw Boulevard in Gardena and Torrance
  - Del Amo Boulevard in Carson, El Segundo Boulevard in El Segundo
  - Lomita Boulevard in Torrance and Lomita
  - Sepulveda Boulevard in Carson, Torrance, and El Segundo
- LAX is a major truck generator in the South Bay, however, at the airport peak hour, LAX generates only 13.5% as many trucks as the San Pedro seaports.
- City-designated truck routes in the South Bay combine to form an extensive truck route network. However, there are a few gaps in the truck route network at the border of jurisdictions.

- Street deterioration is the number one truck-related impact ranked by South Bay Cities. Other major issues related to goods movement are congestion, pollution, safety, and neighborhood intrusion.
- 20 percent of the turning radii at the intersection of truck routes in the South Bay are inadequate (less than 35 feet).
- Virtually all of the locations with significant arterial truck-related collisions are in the industrial areas of Carson and the unincorporated area of Rancho Dominguez.
- The two major areas of concentration of truck-involved freeway collisions are along Interstate 110, between Sepulveda Boulevard and Interstate 405, and along Interstate 405 near LAX.
- Projections for 2030 show significant changes to truck volumes of South Bay freeways: truck volume is projected to increase 30 percent on Interstate 405 and Interstate 105 while growing over 100 percent on Interstate 710, Interstate 110 and State Route 91.

Based on these and other findings, the study presents a series of recommendations to mitigate goods movement growth and impacts. These include policies and strategies as well as specific physical infrastructure improvements as described in the remainder of the Executive Summary.

### ***What South Bay Cities Can Do***

The volume of goods moved in the South Bay has reached a turning point, where planning for goods movement cannot continue to be an afterthought of passenger transportation planning. It also must involve local efforts to reinforce on-going regional goods movement investment.

The importance of planning for goods movement has been acknowledged by goods movement mega-projects, such as the Alameda Corridor and the Interstate 710 Major Corridor Study and State Route 47 proposals. These projects are regional solutions that focus on “line haul” of goods from the Ports of Los Angeles and Long Beach or another generator to points of distribution or intermodal facilities. However corresponding strategies to improve and mitigate goods movement for the “last mile” of delivery on the arterial roadway system are not planned in a strategic manner. In order to be effective in goods movement planning, the South Bay Cities should have a mixture of regional and incremental strategies.

The South Bay Cities must be involved in regional strategies planned to be located in or adjacent to South Bay Cities, such as improvements to I-710, so that these projects can account for the concerns and needs of South Bay Cities, and so that the Cities can accommodate future changes brought about by these projects. The proponents of these projects in the South Bay include: Caltrans, the Alameda Corridor Transportation Authority, Los Angeles World Airports, the Port of Los Angeles, the Port of Long Beach, the Burlington Northern Santa Fe Railway, and Union Pacific Railway. In addition to being partners in large infrastructure planning, the South Bay Cities should continue to be involved in the activities of the California Air Resources Board and the South Coast Air Quality Management District as they relate to goods movement and the South Bay.

Local goods movement strategies for South Bay Cities involve both the capital planning process and regulation of goods-movement related activities. These strategies can be

attached to larger regional strategies, thereby increasing the benefits of large investment. As a first step in a goods movement strategy for the South Bay, the South Bay Cities should make sure that the truck route system and truck route regulations are comprehensive and appropriate for both the volume and types of vehicles they facilitate. By concentrating improvement efforts on its truck routes, the South Bay Cities are gaining the most benefit to goods movement by their investment. Recommended initial steps taken by cities include:

