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S.0 EXECUTIVE SUMMARY

S.1 Study Overview

The I-710 Major Corridor Study was initiated in January 2001 to analyze the traffic congestion, safety, and mobility problems along the I-710 travel corridor and to develop transportation solutions to address these problems as well as some of the quality of life concerns experienced in the I-710 Corridor.

Study Organization

Daily project management and oversight of the study was provided by the Los Angeles County Metropolitan Transportation Authority in partnership with three other principal agencies: Caltrans, Gateway Cities COG, and SCAG. In addition, a policy oversight committee was established for the I-710 Study. The I-710 Oversight Policy Committee is comprised of elected officials from 14 participating cities and the County of Los Angeles; executive managers or senior staff from three of the principal partners (MTA, Caltrans, and SCAG); and a Commissioner from each of the Ports of Long Beach and Los Angeles.

Study History

During the first 24 months of the study, existing and future conditions in the I-710 Corridor were assessed, a Purpose and Need Statement was developed, and several different transportation alternatives were analyzed. By April of 2003, five alternatives had been evaluated in detail and information on their benefits, costs, and impacts were made available to the public:

- Alternative A: No Build Alternative (also called the "No Project" Alternative)
- Alternative B: Transportation Systems Management / Travel Demand Management Alternative
- Alternative C: Medium General Purpose / Medium Truck Alternative
- Alternative D: High General Purpose / High HOV Alternative
- Alternative E: High Truck Alternative

Three of the five alternatives were build alternatives that would either involve significant expansion of the I-710 freeway or would require the construction of new travel lanes next to I-710. The public did not support any of the build alternatives due to concerns about the large amount of property acquisitions and relocation impacts, environment and health issues, environmental justice, and perceived shortcomings in the public outreach for the I-710 Study.

Revised Study Direction

In response to the community concerns and opposition to the build alternatives, the MTA Board passed a motion on May 22, 2003 to revise the direction of the I-710 Study. Through this motion, the MTA Board directed staff to continue to work with the affected communities and other stakeholders to develop a Hybrid Strategy that would be acceptable to them, while meeting the purpose and need for transportation improvements in the I-710 Study Area. This Hybrid Strategy would have both operational and policy elements, as well as selected physical infrastructure improvements. The MTA Board also directed staff to "...form advisory groups in key areas along the Corridor where current design alternatives require the acquisition of large

amounts of private property.” As a result, the scope of the I-710 Study was substantially reconfigured to drop or reduce several technical tasks in deference to a greatly expanded public outreach effort to develop consensus for a preferred package of transportation improvements and strategies for the I-710 Corridor.

At its May 28, 2003 meeting, the I-710 Oversight Policy Committee (OPC), also cognizant of community concerns regarding the Final Set of Alternatives, adopted a set of Guiding Principles that further elaborated on the MTA motion and provided guidance to the development of a Hybrid Strategy for the I-710 Corridor. At this same meeting, the I-710 OPC created two tiers of Community Advisory Committees to advise them on the development of the Hybrid Strategy: Tier 1 and Tier 2 Community Advisory Committees.

Tier 1 – Community Level Committee Structure

Tier 1 Community Advisory Committees (CACs) were formed for each of the cities that border the I-710 Freeway. These CACs primarily focused on key issues that affected their communities including: health, environment and quality of life issues, safety and mobility issues, as well as economic development and land use issues.

To assist with the formation and coordination of these Tier 1 CACs, MTA retained a consultant, Moore, Iacofano, Goltsman, Inc. (MIG), to facilitate meetings of these committees. The Gateway Cities COG also retained an engineer (Jerry Wood, Consultant) to assist the Tier 1 CACs in the development of their recommendations for improvements to the I-710 Freeway and the transportation system in the surrounding study area.

Tier 1 Community Advisory Committees were established for the following communities: Carson, Compton, Lynwood, Bell Gardens, Commerce, East Los Angeles, and South Gate.

Rather than form a Tier 1 CAC, the City of Long Beach formed an I-710 Oversight Committee comprised of the three city council members whose districts border the I-710 freeway. The City of Long Beach also retained consultants for facilitation (DSO) and engineering (MMA) to support its separate community outreach process, leading to the development and adoption by the Long Beach City Council of their portion of the Hybrid Strategy.

Tier 2 – Corridor Level Committee Structure

The Tier 2 Community Advisory Committee (CAC) was formed to provide community representation via a broad based corridor-wide body. The initial membership consisted of:

- The Chair of each Tier 1 CAC
- For each community that does not have a Tier 1 CAC, a member appointed by the City Council or County Supervisor
- No more than 15 members appointed by the OPC to provide representation from the environmental community, business, labor, institutions, and academia
- The Chair of the I-710 Technical Advisory Committee
- The Chair of the Gateway Cities COG Enhancement Committee

In order to empower the Tier 2 CAC to engage additional perspectives or interests that it deems important, the OPC delegated to the Tier 2 CAC the authority to appoint, by two-thirds

vote, up to ten additional members. As a result, the Tier 2 CAC voted to add one additional member.

Employing Moore, Iacofano, Goltsman, Inc. as a resource, the Tier 2 CAC structured its work based on key issue areas that were identified by the Tier 1 Community Advisory Committees. These issue areas included:

- Health
- Jobs and Economic Development
- Safety
- Noise
- Congestion and Mobility
- Community Enhancements
- Design Concepts
- Environmental Justice
- Organization and Process

Draft Hybrid Design Concept

The Gateway Cities COG engineer worked with the Tier 1 Community Advisory Committees to help develop a hybrid design concept. Each of the Tier 1 CACs met numerous times and developed a list of issues, concerns, and recommendations. After reviewing these lists, preliminary design concepts for respective segments of I-710 were developed and presented to each Tier 1 CAC for review and comment. Through this feedback, adjustments and refinements to the hybrid design concept were made.

The purpose of the Draft Hybrid Design Concept was to provide infrastructure improvements to I-710 focused on improving safety; addressing heavy duty truck demand as well as general purpose traffic; improving reliability of travel times; and separating autos and trucks to the greatest extent possible while limiting right-of-way impacts. In general terms, the Draft Hybrid Design Concept is comprised of 10 general-purpose traffic lanes, 4 exclusive truck lanes, and interchange improvements from Ocean Boulevard in Long Beach to the intermodal railroad yards in Commerce/Vernon. [Note that the community engagement process to reach consensus on the Hybrid Design Concept is still underway with Commerce and East Los Angeles and therefore proposed improvements to I-710 between the Atlantic/Bandini interchange and SR-60 are yet to be defined.]

Caltrans standards were considered during the development of the Draft Hybrid Design Concept. However, the standards could not be met at all locations and Caltrans/FHWA approval of design exceptions will be needed to implement the geometric design as currently proposed. If the design exceptions are not acceptable to Caltrans/FHWA, then the geometric designs at certain locations will have to be restudied and the design modified. Any changes will be reviewed with the local community before being finalized.

Tier 2 Community Advisory Committee Recommendations

The charge of the Tier 2 Committee was to review key local issues and opportunities identified by the Tier 1 Community Advisory Committees, consider issues of local and regional

importance from a corridor-wide perspective, and provide recommendations to the Oversight Policy Committee on a comprehensive transportation solution for the I-710 Corridor.

Several of the Tier 2 meetings were devoted to the preparation of a report, documenting the Committee's findings and recommendations: *Major Opportunity/Strategy Recommendations and Conditions, August 2004*. Great care was taken to develop precise wording to convey the convictions and intent of the overall group.

Three overarching principles defined the priorities of the Tier 2 Committee and reflected the consensus that emerged during their deliberations:

1. This is a corridor – considerations go beyond the freeway and infrastructure.
2. Health is the overriding consideration.
3. Every action should be viewed as an opportunity for repair and improvement of the current situation.

Technical Advisory Committee (TAC) Recommendations

The TAC made no further changes to the Draft Hybrid Design Concept with the understanding that the segment of the I-710 Corridor between the BNSF/UP railroad yards in Vernon/Commerce and SR-60 is still under study and that findings from this focused study effort, including any new freeway-to-freeway ramp connections between I-710 and I-5, will need to be integrated with the overall I-710 Hybrid Design Concept prior to initiating environmental studies on I-710. The TAC also recommended that all of the proposed improvements in Alternatives A and B, a truck inspection station, and improvements to key arterial roadways in the I-710 Study Area, be incorporated to form a Hybrid Strategy.

I-710 Oversight Policy Committee Actions

The OPC met on November 18, 2004 and adopted the Locally Preferred Strategy for the I-710 Major Corridor Study. The OPC approved the draft hybrid design concept and the related supporting elements as the Locally Preferred Strategy:

- Hybrid Design Concept, which consists of ten (10) mixed flow lanes, specified interchange improvements, and four (4) truck lanes between the intermodal rail-yards in Vernon/Commerce and Ocean Boulevard in Long Beach (see Figure S-1).
- Alternative B – Transportation System Management/Transportation Demand Management Improvements
- Improvement to arterial highways within the I-710 Corridor
- Construction of truck inspection facilities to be integrated with the selected overall design concept

The OPC, as part of the Locally Preferred Strategy decision, also committed to an additional "mini" study of the segment of the Corridor between Atlantic/Bandini Boulevard and SR-60 to determine an acceptable design concept and scope for that segment of the Corridor. In addition, they adopted four recommendations providing direction and guidance on the future phases of project development and on companion actions.

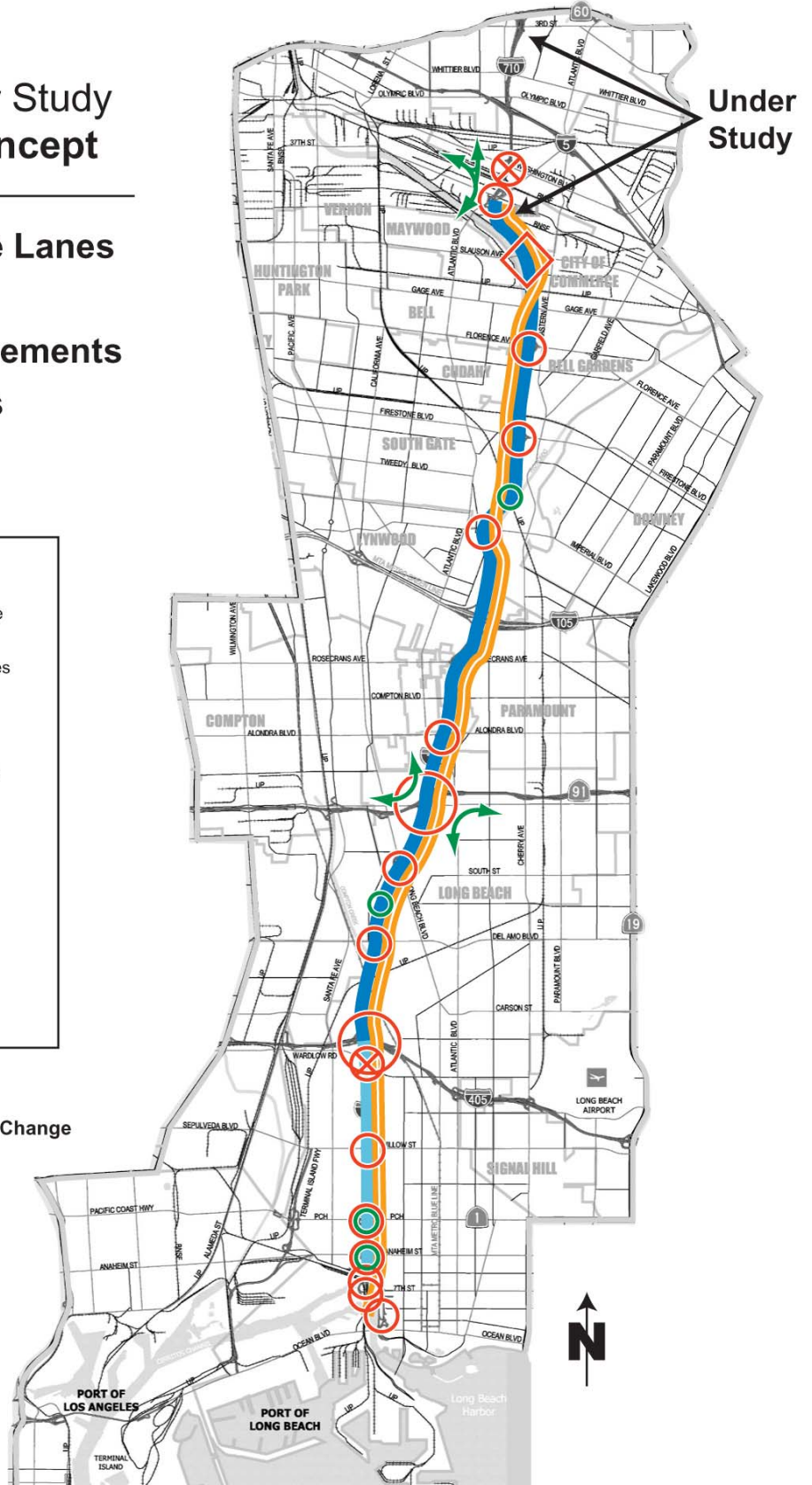
Figure S-1

I-710 Major Corridor Study Hybrid Design Concept

- 10 General Purpose Lanes
- 4-Lane Truckway
- Interchange Improvements
- Direct Truck Ramps