- Subregional Truck Route Connectivity – The truck route system (comprised of the STAA network and municipal truck routes) form the foundation of the goods movement system in the South Bay. This study shows that the current truck route system in the South Bay serves all major truck-generating areas. However, this study identifies 12 locations where truck routes do not continue past municipal boundaries. Some of these locations are gaps in the truck route network, while others are due to the beginning of residential zones at city boundaries. In both cases, cities should work with the jurisdictions on their borders to validate and make reasonable truck routes across jurisdictions. This includes working with the County of Los Angeles and adjacent cities outside of the South Bay Cities Council of Governments.
- Truck Route Compatibility - In addition to investment in truck route roadway improvements, South Bay Cities should analyze the compatibility of adjacent land uses, site access, sound walls, and aesthetics.
- Comprehensive Truck Route Signage – South Bay Cities should investigate inconsistencies or deficiencies in truck route signage. At a minimum, all truck routes should be signed at the intersection of other truck routes.
- Study Substandard Arterial Locations - Study truck route intersections that are geometrically or operationally deficient for large vehicles for possible actions that can be taken to address the deficiency, such as removing parking, adjusting signal timing, offsetting the centerline location, prohibiting rush hour parking, restricting turns, providing additional turn pocket storage, and widening the roadway.
- Work with Caltrans to Improve Substandard Freeway Ramps – Most of the freeway on- and off-ramps in the South Bay were designed and constructed prior to the establishment of current standards, and have inadequate turn radii and storage length that cause queuing and weaving that contribute to congestion on freeways and arterial streets. South Bay Cities should work with Caltrans to prioritize the improvement of interchanges, especially those evaluated in the South Bay Cities Council of Government’s “I-405 Arterial Improvement Planning Studies” report (July 2003).
- Analysis of Locations with High Truck-Related Collisions - While these collisions can generally be attributed to disproportionately high volumes of truck traffic at these locations, intersection conditions such as turning radii geometrics, sign and signal placement, and signal timing can be altered to improve the operating conditions for large vehicles. These locations are identified in this study, however, the specific improvements for each location need to be identified through further study.
- Cities should review their truck parking and truck idling regulations if these issues are deemed significant by the city. Local law enforcement is already empowered to enforce California Air Resources Board diesel truck idling regulations.

The next step in a goods movement strategy for the South Bay is the prioritization of goods-movement related projects. This study looks at the goods-movement related projects identified through the conventional capital planning process within cities, and their work with Metro and the Southern California Association of Governments, evaluates them in terms of their role in moving goods in the South Bay. By evaluating these projects in terms of goods movement, cities have the tools to identify those projects that have the most benefit to goods movement in the subregion. Those projects that can be completed within the next three years are considered “Early Action Projects,” and are described below.

## Early Action Projects

Early action projects are those projects which are able to be implemented within the short-term time period (0-3 Years). These projects can be implemented in this timeframe either because they are already in a project development process or they are smaller in scope than major projects such as the I-710. These projects include arterial lane drop elimination, intersection improvements, pavement rehabilitation and reconstruction, bridges, and grade separations. Early action projects are, in general, those under the purview of the South Bay Cities as opposed to the major projects under the jurisdiction of Caltrans or Metro. Proposed early action projects are listed below. The projects are evaluated in Table E-1 and mapped in Figure E-1. These projects will generally improve both truck and auto flow, but are specifically chosen because of their strategic benefit to goods movement due to location, function, level of truck activity, amount of truck-related collisions, and other factors related to goods movement.

### *Lane Drop Elimination*

Bottlenecks occur at lane drops, where a roadway narrows from three to two lanes or two lanes to one lane, reducing throughput and creating traffic queues. These can be especially disruptive to goods movement, since trucks have a more difficult time maneuvering and accelerating/decelerating.

- Carson – Widen Sepulveda Boulevard from Alameda Street to the City limit (serves ICTF and other potential near-dock intermodal site) (*Highest Importance*)
- Carson – Widen Broadway from two lanes to four lanes from Main Street to Griffith Street (*High Importance*)
- El Segundo – Widen Aviation Boulevard from four lanes to six lanes from Imperial Highway to Hawaii Street. (*High Importance*)
- Harbor Gateway - Complete missing Del Amo segment between Denker Avenue and Normandie Avenue. Project one of three Del Amo gap closure projects. (*High Importance*)
- Lawndale – Inglewood Avenue corridor widening project (*High Importance*)
- Los Angeles County – Widen Aviation Boulevard from Manhattan Beach Boulevard to Arbor Vitae (*High Importance*)
- Los Angeles County – Reconstruct and widen Del Amo Boulevard from Normandie Avenue to Vermont Avenue. Project two of three Del Amo gap closure projects. (*High Importance*)
- Manhattan Beach – Add one northbound lane to Sepulveda Boulevard (SR-1) between 33<sup>rd</sup> Street and Rosecrans Avenue (*High Importance*)
- Torrance – Construct missing piece of Del Amo Boulevard from Madrona Avenue to Crenshaw Boulevard. Project three of three Del Amo gap closure projects. (*High Importance*)



- Wilmington – Widen Anaheim Street from Farragut Avenue to Dominguez Channel (*High Importance*)

*Intersection Improvements (from the South Bay Call for Projects list)*

- Hawthorne – Intersection improvements at Rosecrans and Aviation including railroad bridge widening. (*Important*)
- Hawthorne – Improve intersections on Hawthorne Boulevard from Imperial Hwy to Rosecrans (*High Importance*)
- Inglewood – Inglewood ITS deployment and integration project (*High Importance*)
- Lawndale – Intersection improvements at Inglewood Avenue and Marine Avenue (*Important*)
- Los Angeles – ATSAC/ATCS intersection improvements in Harbor Gateway, San Pedro, Westchester, and Wilmington (*High Importance*)
- Los Angeles County – South Bay Forum Traffic Signal Corridors Project (*High Importance*)
- Los Angeles County – South Bay Traffic Signal Synchronization (*High Importance*)
- Manhattan Beach – Intersection improvements at Nash Street/Douglas Street at Rosecrans Avenue (*Important*)
- Torrance – Intersection improvements at Torrance Boulevard and Maple Avenue (*Important*)
- Torrance – Intersection improvements at Hawthorne Boulevard and Sepulveda Boulevard (*Important*)
- Torrance – Intersection improvements at 190<sup>th</sup> Street at Anza Avenue and Inglewood Avenue (*Important*)
- Various – Improvement of inadequate right-turn radii at South Bay locations. A map and listing of the 180 individual inadequate turning radii for heavy vehicles were identified at 102 intersections of South Bay truck routes is in Section 3.5.

*Intersection Improvements at Locations with Truck-Related Collisions*

While locations with high truck-related collisions can generally be attributed to disproportionately high volumes of truck traffic at these locations, intersection conditions such as turning radii geometrics, sign and signal placement, and signal timing can be altered to improve the operating conditions for large vehicles. The specific improvements for each location need further study. Each location is of *Highest Importance* to the South Bay.

- Carson – Wilmington Avenue at Sepulveda Boulevard safety improvements
- Hawthorne – Crenshaw Boulevard and El Segundo Boulevard safety improvements
- Lomita – Pacific Coast Highway with Pennsylvania Avenue, Narbonne Avenue, and Oak Street safety improvements
- Rancho Dominguez – Del Amo Boulevard and Santa Fe Avenue safety improvements
- Rancho Dominguez – Del Amo Boulevard and Susana Road safety improvements
- Torrance – Figueroa Street and Torrance Boulevard safety improvements

*Pavement Rehabilitation and Reconstruction*

- Carson – Pavement reconstruction and other improvements on Broadway (*Important*)



- El Segundo – Nash/Douglas conversion to two-way streets (*Important*)
- Inglewood – Reconstruction of Arbor Vitae from La Brea Avenue to Prairie Avenue (*Important*)
- Inglewood – Reconstruction of La Brea from Florence Avenue to Century Boulevard (*Important*)
- Inglewood – Reconstruction of Imperial Highway from Prairie Avenue to Van Ness Avenue (*Important*)
- Inglewood – Realignment of La Brea Avenue with Hillcrest Boulevard (*Important*)
- Torrance – Rehabilitation of Crenshaw Boulevard between 182<sup>nd</sup> Street and 190<sup>th</sup> Street and between Maricopa Street and Sepulveda Boulevard. (*Important*)

#### *Bridges and Grade Separations*

- Carson – Wilmington Avenue Bridge over Dominguez Channel (*Highest Importance*)
- El Segundo – Douglas Street gap closure/railroad grade separation (*Highest Importance*)

#### *Interchange Improvements from “I-405 Arterial Improvement Planning Studies” Report*

- I-405 southbound off-ramp/Rosecrans Avenue (Caltrans, City of Hawthorne)
  - Install signal
- Southbound I-405 off-ramp to Hindry Avenue (Caltrans, City of Hawthorne)
  - Install freeway sign directing traffic to second exit
- Northbound I-405/Manchester Boulevard (Caltrans, City of Inglewood)
  - Modify ramp to add right turn lane and close Ash
- La Cienega Boulevard/Manchester Boulevard (Caltrans, City of Inglewood)
  - Widen to add westbound right-turn curb radii for truck turns
- La Cienega Boulevard/Florence Avenue (Caltrans, City of Inglewood)
  - Widen southeast curb radii for truck turns
  - Restripe southbound right-turn only lane to through-right lane
- La Cienega Boulevard to southbound I-405 on-ramp (Caltrans)
  - Remove ramp metering
- Inglewood Avenue/Marine Avenue (City of Lawndale, County of Los Angeles)
  - Add southbound through lane by widening
- Hawthorne Boulevard/northbound I-405 ramps (Caltrans, City of Lawndale)
  - Modify Hawthorne Boulevard median to allow southbound left turns
- Crenshaw Boulevard/182<sup>nd</sup> Street (City of Torrance)
  - Add westbound through lane (to allow double lefts) by widening
  - Modify signal to allow double left and protected phasing
- Crenshaw Boulevard/Southbound I-405 Ramps (Caltrans, City of Torrance)
  - Construct new NB Crenshaw to SB-405 on-ramp
  - Add northbound right-turn pocket to new southbound on-ramp
  - Remove northbound left-turn pocket/access
- 190<sup>th</sup> Street/southbound I-405 ramps (City of Torrance)
  - Restripe to add third westbound through lane

### **Longer-Term Projects**

Other longer-term goods movement improvements in the South Bay are classified by their use of the transportation system in the South Bay: inter-subregional freight, intra-subregional freight, port improvements and environmental impact mitigation. These potential improvements are listed in Section Four.