LEGEND	
	Add One Mixed Flow Lane (Each Direction)
	Add Two Mixed Flow Lanes (Each Direction)
	Exclusive Truck Facility
	Interchange Improvement
	New Interchange
	Eliminate Interchange
	Truck Ramps
	Truck Ingress/Egress

Preliminary Concepts, Subject to Change



Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc., April 2004

1. Request the Gateway Cities Council of Governments to return with suggested steps for initiating the development and implementation of a corridor level Air Quality Action Plan to include not only technical but also funding, institutional structure and legislative strategies as well as an approach to holding public agencies with jurisdiction in the Corridor accountable for progress in meeting air quality and public health objectives in the Corridor and Region.
2. Forward the Tier 2 report in its entirety to be accepted as pre-scoping guidance to the preparation of the EIR/EIS.
3. Request the Gateway Cities Council of Governments to identify and pursue appropriate avenues to implement those Tier 2 recommendations that prove to exceed the scope of any I-710 transportation improvement project and report back to the community.
4. Request MTA and COG staff to suggest a process and structure for continuing community participation throughout the environmental analysis.

Based on the OPC Action of November 18, 2004, the Locally Preferred Strategy was forwarded to the MTA Board for its consideration and possible action.

MTA Board Action

The MTA Board met on January 27, 2005 to adopt the Draft Final Report of the I-710 Major Corridor Study. Additionally the Board acted to:

1. Authorize the Chief Executive Officer to proceed with the preparation of a Scope of Work and Funding Plan that will include funding commitments from multiple partners for the environmental phase of the project pursuant to the Major Corridor Study's Locally Preferred Strategy and use input from the I-710 Community Advisory Committees in the environmental scoping process. The Scope of Work should also include assessment of impacts to the I-170/SR-60 interchange and evaluation of alternative project delivery methods.
2. Direct MTA staff to report back to the Board with the results of the East Los Angeles Mini-Study and that results be included into the Locally Preferred Strategy prior to initiating scoping for the EIR/EIS;
3. Receive the TIER II report to be accepted and utilized as pre-scoping guidance for the EIR/EIS;
4. Direct the MTA CEO, with the assistance of our state and federal advocates, to work with the appropriate governmental and non-governmental agencies to form a multi-jurisdictional entity to coordinate the appropriate aspects of the project, including identification of a funding plan with funding sources from multiple partners, and upon formation, the multi-jurisdictional partnership be tasked with identifying strategies for achieving near-term improvements to the Corridor's air quality and that the strategies be identified prior to initiation of the EIR/EIS Request for Proposals.

Issues for Further Consideration

While consensus for a Locally Preferred Strategy was reached among study decision-makers, it was with the understanding that a number of issues of concern that were raised during the study process would be revisited during the environmental review, preliminary engineering, final design, and construction phases of the proposal. For the most part, these are issues that were beyond the scope and authority of the I-710 planning study. Some are matters about which design assumptions had to be made for study purposes and yet about which considerable controversy remains. Others have to do with phasing of the overall project and ensuring that it supports the overall health and quality of life issues in the I-710 Study Area. These issues represent critical concerns of several of the local representatives, the community advisory group members, and the public, and will become part of future discussions as the various aspects of the project move into the next phases.

- Air Quality Action Plan
- Public Involvement Plan for EIS/EIR Phase
- Mini-Corridor Study
- Freeway Design Issues
- Definition of Arterial Street Improvements
- Determination of Truck Inspection Facility(ies)
- Phasing of Improvements
- Technology, Construction and Noise Impacts
- Project Funding

S.2 Study Background

The I-710 Major Corridor Study was conducted according to Southern California Association of Governments' Regionally Significant Transportation Investment Study (RSTIS) guidelines. A RSTIS is a tool for making better decisions about improving transportation in metropolitan areas. The RSTIS is necessary for major projects seeking federal funding. As such, the RSTIS is part of the federal planning process, yet decision-making takes place at the local and regional levels.

Under the Final Metropolitan Planning Rules (23 CFR Part 450.318) that guide the RSTIS, the I-710 Major Corridor Study is an integral element of a metropolitan area's long range planning process that is designed to provide decision-makers with better and more complete information on the options available for addressing identified transportation problems. The I-710 Study provides a focused analysis and evaluation of the mobility needs and related problems of a transportation corridor within a region. Specific criteria are developed to measure the benefits, costs, and impacts of various options. The RSTIS evaluation leads to a decision on a design concept and scope for transportation investments in the corridor – a Locally Preferred Strategy – that is then incorporated into a metropolitan area's transportation plan. The RSTIS is a cooperative and collaborative process that includes public agencies, local governments, and the general public.

Once the purpose and need, design concept, scope, and other elements have been adopted into the Southern California Association of Governments' Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP), the Locally Preferred Strategy

can then be advanced into environmental review and preliminary engineering. Consideration of more detailed design issues and completion of National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements occur in this next phase.

The I-710 Major Corridor Study was sponsored by the Los Angeles County Metropolitan Transportation Authority (MTA) in partnership with the Gateway Cities Council of Governments (Gateway Cities COG), the California Department of Transportation (Caltrans), and the Southern California Association of Governments (SCAG).

The I-710 Study was governed by a policy oversight committee comprised of elected officials from 14 participating cities and the County of Los Angeles; executive managers or senior staff from three principal partners (MTA, Caltrans, and SCAG); and a Commissioner from each of the Ports of Long Beach and Los Angeles. The I-710 Oversight Policy Committee (OPC) was advised by a set of committees made up of concerned citizens, stakeholder groups, and technical and engineering staff from participating municipalities and public agencies: (a) the Tier 2 Community Advisory Committee; (b) the Tier 1 Community Advisory Committees; and (c) the Technical Advisory Committee. During the I-710 Study, public input was sought and technical analysis was performed to support decisions that lead to the identification of a Locally Preferred Strategy for the I-710 Corridor. An important aspect of this process was adherence to a set of *Guiding Principles* (Figure S-2) established for the I-710 Corridor by the I-710 Oversight Policy Committee in May 2003.

Figure S-2
I-710 Corridor Guiding Principles

1. Minimize right-of-way acquisitions with the objective being to preserve existing houses, businesses, and open space.
2. Identify and minimize both immediate and cumulative exposure to air toxics and pollution with aggressive advocacy and implementation of diesel emissions reduction programs and use of alternative fuels as well as in project planning and design.
3. Improve safety by considering enhanced truck safety inspection facilities and reduced truck/car conflicts and improved roadway design.
4. Relieve congestion and reduce intrusion of traffic into communities and neighborhoods by employing a comprehensive regional systems approach that includes adding needed capacity as well as deploying Transportation Systems Management and Transportation Demand Management technologies and strategies (TSM/TDM) to make full use of freeway, roadway, rail, and transit systems.
5. Improve public participation in the development and consideration of alternatives and provide technical assistance to facilitate effective public participation.

Source: Oversight Policy Committee Meeting Minutes, May 28, 2003

The *Corridor Analysis Alternatives Evaluation Report* summarizes the I-710 Study process and the decisions reached throughout the course of the study. This report describes the study approach, problems and needs in the I-710 Corridor, alternatives considered, and their respective benefits, costs, and impacts. It also documents the major steps that led to the development of a Hybrid Strategy and ultimately the selection of the Locally Preferred Strategy for the I-710 Corridor, including public input and recommendations at key study milestones. Additionally, the *Corridor Analysis Alternatives Evaluation Report* memorializes issues raised by project decision-makers, participating agencies, and concerned citizens during the I-710 Study that will require further consideration as the project enters into subsequent phases of analysis and project development.

S.3 I-710 Corridor Study Area

The I-710 Study Area encompasses the sphere of influence of the I-710 travel corridor. The project study area is about twenty miles long and a little over six miles wide. A map of the I-710 Study Area is shown in Figure S-3. The Study Area boundaries are generally defined as follows:

- State Route 60 (northern boundary)
- Lakewood Boulevard / Rosemead Avenue (eastern boundary)
- Ports of Long Beach and Los Angeles (southern boundary)
- Wilmington Avenue / Alameda Street (western boundary)

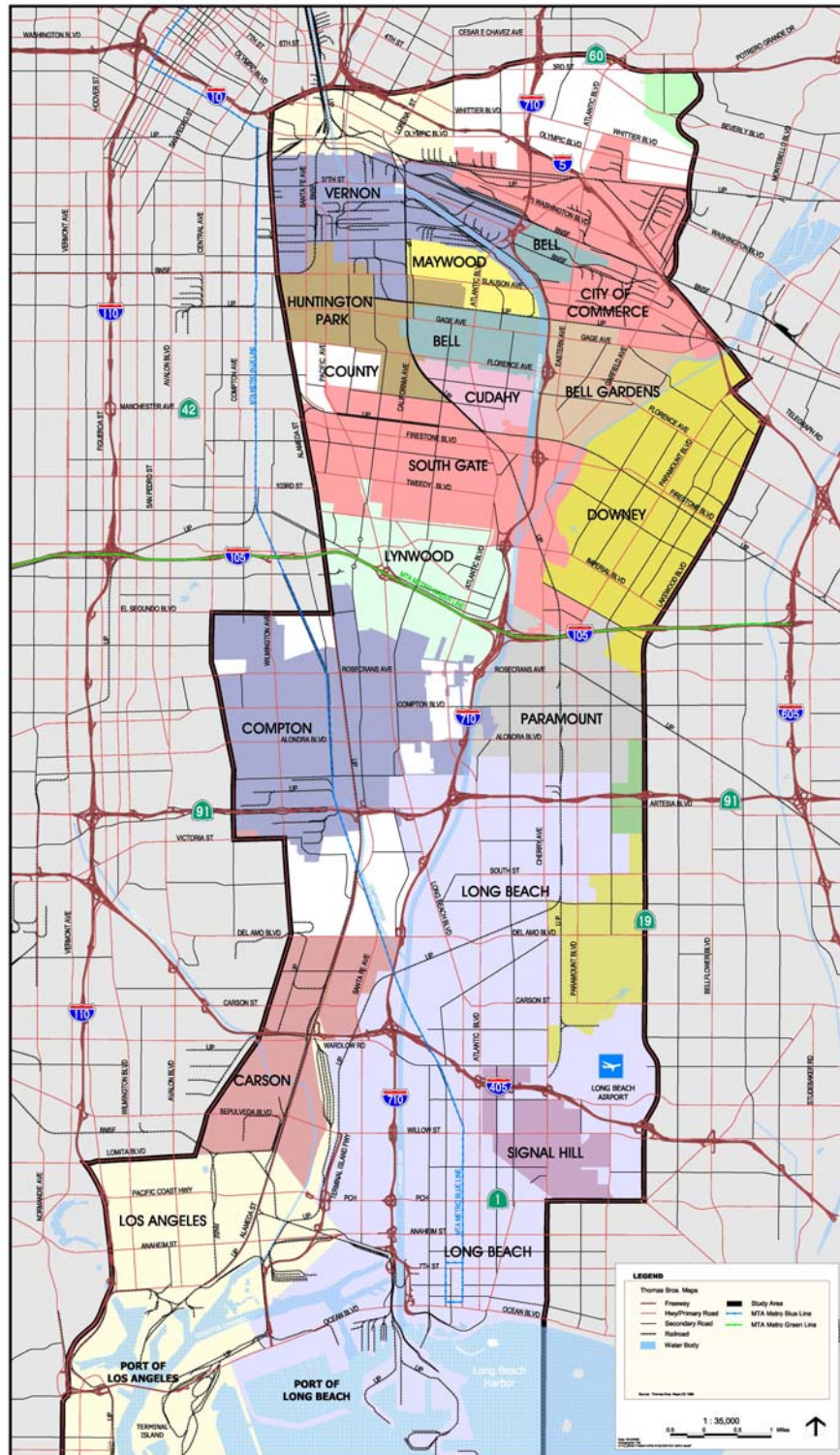
S.4 Purpose and Need

The I-710 Corridor is the principal transportation connection between East Los Angeles and the Ports of Long Beach and Los Angeles. It plays an important role in the regional, statewide, and national transportation system, serving both person trips and goods movement needs. Based on the examination of existing and future travel conditions, the I-710 Corridor is already experiencing serious performance problems due to a number of interrelated reasons.