### ***Study Outline***

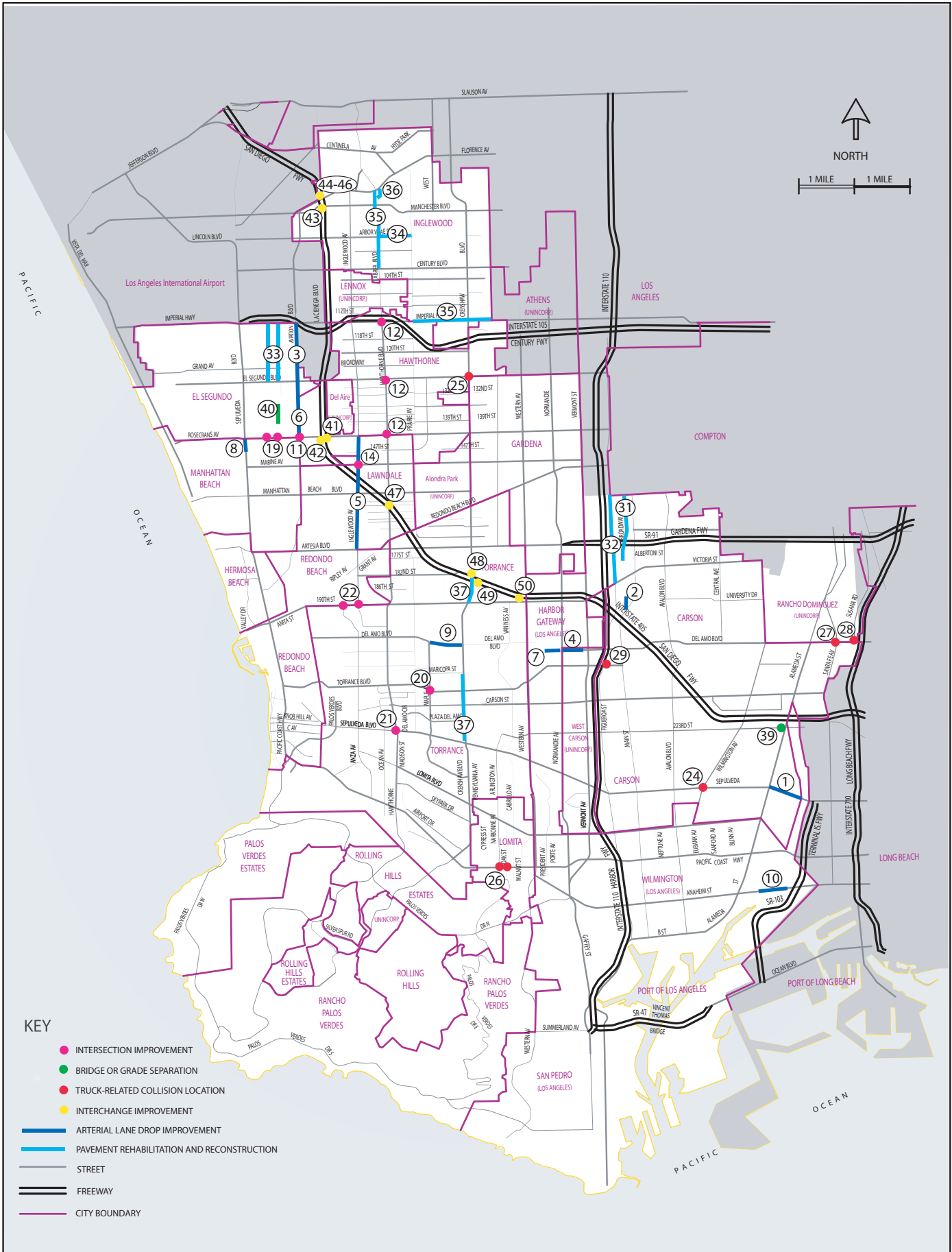
The study is organized into four sections.