With the exception of the I-105 interchange, no major work has been done on I-710 since it was built approximately 50 years ago. This means that traffic volumes have overwhelmed the existing design capacity of the interstate, particularly at the interchanges. This, in turn, has led to congestion and safety problems along the full length of the facility.

A complicating factor is the large numbers of trucks that use I-710 to travel between the Ports and rail freight yards located near Interstate 5 (I-5), and to warehousing and distribution points scattered throughout the Southern California urban area. Near Long Beach, trucks make up nearly twenty percent of the traffic stream during the day, compared with an average daily truck percentage of 6 to 13 percent on similar freeways in Los Angeles County. It is not uncommon to see a line of trucks, nose to tail, in the two right-hand lanes of the freeway, which greatly restricts movement across lanes as other vehicles attempt to enter and exit the freeway. In terms of utilization of highway capacity, one truck is the equivalent of two passenger cars or more depending upon prevailing roadway conditions. Moreover, trucks move at different speeds compared to general-purpose traffic and often have difficulty negotiating the tight turns, short weave distances, and steep grades at most of the I-710's interchanges. Additionally, trucks are a major source of diesel particulate emissions, which contribute to carcinogenic risk in the South Coast Air Basin.

Figure S-3
I-710 Corridor Study Area



Source: Parsons Brinckerhoff, June 2001.

High traffic volumes, design deficiencies, freeway congestion, and the interaction between cars and trucks in the traffic stream, create potentially unsafe conditions. Field officers of the California Highway Patrol consider I-710 to be one of the worst freeways in the Los Angeles County area with regard to safety. According to state records, I-710 experiences an accident rate that is well above the statewide average for freeways of this type. About five accidents per day occur on I-710 between Ocean Boulevard and SR-60. Accidents, particularly truck-related accidents, form bottlenecks as emergency workers close travel lanes to clear the scene. As a result, these incidents lead to additional congestion, delay, and occasionally secondary accidents on I-710 as approaching vehicles unexpectedly run into the back of a queue. When I-710 shuts down, freeway traffic spills over onto local roadways and arterials searching for an alternative route, creating additional congestion on those facilities as well.

I-710 is, and is expected to remain, a primary route for trucks carrying containers to and from the Ports. I-710 also serves as the gateway to the City of Long Beach, including several cultural, business, and tourist attractions of great economic importance to this area of Los Angeles County. The amount of congestion and traffic delay currently experienced on I-710 is not only disruptive to Port operations that must accommodate “just-in-time” goods delivery and inventory processes, but also hurts trucking, manufacturing, and other commercial interests within the region as shipments are delayed and as trucks sit in traffic. Idling trucks produce diesel particulates affecting air quality and thus exacerbating public health concerns of nearby residents. In addition, the I-710 freeway is visually unattractive, which degrades the motorist’s experience and detracts from the impressions formed of the communities surrounding it.

The planning horizon for the I-710 Study is 2025. Both population and employment within the Study Area are expected to grow by about 20 percent between now and 2025. According to demand projections produced by the Ports of Long Beach and Los Angeles, container traffic will more than double during that same time period. These figures indicate that the existing transportation problems on I-710 and other study area roadways will get much worse and will affect the competitive position of the Los Angeles region, as well as other U.S. businesses and industries, unless corrective action is taken.

Finally, there is a significant percentage of mobility-constrained and minority populations within the I-710 Study Area. Improvements to transit services are needed to better serve those without access to autos for their travel needs and to attract drivers from their cars to help reduce traffic congestion. Future transportation improvements also need to be sensitive to the distribution of their benefits and impacts, so as not to disproportionately affect any one ethnic group or community.

Analysis of these current and projected conditions in the I-710 Study Area, as well as public input, has led to the identification of several key problem areas for the I-710 Corridor, which was approved in December 2001 by the I-710 Oversight Policy Committee. Many of these problems and needs are interrelated. Figure S-4 on the following pages lists and describes these problem issue areas in no particular order of importance:

Figure S-4
I-710 Corridor Problem Statements

Problem/Need	Problem Statement
Recurrent Traffic Congestion	Traffic demand is overwhelming the existing design capacity of I-710 and related interchanges in the peak periods. Under current conditions, high volumes of both trucks and cars have led to peak spreading and traffic congestion throughout most of the day (6 a.m. to 7 p.m.) on the mainlines of I-710 as well as approaching arterials. This pattern is projected to worsen over the next twenty years.
Non-Recurrent Traffic Congestion	The frequent occurrence of traffic incidents and constraints associated with quickly clearing those incidents causes bouts of traffic congestion on I-710 that cannot be predicted or avoided. Serious incidents can shut down the freeway for an hour or more, with its attendant spillover effects on the local arterial system. These unexpected delays and resulting economic consequences to freight carriers, employers, manufacturing, and business interests in the region are severe. The unexpected nature of traffic congestion on I-710 is also inconvenient and highly disruptive to commuters and residents that depend upon it for their daily travel.
Safety	The number and severity of accidents on I-710 are high when compared to other similar freeways in the Los Angeles region. Accidents on I-710 are largely due to design deficiencies, high traffic volumes, and the current vehicle mix of autos and heavy-duty trucks. These accidents cause property damage, injuries, and fatalities as well as vehicle delays, as traffic slows or comes to a stop on the freeway mainline until the incidents are cleared. In some cases, secondary accidents are triggered as vehicles upstream of the incident run into the back of an unexpected traffic queue.
Goods Movement	To remain economically competitive in the global marketplace, the Southern California region must support and manage increasing demand for goods movement in the I-710 Corridor. With the recent completion of the Alameda Corridor and its corresponding expansion in freight rail capacity, the regional focus has turned to trucks because of the essential role that this travel mode plays in the logistics chain for goods movement. By 2025, the number of heavy duty trucks on I-710 is expected to more than double. Of particular concern in the I-710 Study Area is how to best realize the economic benefits of the movement of goods (freight) and yet lessen the disruptive effects of truck traffic on the freeway and roadway system, and on neighboring communities.

Source: Purpose and Need Statement, Parsons Brinckerhoff, Adopted by the OPC in December 2001.

Figure S-4 Continued
I-710 Corridor Problem Statements

Problem/Need	Problem Statement
Design Deficiencies	Non-standard design features such as inadequate weave distances, acceleration lanes that are too short, poor turning radii, narrow lane widths, left-side egress locations, lack of shoulders, and missing freeway connectors and access points are a major contributor to safety problems and operational inefficiencies along the full length of I-710 corridor. These non-standard features also constrain the operational capacity of travel lanes and ramps on I-710. This situation contributes to poor levels of service currently experienced by motorists on I-710.
Land Use Constraints	The envelope of state-owned land that contains the I-710 facility is limited along much of the length of I-710, including the interchanges. This means that the buffer of land between the edge of travel way and the state right-of-way line is very narrow in most locations and, in some cases, it is non-existent. In addition, sensitive populations and natural resources such as the Los Angeles River Channel, residential neighborhoods, businesses, cemeteries, schools, and parks are located adjacent to the right-of-way line. If major changes are made to the current geometric configuration of freeway, then the potential for right-of-way impacts is high.
Air Quality/Public Health	As shown by recent Air Quality Management District (AQMD) studies, populations within the I-710 Study Area are regularly exposed to toxic air contaminants that increase carcinogenic risk. A major source of these air toxins is diesel particulates, which is considered to be a local source air pollutant. About half of the diesel particulate matter in the South Coast Air Basin as reported by AQMD (1998) is caused by emissions from vehicles using the freeway and roadway system. Heavy-duty diesel trucks are the leading contributor to on-road sources of diesel particulates.
Environmental Justice/Equity	The I-710 Study Area contains a high number of minority and low-income populations that require special consideration under federal environmental justice guidelines. Proposed transportation improvements should be equitable and should distribute benefits and burdens fairly.
Aesthetics/Noise	The I-710 freeway is unattractive, which affects the perception that visitors, residents, and potential customers have of the Gateway Cities area. In addition, residents and other sensitive receptors located close to I-710 experience high levels of traffic noise, particularly in locations where noise barriers do not presently exist.

Source: Purpose and Need Statement, Parsons Brinckerhoff, Adopted by the OPC in December 2001.

Figure S-4 Continued
I-710 Corridor Problem Statements

<p>Cost-Effectiveness</p>	<p>There are limited financial resources and high competition for transportation dollars within Los Angeles County over the next 25 years. Transportation improvements identified in the I-710 Corridor must compete for these available funds with other worthy projects within the county. To be successful, proposed improvements must be cost-effective, generating the maximum transportation benefits for the dollars invested. In addition, proposed transportation improvements should be realistic and achievable, based on known physical, operational, social, and institutional parameters.</p>
<p>Transit</p>	<p>There is a need to better serve the populations in the I-710 Study Area with transit. Existing transit services warrant solutions to improve the mobility of those who currently use public transit, as well as to make these services more competitive with the automobile so as to attract new riders to help reduce traffic congestion.</p>

Source: Purpose and Need Statement, Parsons Brinckerhoff, Adopted by the OPC in December 2001.

S.5 Alternatives Considered

As part of the I-710 Major Corridor Study, a number of alternative transportation mode solutions to the mobility, safety, and air quality problems were assessed. This approach was intended to provide decision-makers with a broad spectrum of transportation options to address the purpose and need within the I-710 Study Area. The conceptual alternatives developed for the I-710 study were multimodal, included both capital improvements and operational strategies, and were structured to provide a range of options so that their respective trade-offs in terms of costs, transportation benefits, and other impacts could be understood. In developing these transportation alternatives for the I-710 Corridor Study Area, input from several sources was considered. Technical information on travel patterns, accident statistics, future growth, and transportation system performance was analyzed. Substantial emphasis was given to discussions with residents, business interests, community leaders, local officials, city representatives, and with agencies such as the California Highway Patrol, about the most critical problems in the I-710 Corridor and what should be done about them.

The purpose of developing various alternatives is to identify a fairly large list of possible transportation options so that these different alternatives can be studied and compared to each other to come up with the best solution for the I-710 Corridor. The alternatives also emphasized different modes of travel or answered specific transportation needs that were identified in the I-710 Study Area. These different travel modes included: general purpose traffic (all types of vehicles); high occupancy vehicles (HOV or carpools); trucks; goods movement (both trucks and freight rail); and passenger rail. The initial set of twelve alternatives developed for the I-710 Study incorporated operational improvements to existing transportation programs and services as well as major construction projects involving a substantial financial investment and expansion of the transportation system, particularly I-710.

The following initial alternatives were approved by the I-710 Oversight Policy Committee in February 2002 for analysis in the I-710 Study:

- Alternative 1 – No Build Alternative
- Alternative 2 – Transportation Systems Management/Transportation Demand Management (TSM/TDM) Alternative
- Alternative 3 – Low General Purpose Alternative
- Alternative 4 – Low Truck Alternative
- Alternative 5 – Medium HOV Alternative
- Alternative 6 – Medium General Purpose Alternative
- Alternative 7 – Medium Truck Alternative
- Alternative 8 – High General Purpose Alternative
- Alternative 9 – High Truck Alternative
- Alternative 10 – High Goods Movement Alternative
- Alternative 11 – High HOV Alternative
- Alternative 12 – High Rail Alternative

A screening analysis was performed on the initial set of twelve alternatives. Screening criteria addressing mobility benefits, cost, right-of-way impact, and environmental concerns was developed to gauge the performance of the alternatives in light of the purpose and need for improvements listed in Figure S-4. The purpose of alternatives screening was to identify those alternatives that were most competitive and should, therefore, be carried forward for further study and evaluation in the I-710 Study. Public outreach during alternatives screening took place during the months of February, March, April, and May of 2002 and consisted of elected official briefings, agency briefings, community presentations, and roundtable discussions. No one alternative as it was presented was favored by the majority of the participants. Rather, certain elements of the different alternatives were noted as being favorable or unfavorable. Truckers, auto drivers, and community members all agreed that trucks and cars must be separated. Several participants stated that the alternative chosen at the end of the study must meet this criterion in order to truly address the problems of the I-710 freeway. In addition, many participants felt that the ports are directly responsible for the volume of trucks on the freeway and that they should work with the local agencies to identify ways to change the way they operate, especially if they plan on expanding. Community members were particularly negative towards the ports, believing that industry is being accommodated at the expense of the local communities. They stated that the amount of traffic, pollution and other negative health impacts in the I-710 Corridor is increasing.

As a result of the screening analysis, including public commentary, and after extensive review and scrutiny by the I-710 TAC, five alternatives were approved by the OPC for detailed evaluation in the I-710 Major Corridor Study. Alternatives that were determined to have little or no chance of becoming the Locally Preferred Strategy were eliminated during the screening process. At the same time, the most competitive elements of the initial alternatives were carried forward, and in some cases re-combined, to form the final set of five alternatives.

For clarity and to avoid confusion with the initial alternatives, the five remaining alternatives were relabeled "A" through "E" as follows:

- Alternative A No Build Alternative

Alternative B	Transportation Systems Management / Transportation Demand Management (TSM/TDM) Alternative
Alternative C	Medium General Purpose / Medium Truck Alternative
Alternative D	High General Purpose / High HOV Alternative
Alternative E	High Truck Alternative

The following discussion provides a summary description of the five alternatives that were selected to undergo detailed study in the I-710 Major Corridor Study.

Alternative A - No Build Alternative

Also called the “No Project” Alternative, the No Build Alternative examines what travel conditions will be like by 2025, the future planning horizon year for the I-710 Study. It is also the baseline against which other transportation alternatives proposed for the I-710 Study are assessed. The No Build Alternative encompasses future improvements to the existing transportation system that are expected to be in place by 2025. Major transportation projects that are already under construction or that are already planned to occur are folded into the No Build. Examples of these projects include the construction of the Alameda Corridor, replacement of all of the pavement on I-710 by Caltrans, added bus service throughout the I-710 Study Area, and improvements to truck-impacted intersections, as well as other future transportation projects that are already funded and committed.

Alternative B – TSM/TDM Alternative

The Transportation Systems Management/Transportation Demand Management (TSM/TDM) Alternative is made up of a list of operational improvements needed to make the best use of the transportation system in the I-710 Study Area and that stops just short of a major financial investment in new transportation facilities. The TSM/TDM Alternative incorporates several transportation strategies and programs to better manage how the existing freeways, roadways, and the transit systems operate in the I-710 Study Area.

Alternative B includes transportation improvements such as added bus service for local communities, the completion of the ramp metering system on I-710, and the use of advanced technologies to manage traffic and to inform motorists about alternate routes to avoid traffic congestion. Other proposed TSM/TDM improvements include: emissions reduction programs, incentives to consolidate truck trips, and measures to shift of truck traffic into the late evening or early morning hours.

Mainlines on I-710

- additional ramp metering
- aesthetics (landscaping and hardscape treatments along I-710)
- continuous high-mast illumination
- improved signage on I-710

Interchanges/Arterials

- I-710 ramp terminus/arterial improvements
 - for example, curb and gutter, including aesthetics improvements
 - mostly in state right-of-way

- implement parking restrictions on major parallel arterials during peak periods

Goods Movement

- empty container management through policies and incentives
- expanded drayage truck emission reduction program
- extended gate hours at the ports
 - move toward 24 hour / 7 days a week operations
 - incentives / disincentives (emphasize policy recommendations, not mandate)
 - include all entities in the supply chain

Transit

- additional Blue/Green Line feeder bus shuttles
- enhanced community service (local circulators)

Intelligent Transportation Systems (ITS)

- expand ITS Corridors
 - expand “depth” of ITS coverage on two identified ITS corridors (I-710/Atlantic; I-105 Corridor)
 - emphasize system connectivity

Alternative C - Medium General Purpose / Medium Truck Alternative

Alternative C would entail a major capital investment to the I-710 Corridor and is focused on improving safety and eliminating operational bottlenecks on I-710 for all vehicle types as well as selected improvements to manage the flow of heavy-duty trucks within the corridor. Alternative C also emphasizes capacity improvements to the most deficient arterials serving as feeders or alternate routes to I-710. By definition, Alternative C incorporates all of the operational and policy improvements proposed in the TSM/TDM Alternative. In addition, Alternative C includes the following physical elements:

I-710 Mainlines

- add one mixed flow lane in each direction for selected I-710 segments
 - Shoemaker Bridge Complex to I-405 (I-710 becomes 4 lanes in each direction)
 - Imperial Hwy. to Atlantic Blvd. (I-710 becomes 5 lanes in each direction)
- improve mainlines to design standards
 - 12' travel lanes
 - 12' right shoulder
- add a continuous collector-distributor system between Atlantic Blvd. and I-5
- add a truck inspection facility adjacent to NB I-710 between Del Amo Blvd. and Long Beach Blvd.
- add truck bypass facilities at three freeway-to-freeway interchanges: I-405/I-710; SR-91/I-710; I-105/I-710
- add truck ramps to selected interchanges with high truck volumes: WB Pacific Coast Highway and WB Washington Blvd.

I-710 Interchanges

- add a right-side freeway connector ramp at the I-5/I-710^a interchange to be used primarily by trucks and retain the left-side connector to be used primarily by autos (NB I-710 to NB I-5)

- eliminate design deficiencies at the I-405/I-710 freeway-to-freeway interchange
- eliminate design deficiencies at eight local interchanges^b
- add one new interchange (Slauson)

Terminal Island Freeway (SR-47/SR-103)

- extend the Terminal Island Freeway (SR-103) to I-405, by adding an elevated, four-lane facility (two lanes in each direction) that would be used primarily by trucks

Arterials

- arterial capacity enhancements to 10 major arterials^c by adding one lane in each direction
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking; or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

Notes for Alternative C

- a. Would requires coordination with I-5 Corridor Improvements
- b. Anaheim; Pacific Coast Highway; Willow; Del Amo; Imperial; Florence; Atlantic/Bandini; Washington
- c. Atlantic Blvd.; Cherry Ave./Garfield Ave.; Eastern Ave.; Long Beach Blvd.; Paramount Blvd.; Pacific Coast Highway; Willow St.; Del Amo Blvd.; Firestone Blvd.; Florence Ave.

Alternative D - High General Purpose / High HOV Alternative

Alternative D would represent a high level of capital investment in the I-710 Study Area and focuses on improving safety and increasing roadway capacity to address the high traffic volumes along the full length of the I-710 Corridor for all vehicle types as well as improving the travel time and attractiveness of carpools to increase the person-carrying capacity of the regional transportation system. Alternative D includes all of the proposed TSM/TDM improvements listed in Alternative B. The transportation elements that comprise Alternative D are listed as follows:

I-710 Mainlines

- add 2 mixed flow lanes in each direction to I-710 from:
 - Shoemaker Bridge Complex to I-405 (I-710 becomes approximately 5 lanes in each direction)
 - Imperial Hwy. to Atlantic Blvd. (I-710 becomes approximately 6 lanes in each direction)
- add 1 mixed flow lane in each direction to the remaining I-710 segments
- add an exclusive HOV facility^a for carpools and buses
 - 4 lanes (2 HOV lanes in each direction) from the Shoemaker Bridge Complex to SR-60
 - generally elevated, however, profile would be adjusted as needed depending upon best fit in I-710 right-of-way
 - alignment generally located in the median of I-710
 - dedicated ingress/egress points to facility for high occupancy vehicles at selected locations (approx. every 3-4 miles)

- HOV lanes would operate 24 hours/7 days per week and assume a 2+ occupancy requirement
- improve I-710 mainlines to design standards
 - 12' travel lanes
 - 12' right shoulder

I-710 Interchanges

- eliminate design deficiencies at three freeway-to-freeway interchanges: I-405/I-710, SR-91/I-710; I-5/I-710^b
- eliminate design deficiencies at ten local interchanges^c
- include direct HOV connectors at the I-405/I-710 interchange (NB I-405 to NB I-710; SB I-710 to SB I-405)

Terminal Island Freeway (SR-47/SR-103)

- add four-lane viaduct connector, between SR-47 and Alameda Street

Transit

- add express bus service on the proposed HOV lanes

Arterials

- arterial capacity enhancements to four major arterials^d by adding one lane in each direction to those parallel arterials close to I-710
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking; or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

Notes for Alternative D

- a. The exclusive 4-lane HOV facility would be designed and constructed so as to not preclude its future development as a high speed rail line between Long Beach and downtown Los Angeles.
- b. Would require coordination with I-5 Corridor Improvements
- c. Anaheim; Pacific Coast Highway; Willow; Del Amo; Long Beach Blvd; Rosecrans; Imperial; Florence; Atlantic/Bandini; Washington
- d. Atlantic Blvd., Cherry Ave./Garfield Ave., Eastern Ave., Long Beach Blvd.

Alternative E - High Truck Alternative

Alternative E would entail a high level of capital investment in the I-710 Corridor focused on: improving safety; increasing capacity for growing heavy duty truck demand; improving reliability of travel times; and reducing points of conflict between autos and trucks to the greatest extent possible. As with the other build alternatives, Alternative E includes the TSM/TDM strategies recommended in Alternative B. Specific transportation improvements associated with Alternative E are listed as follows:

Mainline Facility

- construct an exclusive truck facility
 - 4 lanes (2 in each direction) between SR-91 and SR-60
 - 6 lanes (3 in each direction) between Ocean and SR-91

- proposed truck facility would be generally elevated, however, the profile would ultimately be determined based on need to minimize grades and best fit to minimize need for additional right-of-way
- provide dedicated ingress/egress points for trucks at selected locations (approximately every 3-4 miles)
- horizontal alignment of truckway could be in the median or adjacent to I-710 in state, LA River, or power line right-of-way depending upon best fit
- consider a tolling option for users of the truck facility
- provide extensive auxiliary lane improvements along existing I-710 travel lanes
- improve existing I-710 travel lanes to design standards
 - 12' travel lanes
 - 12' right shoulder

I-710 Interchanges

- eliminate design deficiencies at I-5/I-710^a; SR-91/I-710; and I-405/I-710
- add one new interchange (Slauson)

Arterials

- arterial capacity enhancements to arterials that lead to I-710 and that carry very high truck volumes by adding one lane in each direction: Ocean Blvd.; Pacific Coast Highway; Florence Ave.; Bandini Blvd.; Washington Blvd.
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking; or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

Notes for Alternative E

- a. Would requires coordination with I-5 Corridor Improvements

S.6 Alternatives Evaluation

During Alternatives Evaluation, several technical studies were performed on Alternatives A, B, C, D, and E. The purpose of these studies was to elicit evaluative information on the alternatives as well as provide a higher level of definition of their respective operational and physical characteristics. These technical studies included: conceptual engineering; travel demand forecasting; right-of-way impact analysis; environmental analysis; and estimation of capital costs. Once the technical studies were completed, this information was used to assess the travel benefits, costs, and impacts of the proposed alternatives. Key trade-offs among the alternatives were also evaluated and discussed, and public input was sought.