- Section One describes the goods movement setting of the South Bay.
- Section Two describes the goods movement transportation system of the South Bay
- Section Three examines the current and future goods movement issues facing the South Bay Cities
- Section Four evaluates potential transportation improvements are for their goods movement and mitigating benefits to the South Bay.





Early Action Projects			Cost Estimate (in millions of dollars)	S. Bay Related					Status	Infrastructure and Operations							Health and Environmental							Community Impact Mitigation							Public Safety																
				Importance to South Bay	Goods Movement Usage	Goods Movement Growth	Truck-Related Collisions	Funding Programmed		Time Frame	Velocity	Throughput	Reliability	Congestion	Reduces Impact	Connectivity	Innovative Tech.	Energy Efficiency	Leverage Funding	Add. Public Health	Emissions or runoff	Immediate reduce.	Long-term redact.	Technological fees.	Technological dev.	Alternative Fuel	Cost-effective	Enforceability	Community pref.	Community buy-in	Like mitigation	Optimizes ben.	Feasibility	Available funding	Multiple benefits	Partial mitigation	Accountability	Noise/light mitig.	Env. justice	Safety efforts	Don't deteriorate GM	Problem containers	Landside aware	Seaside domain	Extends security		
																																														○	●
35	Inglewood	Reconstruction of La Brea from Florence Ave. to Century Blvd, and reconstruction of Imperial Highway from Prairie Ave. to Van Ness Ave.	\$6.0	○	●	●	○	X	Short	X	X	X			X	X							X	X					X	X									X								
36	Inglewood	Realignment of La Brea Ave. with Hillcrest Blvd.	\$10.0	○	●	●	○	X	Short	X	X	X			X	X							X	X	X				X	X									X								
37	Torrance	Rehab. of Crenshaw Blvd. between 182nd St and 190th St, between Maricopa St and Sepulveda Blvd	\$2.0	○	●	●	○	X	Short	X	X	X			X	X							X							X	X									X							
38	Los Angeles County	Lump Sum Roadway Preservation	\$0.3	○	●	●	○	X	Short			X			X	X							X							X	X									X							
<i>Bridges and Grade Separations</i>																																															
39	Carson	Wilmington Avenue Bridge over Dominguez Channel		●	●	○	X	Short			X				X																								X								
40	El Segundo	Douglas Street gap closure/railroad grade separation	\$32.5	●	●	○	X	Short	X	X	X	X	X		X	X						X							X	X										X							
<i>Interchange Improvements from "I-405 Arterial Improvement Planning Studies" Report</i>																																															
41	Hawthorne	I-405 southbound off-ramp/Rosecrans Avenue signal		●	●	○		Short	X	X	X	X					X	X				X							X										X								
42	Hawthorne	Southbound I-405 off-ramp to Hindry Avenue signage		●	●	○		Short	X	X	X	X					X	X				X							X											X							
43	Inglewood	Northbound I-405/Manchester Boulevard add right lane		●	●	○		Short	X	X	X	X					X	X				X							X											X							
44	Inglewood	La Cienega Boulevard/Manchester Boulevard improve turn radii		●	●	○		Short	X	X	X	X					X	X				X							X												X						
45	Inglewood	La Cienega Boulevard/Florence Avenue turn radii, and through-right lane		●	●	○		Short	X	X	X	X					X	X				X							X												X						
46	Inglewood	La Cienega Boulevard to southbound I-405 on-ramp metering		●	●	○		Short	X	X	X	X					X	X				X							X												X						
47	Lawndale	Hawthorne Boulevard/northbound I-405 ramps southbound left turns		●	●	○		Short	X	X	X	X					X	X				X							X												X						
48	Torrance	Crenshaw Boulevard/182nd Street westbound through lane, modify signal		●	●	○		Short	X	X	X	X					X	X				X																			X						
49	Torrance	Crenshaw Boulevard/Southbound I-405 new southbound ramp		●	●	○		Short	X	X	X	X					X	X				X							X													X					
50	Torrance	190th Street/southbound I-405 ramps add westbound through lane		●	●	○		Short	X	X	X	X					X	X				X							X													X					



**KEY**

- INTERSECTION IMPROVEMENT
- BRIDGE OR GRADE SEPARATION
- TRUCK-RELATED COLLISION LOCATION
- INTERCHANGE IMPROVEMENT
- ARTERIAL LANE DROP IMPROVEMENT
- PAVEMENT REHABILITATION AND RECONSTRUCTION
- STREET
- FREEWAY
- CITY BOUNDARY



Early Action Projects

Figure E-1