Following adoption by the OPC in June 2002, the specifics of the design concepts of each of the build alternatives (Alternatives C, D, and E) evolved. This evolution was a result of the conceptual engineering work undertaken to refine the alternatives for further evaluation and analysis. While the basic design concept and scope of each of the build alternatives did not change from those concepts approved by the OPC, the objective of the conceptual design

process was to further define the specifics of the alternatives within the framework of three background assumptions:

- Meet the Intent of the OPC-Approved Alternative Definition
- Maintain Federal and State Design Standards
- Minimize Right-of-Way/Land Use Impacts

In order to understand the major differences among the five alternatives, Table S-1 on the following page illustrates the I-710 mainline configuration of the “through” lanes included in each of the alternatives, not counting lane drops and adds at various locations up and down the freeway associated with the interchanges or with auxiliary lanes.

Travel demand forecasting models were used to predict future traffic volumes on I-710 based on forecasts of future population, housing units, jobs, and cargo. In this case, a subarea travel forecasting model was developed for the overall I-710 Study Area. It is important to look at future travel demand so that proposed transportation improvements are not rendered obsolete by failing to take into account anticipated future growth in traffic. The planning horizon year for the I-710 Study is 2025.

The travel demand forecasts predict how many travelers are likely to use any new transportation facilities tested using the model. Table S-2 shows future traffic volumes on I-710 under all five alternatives, including all vehicle types (autos, trucks, buses, etc.) Since trucks take up more space on the freeway than cars, heavy duty trucks were converted to passenger-car-equivalent units consistent with Highway Capacity Manual procedures. In general, a single heavy duty truck is the equivalent of 2.5 autos. Table S-2 indicates that Alternative B would result in a slight decrease in traffic volumes on I-710, most likely due to the strategies designed to discourage and reduce vehicle trips. On the other hand, the build alternatives (Alternatives C, D, and E) would result in increased traffic volumes on I-710 because the added capacity and operational improvements would result in a better level of service to motorists. Most of these vehicles are switching to I-710 from parallel arterials within the I-710 Study Area closest to I-710 and also from parallel freeways such as I-110 and I-605 as traffic redistributes itself to take advantage of improved travel times on I-710.

Table S-3 shows the changes in estimated truck volumes only. In this case, passenger-car-equivalent units do not apply – a single heavy duty truck is the equivalent of one vehicle in this table. Table S-3 shows a pattern similar to Table S-2, which is not surprising since a good portion of the vehicle stream on I-710 are trucks. Table S-3 also shows that one of the elements proposed in Alternative C (extension of the Terminal Island Freeway) would reduce truck traffic on I-710 south of the I-405 since many trucks would elect to use the Terminal Island Freeway for this one stretch. However, overall truck traffic would increase somewhat on I-710 north of the I-405 compared to the no build condition (Alternative A) as these trucks from the Terminal Island freeway rejoin I-710.

Table S-1
I-710 Mainline Lane Configurations

Segments on I-710		Number of General Purpose Lanes and Special Purpose Lanes (SP, HOV, TR)					
		Existing	Alt A	Alt B	Alt C	Alt D	Alt E
From	To	GP	GP	GP	GP + SP	GP + HOV	GP + TR
SR-60	I-5	8	8	8	8	8 + 2	8
I-5	Washington	10	10	10	10 + 4 ^a	12 + 2	10 + 4
Washington	Atlantic/Bandini	10	10	10	10 + 4 ^a	12 + 2	10 + 4
Atlantic/Bandini	Florence	8	8	8	10	12 + 4	8 + 4
Florence	Firestone	8	8	8	10	12 + 4	8 + 4
Firestone	Imperial	8	8	8	10	12 + 4	8 + 4
Imperial	I-105	8	8	8	8 + 4 ^b	10 + 4	8 + 4
I-105	Rosecrans	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Rosecrans	Alondra	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Alondra	SR-91	8	8	8	8 + 4 ^b	10 + 4	8 + 4
SR-91	Artesia	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Artesia	Long Beach	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Long Beach	Del Amo	8	8	8	8	10 + 4	8 + 4
Del Amo	I-405	8	8	8	8	10 + 4	8 + 4
I-405	Wardlow	6	6	6	8	10 + 2	6 + 4
Wardlow	Willow	6	6	6	8	10 + 2	6 + 4
Willow	Pacific Coast Highway	6	6	6	8	10 + 2	6 + 4 ^c
Pacific Coast Highway	Anaheim	6	6	6	8	10 + 2	6 + 4 ^c
Anaheim	9th	6	6	6	8	6	6 + 4 ^c
9th	Ocean	4	4	4	4	4	4

Source: Parsons Brinckerhoff, Inc. and Cambridge Systematics, Inc., April 2003.

Notes: Mainline lane configurations show the total number of through lanes for both directions of I-710. Auxiliary lanes are not counted. General purpose (GP) lanes are travel lanes that are used by all vehicle types. Special purpose (SP) lanes are lanes devoted to a specific purpose (i.e., collector-distributor lanes, high occupancy vehicle lanes (HOV), truck bypass lanes, truckway (TR), and autoway).

^aCollector-Distributor System, ^bTruck Bypass Lanes, ^cAutoway Lanes

Table S-2
I-710 Average Daily Traffic Volumes (in Passenger Car Equivalent units)

Segments on I-710		Alt A	Alt B	B - A	Alt C	C - A	Alt D	D - A	Alt E	E - A
From	To	Volumes	Volumes	% Diff.	Volumes	% Diff.	Volumes	% Diff.	Volumes	% Diff.
SR-60	I-5	280,300	280,900	0.2%	289,900	3.4%	313,400	11.8%	297,900	6.3%
I-5	Washington	280,100	281,300	0.4%	321,700	14.9%	329,000	17.5%	320,400	14.4%
Washington	Atlantic/Bandini	294,300	294,000	-0.1%	325,100	10.5%	342,800	16.5%	338,000	14.8%
Atlantic/Bandini	Florence	298,400	296,100	-0.8%	339,600	13.8%	345,600	15.8%	364,200	22.1%
Florence	Firestone	305,100	302,800	-0.8%	341,600	12.0%	349,300	14.5%	355,800	16.6%
Firestone	Imperial	306,000	303,400	-0.8%	342,000	11.8%	355,100	16.0%	350,400	14.5%
Imperial	I-105	325,700	322,700	-0.9%	344,900	5.9%	363,000	11.5%	366,400	12.5%
I-105	Rosecrans	250,200	247,400	-1.1%	266,500	6.5%	272,700	9.0%	284,400	13.7%
Rosecrans	Alondra	441,500	437,700	-0.9%	468,200	6.0%	451,300	2.2%	486,800	10.3%
Alondra	SR-91	431,900	427,800	-0.9%	458,100	6.1%	434,700	0.6%	479,200	11.0%
SR-91	Artesia	312,300	304,400	-2.5%	339,300	8.6%	371,600	19.0%	358,000	14.6%
Artesia	Long Beach	322,000	314,300	-2.4%	350,200	8.8%	383,100	19.0%	373,200	15.9%
Long Beach	Del Amo	306,500	298,600	-2.6%	331,000	8.0%	352,200	14.9%	350,100	14.2%
Del Amo	I-405	311,100	303,800	-2.3%	342,300	10.0%	356,200	14.5%	358,700	15.3%
I-405	Wardlow	290,000	281,400	-3.0%	281,000	-3.1%	334,500	15.3%	307,000	5.9%
Wardlow	Willow	302,000	293,100	-2.9%	299,400	-0.9%	350,700	16.1%	328,600	8.8%
Willow	Pacific Coast Hwy.	291,400	279,600	-4.0%	279,400	-4.1%	335,800	15.2%	308,100	5.7%
Pacific Coast Hwy.	Anaheim	268,300	254,100	-5.3%	244,200	-9.0%	277,300	3.4%	278,200	3.7%
Anaheim	9th	251,700	237,000	-5.8%	245,500	-2.5%	250,400	-0.5%	200,500	-20.3%
9th	Ocean	166,900	151,300	-9.3%	144,600	-13.4%	154,100	-7.7%	158,300	-5.2%

Source: Cambridge Systematics, Inc. and Kaku Associates, Inc. Electronic Data File, April 2003.

Notes: Average daily traffic volumes are shown for each alternative for the Year 2025 for vehicles using I-710 mainline travel lanes, including general purpose lanes, collector-distributor lanes, high occupancy vehicle lanes, truck bypass lanes, truckway lanes, and autoway lanes.

Percentage difference compares each alternative to the No Build Alternative (Alt. A).

**Table S-3
I-710 Average Daily Heavy Duty Truck Volumes**

Segments on I-710		Alt A Volumes	Alt B Volumes	B - A % Diff.	Alt C Volumes	C - A % Diff.	Alt D Volumes	D - A % Diff.	Alt E Volumes	E - A % Diff.
From	To									
SR-60	I-5	17,400	17,500	0.6%	20,300	16.7%	21,200	21.8%	25,200	44.8%
I-5	Washington	18,800	19,100	1.6%	24,200	28.7%	23,500	25.0%	29,800	58.5%
Washington	Atlantic/Bandini	28,600	28,300	-1.0%	33,300	16.4%	32,500	13.6%	39,900	39.5%
Atlantic/Bandini	Florence	38,400	37,200	-3.1%	42,600	10.9%	41,700	8.6%	48,700	26.8%
Florence	Firestone	39,700	38,400	-3.3%	43,400	9.3%	42,400	6.8%	48,900	23.2%
Firestone	Imperial	39,600	38,300	-3.3%	43,300	9.3%	42,500	7.3%	48,300	22.0%
Imperial	I-105	41,100	39,600	-3.6%	43,900	6.8%	43,500	5.8%	49,700	20.9%
I-105	Rosecrans	38,300	36,800	-3.9%	40,900	6.8%	39,200	2.3%	46,900	22.5%
Rosecrans	Alondra	57,700	55,500	-3.8%	60,200	4.3%	56,700	-1.7%	64,500	11.8%
Alondra	SR-91	57,000	54,900	-3.7%	59,600	4.6%	55,700	-2.3%	64,000	12.3%
SR-91	Artesia	56,800	53,100	-6.5%	60,900	7.2%	59,500	4.8%	61,100	7.6%
Artesia	Long Beach	57,800	54,100	-6.4%	62,100	7.4%	60,700	5.0%	62,600	8.3%
Long Beach	Del Amo	58,000	54,200	-6.6%	61,200	5.5%	59,200	2.1%	62,500	7.8%
Del Amo	I-405	60,300	56,800	-5.8%	66,000	9.5%	62,500	3.6%	65,800	9.1%
I-405	Wardlow	69,000	65,000	-5.8%	54,500	-21.0%	69,800	1.2%	68,500	-0.7%
Wardlow	Willow	71,900	67,700	-5.8%	57,600	-19.9%	73,100	1.7%	71,900	0.0%
Willow	Pacific Coast Hwy.	72,000	67,900	-5.7%	57,700	-19.9%	73,300	1.8%	72,000	0.0%
Pacific Coast Hwy.	Anaheim	68,200	63,400	-7.0%	54,400	-20.2%	65,200	-4.4%	66,300	-2.8%
Anaheim	9th	66,300	61,500	-7.2%	56,100	-15.4%	62,200	-6.2%	62,500	-5.7%
9th	Ocean	59,100	54,800	-7.3%	49,500	-16.2%	53,800	-9.0%	55,700	-5.8%

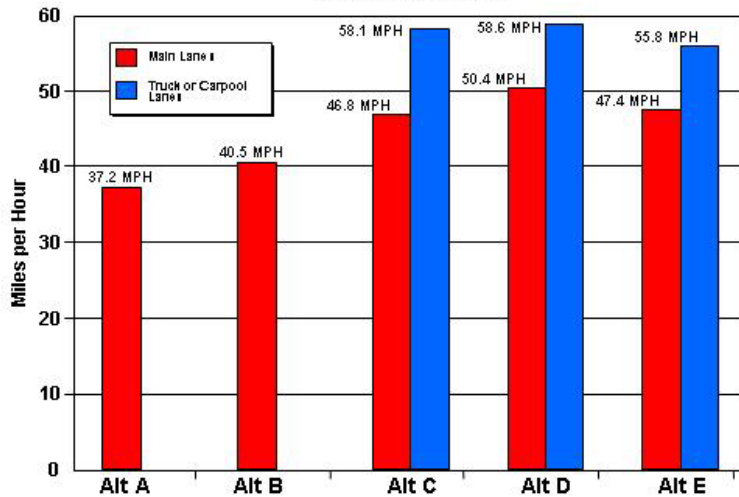
Source: Cambridge Systematics, Inc. and Kaku Associates, Inc., Electronic Data File, April 2003.

Notes: Average daily truck volumes are shown for each alternative for the Year 2025 for trucks using I-710 mainline travel lanes, including general purpose lanes, collector-distributor lanes, truck bypass lanes, and truckway lanes.

Percentage difference compares each alternative to the No Build Alternative (Alt. A).

The travel demand forecasts served as inputs to the traffic operations analysis and transportation performance assessments conducted for the I-710 Study. Several measures were employed to assess the mobility benefits of the various alternatives. These measures included: volume/capacity ratio analysis, average travel speeds, travel time savings, and estimated accident reductions, among others. Figure S-5 shows the traffic volume weighted average speeds for the entire length of the I-710 mainlines for each of the five alternatives in the p.m. peak period for 2025.

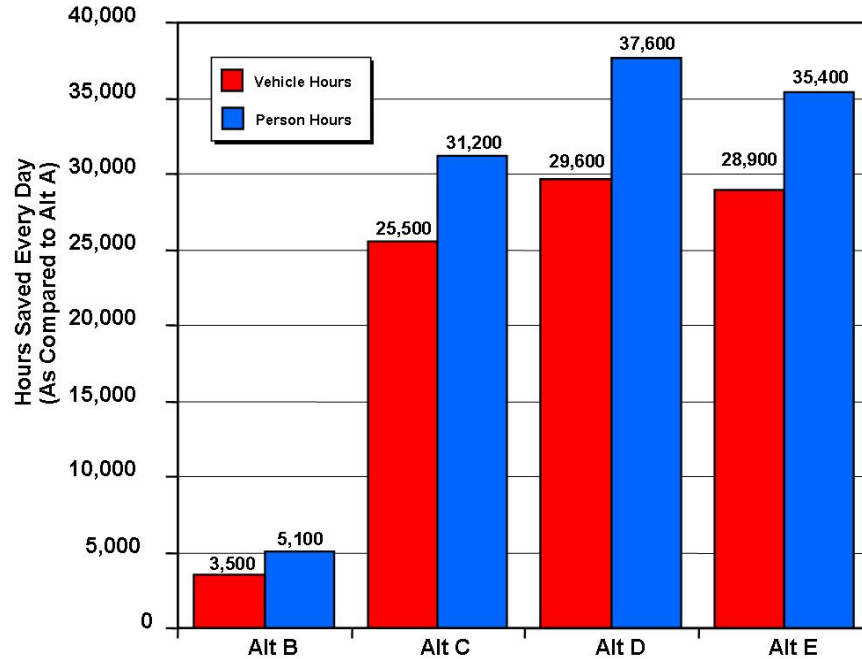
**Figure S-5
I-710 Average Travel Speeds - PM Peak Period**



In Figure S-5, a distinction is made between the general purpose travel lanes and the lanes that would be used either exclusively by carpools or by trucks depending upon the alternative. Alternatives B, C, D and E are all forecast to improve travel speeds on the I-710 as compared to the future no build condition, Alternative A. Mainline general purpose lanes average p.m. peak period speeds are forecast to be the highest with Alternative D, followed by E and C respectively. The proposed HOV and truck lanes in the build alternatives are forecast to all have average speeds above 55 mph, providing time savings to their users. The overall forecast improvement in p.m. peak period average speeds will save time for users of I-710 and contribute to reduced pollutant emissions and fuel consumption compared to the future no build alternative.

Figure S-6 shows how better speeds on I-710 translates to delay reductions for all travelers throughout the I-710 Study Area, including motorists on major street arterials as well as those vehicles using I-710. Vehicle hours of travel measures the total travel time spent by all vehicles on the roadway system during a given time period, such as an average weekday. Person hours of travel measures the total travel time spent by the people riding in each of the vehicles on the roadway system during a given time period. For example, if a car carrying two people (driver and passenger) spent one hour traveling from home to work in the Study Area, it would compute as one vehicle hour of travel and two person hours of travel.

Figure S-6
Delay Reductions (Vehicle Hours, Person Hours Saved)



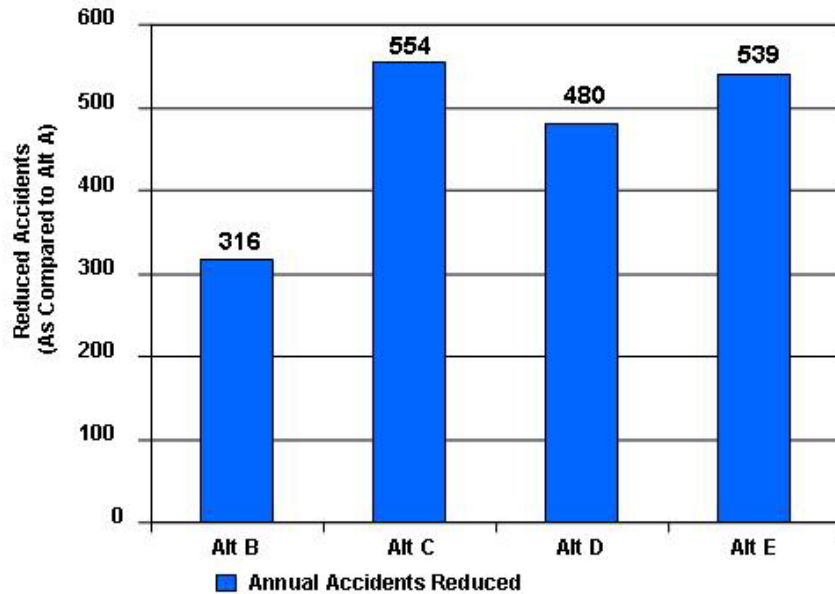
In 2025, Alternatives D and E are forecast to produce the greatest reductions in overall average weekday travel time (measured both in terms of vehicle hours traveled and person hours traveled) in the Study Area as compared to the No Build alternative. This is because these two alternatives add the most capacity to the transportation system in the I-710 Study Area. Both Alternative D and Alternative E are forecast to save travelers over 35,000 hours of travel time per day in the year 2025 as compared to the No Build, Alternative A.

Figure S-7 presents information on the safety benefits of the alternatives compared to Alternative A in terms of estimated accident reductions. In general terms, the greater the amount of predicted congestion (volume/capacity ratio), the worse the accident rate gets. In addition, accidents vary by facility type. The more that traffic uses the arterials compared to freeways, the higher the accident rate. Using travel demand forecasts for each of the alternatives, FHWA's ITS Deployment Analysis System (IDAS) model was used to predict the number of accidents that would occur over a one year period, assuming the Year 2025. Figure S-7 shows the number of accidents that would be *reduced* by Alternatives B, C, D, and E, respectively, compared to the no build condition.

Interpretation of the accident data shown in Figure S-7 indicates that the incident management strategies related to the intelligent transportation improvements in Alternative B are forecasted to provide significant accident reduction benefits. By definition, these incident management strategies are also included in Alternatives C, D and E. On top of that, the build alternatives are forecast to reduce accidents, in part, by shifting traffic from the arterials to the freeways, where accident rates are lower. It is important to note here that FHWA's IDAS model does not account for certain types of safety benefits – specifically the predicted benefits of separating

cars from trucks – since insufficient accident data on exclusive truckways exists that would provide the basis to quantify these estimates.

**Figure S-7
Annual Accident Reductions**

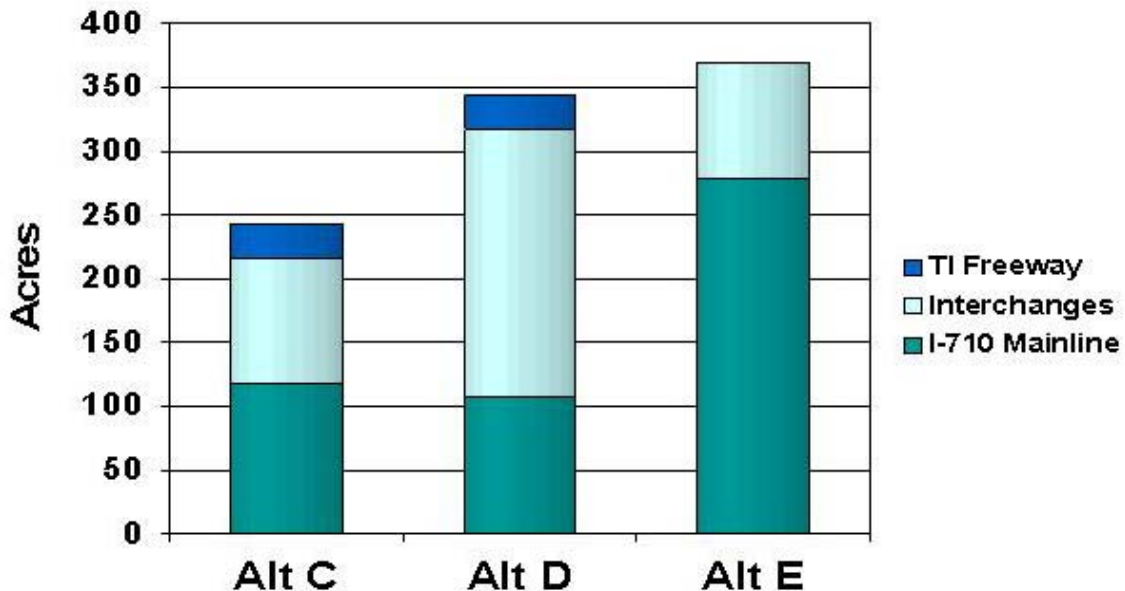


Thus, the potential for accident reductions attributable to Alternative E is likely under-reported in Figure S-7. However, it is logical to assume that separating trucks and autos would provide significant safety benefits for traveling motorists that is not necessarily reflected in Figure S-7.

Construction of the build alternatives (Alternatives C, D, and E) all involve physical transportation elements that would result in expansion of the I-710 freeway and, in some cases, new transportation facilities (Terminal Island Freeway Extension, truck bypass lanes, etc.). As part of the I-710 Study, a right-of-way impact assessment was conducted for the build alternatives to provide comparative information on the alternatives so that the general public, the advisory committees, and the Oversight Policy Committee could learn about the right-of-way acquisition implications of each of the alternatives. The right-of-way analysis also presented information on expected impacts associated with specific transportation elements within the alternatives to better inform decision-making on what transportation improvements might be most desirable to recommend for further study.

Right-of-way impacts are included for those improvements that would entail acquisitions beyond what is already planned and committed for the I-710 Corridor. Since Alternative A, the No Build Alternative, represents the “no action” option, this alternative would not result in any acquisitions beyond what is already planned for implementation by 2025. Alternative B does not include any elements on I-710 that require right-of-way acquisition, so this alternative is not included in the following analysis. Therefore, estimates for the build alternatives in Figure S-8 reflect the right-of-way acquisitions of these three alternatives over and above the No Build Alternative.

Figure S-8
Right-of-Way Impact Analysis

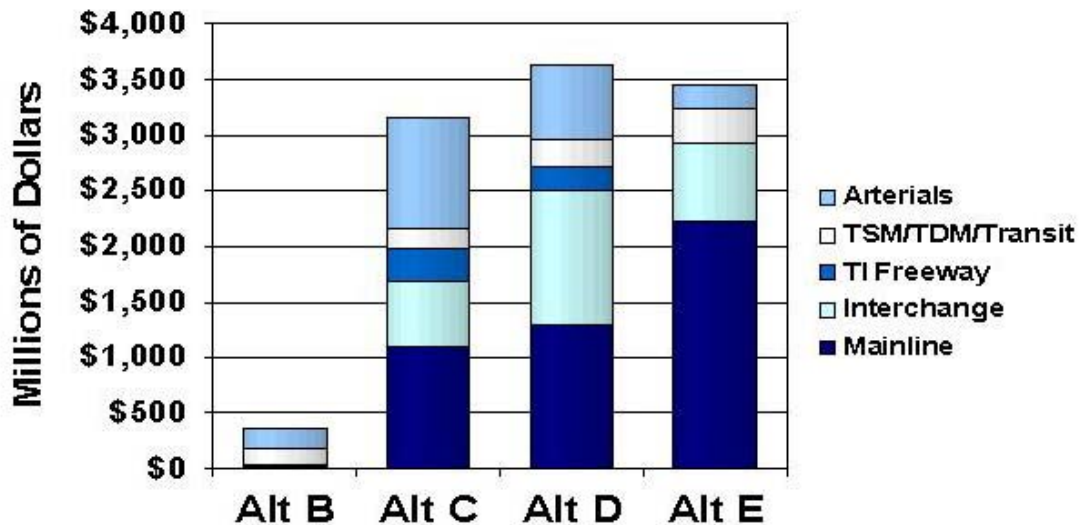


As indicated in Figure S-8, Alternatives C and D include improvements associated with the Terminal Island Freeway, which is why these two alternatives show right-of-way impacts attributable to this component. Alternative D would result in more right-of-way impacts in the vicinity of the interchanges along I-710 due to the amount of mainline freeway width that would affect the existing configuration of these interchanges and also due to the types of geometric changes proposed at the SR-91/I-710 freeway-to-freeway interchange for Alternative D. Alternative E appears to require the most right-of-way in total as this alternative involves the construction of a new truck facility along the entire length of the I-710 Corridor. However, a good portion of Alternative E would utilize Southern California Edison and Los Angeles Department of Water & Power property adjacent to I-710.

Similar to the right-of-way impact analysis, costs were also assessed to establish the relative differences among the alternatives in terms of absolute cost and the cost of various parts of the alternatives to support decision making for the I-710 Study. The cost estimates assume that all the transportation improvements associated with each alternative have been constructed. Costs are shown in 2003 dollars.

Figure S-9 presents the capital cost estimates for Alternatives B, C, D, and E. For Alternative B, the TSM/TDM Alternative, the component categories included I-710 Mainline Improvements, Interchanges and Arterials, Goods Movement, Transit, and Intelligent Transportation Systems (ITS). For Alternatives C, D and E, the component categories included I-710 Mainline Improvements, Interchanges, the Terminal Island Freeway, TSM/TDM/Transit, and Arterials. Right-of-way costs for the build alternatives were also estimated and included in the totals. Total costs for Alternative B were estimated at approximately \$355 million, \$3.2 billion for Alternative C, \$3.6 billion for Alternative D, and \$3.5 billion for Alternative E.

Figure S-9
Capital Cost Estimates (Year 2003 dollars)



The Alternatives Evaluation phase of the public involvement process for the I-710 Study involved conducting outreach to stakeholders and gathering feedback regarding the final set of five alternatives. In the outreach process, briefings were held with elected officials at all levels of government along the corridor and presentations were given to numerous community, business, and environmental groups regarding the estimated benefits, costs, and impacts of the five alternatives. Once the potential impacts of the alternatives, including potential right of way (ROW) acquisition requirements became known, the previously approved outreach strategy was revised to go beyond what is typically undertaken for a Major Corridor Study process to ensure that all stakeholders would have an opportunity to review project information, including potential ROW impacts in their area, as well as additional opportunities for communities to provide feedback on the various transportation components included in the five alternatives.

The key issues and themes identified throughout this phase of the public involvement process were: concerns about the large amount of proposed property acquisitions and relocation related to the proposed build alternatives, environmental and health concerns, environmental justice, and perceived shortcomings in the public outreach for the I-710 Study.

Property Acquisition/Relocation—The majority of residents, business leaders, and elected officials along the Corridor expressed strong dissatisfaction with the amount of residential and commercial property that would need to be acquired for the implementation of several of the alternatives. Some of the property that would be lost would include homes, businesses, parks, schools, and churches. There was also a pervasive feeling among the public that property owners would not receive adequate compensation for their properties in an acquisition process. There were also significant concerns regarding the impacts to their communities of the magnitude of the proposed property acquisitions.

Environmental/Health Concerns—Nearly all community residents were concerned that construction of any of the alternatives and the additional truck traffic that is expected on

I-710 between now and the future will lead to increases in dust, smog, noise, and diesel emissions in the communities adjacent to the freeway. Increased cancer risks from diesel toxins and increased incidence of respiratory diseases were also a major concern of stakeholders throughout the I-710 Study Area.

Environmental Justice—Most of the residents living along the I-710 freeway are minorities, and as such, feel that their communities will be unfairly impacted by any of the build alternatives (Alternatives C, D, and E). They would prefer to see further studies conducted to ensure that all potential negative impacts to their communities can either be avoided or sufficiently mitigated.

Public Outreach—Some of the stakeholders did not like the open house format used to disseminate information to the public regarding the final set of five alternatives, and would have preferred that formal meetings be held instead. The open house format was intended to provide members of the public with the opportunity to view project maps and displays and to speak with project team members one-on-one. In response to these concerns, formal meetings were later held in each of the potentially impacted cities, at which point, stakeholders were able to receive a presentation regarding the I-710 Study, as well as formally interact with study staff in a group setting.

As a consequence of the high level of public and community concern voiced about the Final Set of Alternatives, the MTA Board and the I-710 Oversight Policy Committee (OPC) directed agency staff to undertake a revised community participation process. The goal of this revised process was to develop a community consensus for a Hybrid Strategy for the I-710 Major Corridor Study.

S.7 Development of a Hybrid Strategy

In response to the community concerns and opposition to the build alternatives (C, D, and E) of the final set of alternatives, the MTA Board passed a motion on May 22, 2003 to revise the direction of the I-710 Study. Through this motion, the MTA Board directed staff to continue to work with the affected communities and other stakeholders to develop a Hybrid Strategy that would be acceptable to them, while meeting the purpose and need for transportation improvements in the I-710 Study Area. This Hybrid Strategy would have both operational and policy elements, as well as selected physical infrastructure improvements. The MTA Board also directed staff to "...form advisory groups in key areas along the Corridor where current design alternatives require the acquisition of large amounts of private property."

At its May 28, 2003 meeting, the Oversight Policy Committee, also cognizant of community concerns regarding the Final Set of Alternatives, adopted a set of Guiding Principles [see Section S.1] that further elaborated on the MTA motion and provided guidance to the development of a Hybrid Strategy for the I-710 Corridor. At this same meeting, the OPC created two tiers of Community Advisory Committees (CACs) to advise the OPC on the development of the Hybrid Strategy.

Tier 1 – Community Level Committees

Tier 1 Community Advisory Committees (CACs) were formed for each of the cities that border the I-710 Freeway. These communities would have potential right-of-way impacts created by

the build alternatives (C, D, and E) of the Final Set of Alternatives. In total, eight communities were involved at the Tier 1 level:

- Long Beach
- Carson
- Compton
- South Gate
- Lynwood
- Bell Gardens
- Commerce
- East Los Angeles

These CACs primarily focused on key issues that affected their communities including: health, environment and quality of life issues, safety and mobility issues, as well as economic development and land use issues.

To assist with the formation and coordination of these Tier 1 CACs, MTA and the Gateway Cities COG retained a consultant, Moore, Iacofano, Goltsman, Inc. (MIG), to facilitate meetings of these committees. The Gateway Cities COG also retained an engineer (Jerry Wood, Consultant) to assist the Tier 1 CACs in the development of their recommendations for improvements to the I-710 freeway and the transportation system in the surrounding study area. MIG facilitated the formation and meetings of the Tier 1 CACs representing the cities of Carson, Compton, Lynwood, Bell Gardens, and Commerce, as well as the community of East Los Angeles.

The Gateway Cities COG engineer worked with these Tier 1 CACs as well as the South Gate Tier I CAC to help develop a Hybrid Strategy. Each of the Tier 1 CACs met numerous times and developed a list of issues, concerns, and recommendations. After reviewing these lists, preliminary design concepts for respective segments of I-710 were developed and presented to each Tier 1 CAC for review and comment. Through this feedback, adjustments and refinements to the hybrid design concept were made.

Rather than form a Tier 1 CAC, the City of Long Beach formed an I-710 Oversight Committee comprised of the three city council members whose districts border the I-710 freeway. The City of Long Beach also retained consultants for facilitation (DSO) and engineering (MMA) to support its separate community outreach process, leading to the development and adoption by the Long Beach City Council of their portion of the Hybrid Strategy.

Tier 2 – Corridor Level Committee

The Tier 2 Community Advisory Committee (CAC) was formed to provide community representation via a broad based corridor-wide body consistent with the OPC action, which stated, “The communities are the 14 corridor cities and two unincorporated areas, with the understanding that the City of Long Beach may identify no more than four impacted communities based on the length (8 miles) of the freeway frontage within that City.” As a result, the initial membership consisted of:

- The Chair of each Tier 1 CAC
- For each community that does not have a Tier 1 CAC, a member appointed by the City Council or County Supervisor
- Four members representing the City of Long Beach
- 15 members appointed by the OPC to provide representation from the environmental community, business, labor, institutions, and academia
- The Chair of the I-710 Technical Advisory Committee

In order to empower the Tier 2 CAC to engage additional perspectives or interests that it deems important, the OPC delegated to the Tier 2 CAC the authority to appoint, by two-thirds vote, up to ten additional members. The Tier 2 CAC voted to add one additional member representing environmental justice.

Employing Moore, Iacofano, Goltsman, Inc. as a resource, the Tier 2 CAC structured its work based on key issue areas that were identified by the Tier 1 Community Advisory Committees. These issue areas included:

- Health
- Jobs and Economic Development
- Safety
- Noise
- Congestion and Mobility
- Community Enhancements
- Design Concepts
- Environmental Justice
- Organization and Process

The Tier 1 Community Level Committees provided direct input to the Tier 2 Corridor Level Committee, which in turn was charged with providing input directly to the OPC. The Corridor Level Tier 2 Committee was also charged with providing feedback to the Community Level Tier 1 Committees

Draft Hybrid Design Concept

The community participation phase of the development of the Hybrid Strategy generated a significant number of comments on a number of physical features that were viewed as providing future improvement on I-710. These physical features were combined and coordinated to develop the overall I-710 Draft Hybrid Design Concept.

The purpose of the I-710 Draft Hybrid Design Concept is to provide infrastructure improvements to I-710 focused on improving safety; increasing capacity for growing heavy duty truck demand; increasing capacity for high general-purpose traffic demand; improving reliability of travel times; and separating autos and trucks to the greatest extent possible while limiting direct and indirect right-of-way impacts.

In general terms, the Draft Hybrid Design Concept is comprised of 10 general-purpose traffic lanes, 4 exclusive truck lanes, and interchange improvements from Ocean Boulevard in Long Beach to the intermodal railroad yards in Commerce/Vernon. It is important to note that proposed improvements to the segment of I-710 between Washington Boulevard and SR-60

are still under study, due to the design complexities and potential right-of-way impacts in the vicinity of the I-710/I-5 interchange.

The I-710 Draft Hybrid Design Concept is made up of the following components:

Exclusive Truck Facility on I-710

- 4 lanes (2 in each direction) mostly at-grade between Ocean Boulevard and the intermodal rail-yards in Vernon/Commerce, with the truck lanes being elevated at the following locations: near the SR-91 interchange; north of I-105 near Imperial Highway; and north of Slauson Avenue.
- dedicated ingress/egress points for trucks at selected locations: north of Ocean Boulevard (ingress northbound, egress southbound); north of I-405 (ingress northbound, egress southbound); SR-91 interchange (NB I-710 to EB SR-91, WB SR-91 to SB I-710, EB SR-91 to NB I-710, and SB I-710 to WB SR-91); south of Firestone Boulevard (ingress southbound, egress northbound); and north of Atlantic/Bandini Boulevard (ingress southbound, egress northbound)
- horizontal alignment is as follows:
 - split on both sides of I-710 from Ocean Boulevard to north of Pacific Coast Highway
 - on the east side of I-710 from north of Pacific Coast Highway to Imperial Highway, largely (though not entirely) within the existing State right-of-way or the Southern California Edison right-of-way
 - on the west side of I-710 from Imperial Highway to Gage Avenue
 - on the east side of I-710 from Gage Avenue to Bandini Boulevard
 - split on both sides of I-710 from Bandini Boulevard to south of Washington Boulevard

General Purpose Traffic Improvements on I-710

- one additional general purpose lane in each direction from Ocean Boulevard to the Shoemaker Bridge
- two additional general purpose lanes in each direction from Shoemaker Bridge to I-405
- one additional general purpose lane in each direction from I-405 to Atlantic Boulevard
- shifting the freeway centerline at various locations between Shoemaker Bridge and Atlantic Boulevard to attempt to minimize right-of-way impacts

Interchange Improvements – Truck-Related

- add a truck interchange on the exclusive truck facility providing a northbound exit ramp and a southbound entrance ramp viaduct for trucks only along Sheila Street south of Washington Boulevard providing direct access to/from the UP and BNSF rail yards; also provide a southbound exit ramp and a northbound entrance ramp using the viaduct from the rail yards

Interchange Improvements – General Purpose Traffic

- eliminate some of the design deficiencies at I-405/I-710 and SR-91/I-710 interchanges
- reconfigure approximately 13 local access interchanges between and including Ocean Boulevard at Shoreline Drive in Long Beach and Atlantic Boulevard/Bandini Boulevard in Vernon/Bell
- add one new interchange (Slauson Avenue)
- eliminate freeway access at 9 locations:
 - entrance from 7th Street to SB Shoreline Drive (1 ramp)

- connection from Shoemaker Bridge to Pico Avenue (1 ramp)
- connection from Pico Avenue to Shoemaker Bridge (1 ramp)
- SB exit to and NB entrance from Wardlow Road at I-710 (2 ramps)
- NB and SB I-710 to Santa Fe Avenue (1 ramp)
- exit from WB SR-91 to Alondra Boulevard (1 ramp)
- exit from EB SR-91 to Cherry Avenue (1 ramp)
- WB exit to and EB entrance from Atlantic Boulevard at SR-91 (2 ramps)
- all ramps at Washington Boulevard (4 ramps)

Caltrans standards were considered during the development of the Draft Hybrid Design Concept. However, the standards could not be met at all locations and Caltrans/FHWA approval of design exceptions will be needed to implement the geometric design as currently proposed. If the design exceptions are not acceptable to Caltrans/FHWA, then the geometric designs at certain locations will have to be restudied and the design modified. Any changes will be reviewed with the local community before being finalized.

Note that the community engagement process to reach consensus on the I-710 Draft Hybrid Design Concept north of Atlantic/Bandini is still underway with Commerce and East Los Angeles and therefore proposed improvements to this segment are yet to be defined.

Right-of-Way Impact Analysis

As right-of-way impacts are of great concern to the public, MTA Board, and OPC, right-of-way impacts were assessed for the I-710 Draft Hybrid Design Concept. The precision of this right-of-way impact analysis is governed by the general level of engineering design of the Draft Hybrid Design Concept, which is highly conceptual at this stage of project planning.

Based on aerial photography and topographic information, the approximate number of structures that would be impacted was assessed, as well as the total acreage that would be impacted by the Draft Hybrid Design Concept. Each potentially impacted structure was assigned to a specific land use category to provide an understanding of what kind of structures were being impacted. The land use categories are residential, commercial/industrial, railroad, power/utility, sensitive, or undeveloped land uses. Sensitive land use refers to particularly sensitive natural and community resources, such as parks, green space, schools, hospitals, and cemeteries. The estimated number of impacted structures in each affected city is shown in Table S-4.

Right-of-way impacts were also assessed on an acreage basis, again utilizing aerial photographs, topographic mapping, and GIS database mapping. Table S-5 displays the impacted acreage stratified by city and by land use type. The same land use categories were used as in the structure impact analysis. The City of Long Beach, by virtue of the fact that the City stretches from the southerly project limit at Ocean Boulevard northward to near the SR-91/I-710 interchange, would have the greatest acreage impact of any jurisdiction, 91.2 acres out of a total of 241.4 acres. However, almost half of the impacted acreage in Long Beach is in the Power/Utility land use category. This is an intentional by-product of the design concept, which attempts to maximize use of existing utility owned land adjacent to the I-710 for improvements and hence minimize impacts to residential and commercial properties.

Table S-4
Estimated Number of Structures Removed by Land Use Type by City
Draft Hybrid Design Concept

City/Land Use Type	Long Beach	County - Rancho Dominguez	Carson	Compton	Paramount	Lynwood	South Gate	Bell	Bell Gardens	Commerce	Vernon	Total
Residential Structures	3									2		5
Commercial/Industrial Structures	1		3	7			14	15		18	3	61
Railroad Structures												0
Power/Utility Structures	42							9				51
Sensitive Land Use Structures				1								1
Undeveloped Land Structures												0
Total Structures by City	46		3	8			14	24		20	3	118

Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc., April 2004.

Notes: Does not include right-of-way impacts between I-710/Washington Boulevard and I-710/SR-60, including I-5/I-710 interchange improvements.
 Sensitive Land Use refers to particularly sensitive natural and community resources (e.g., parks, green space, schools, hospitals, and cemeteries).

**Table S-5
Acreage Impacts by Land Use Type by City
Draft Hybrid Design Concept**

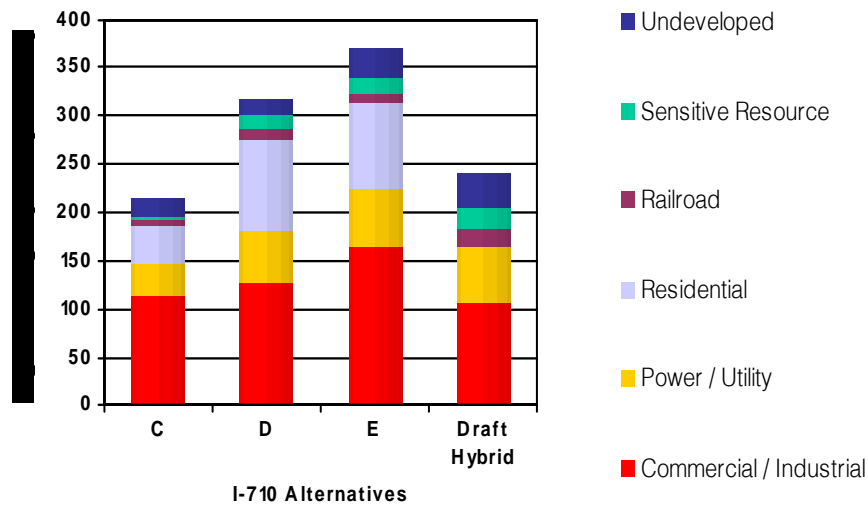
City/Land Use Type	Long Beach	County - Rancho Dominguez	Carson	Compton	Paramount	Lynwood	South Gate	Bell	Bell Gardens	Commerce	Vernon	Total
Residential Acreage	1.0									0.5		1.5
Commercial/Industrial Acreage	5.5		2.9	18.1	0.5		19.0	20.6		29.0	9.9	105.5
Railroad Acreage										17.3		17.3
Power/Utility Acreage	45.5						0.4	11.9				57.8
Sensitive Land Use Acreage	12.6			3.0	1.6			4.3	0.3			21.8
Undeveloped Acreage	26.6					3.1	6.2	1.6				37.5
Total Acreage by City	91.2		2.9	21.1	2.1	3.1	25.6	38.4	0.3	46.8	9.9	241.4

Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc., April 2004.

Notes: Does not include right-of-way impacts between I-710/Washington Boulevard and I-710/SR-60, including I-5/I-710 interchange improvements.
Sensitive Land Use refers to particularly sensitive natural and community resources (e.g., parks, green space, schools, hospitals, and cemeteries).

Figure S-10 displays the potential right-of-way impacts of Alternatives C, D, and E along with the same data for the Draft Hybrid Design Concept. Only the right-of-way impacts of the I-710 mainline concepts are shown. Impacts of proposed improvements north of Washington Boulevard are included in Alternatives C, D, and E, while the Draft Hybrid Design Concept improvements are currently defined only as far north as the I-710/Washington Boulevard interchange. The right-of-way impacts for the proposed truck inspection station have been extracted from Alternative C to normalize its comparison with the Draft Hybrid Design Concept. The right-of-way impacts for the Draft Hybrid Design Concept do not include those from a truck inspection station, nor do they account for impacts for any improvements north of Washington Boulevard, as these are yet to be defined.

**Figure S-10
Acreage Impacts by Land Use Type**



Source: Parsons Brinckerhoff (March 2003) for Alternatives C, D, and E; Jerry Wood, consultant, in association with MMA, Inc. and Nolan Consulting, Inc. (April 2004) for the Draft Hybrid Design Concept.

Notes: Alternative C impacts exclude proposed truck inspection facility. Draft Hybrid Design Concept impacts exclude truck inspection facility and improvements north of I-710/Washington Boulevard.

Cost Analysis

The cost of the Draft Hybrid Design Concept was estimated using the same methodology that was used to estimate the costs of the Final Set of Alternatives. In the year since the previous cost estimates were prepared, there has been a dramatic change in certain elements of the local economy. Land values have risen significantly, as have the unit costs of certain construction materials, specifically concrete and steel. As such, the estimate for the Draft Hybrid Design Concept is in 2004 dollars as compared to the estimates for Alternatives C, D and E, which were developed in 2003 dollars and were presented in Section S.5. To provide a clearer comparison among the alternatives, the estimates for Alternatives C, D and E have been escalated to 2004 dollars within this section only. Previous references to the Alternatives C, D, and E costs were relative to their estimates in 2003 dollars.

The estimated cost for the Draft Hybrid Design Concept is \$4.5 billion for mainline and interchange improvements with \$3.9 billion of the total for infrastructure construction and \$0.6 billion for right-of-way acquisition. This design concept does not currently include any improvements north of Washington Boulevard in the City of Commerce, nor does it currently include:

- a truck inspection station,
- any arterial improvements, or
- any TSM/TDM/Transit elements.

The cost estimates for Alternatives C, D, and E have been escalated to 2004 dollars and modified to exclude elements that are not included in the Draft Hybrid Design Concept for purposes of comparison. Table S-6 displays the cost estimates for the various alternatives.

**Table S-6
Comparison of Capital Cost Estimates
(2004 dollars in millions)**

	Alternative C	Alternative D	Alternative E	Draft Hybrid Design Concept
Construction	\$1,787.5	\$2,709.3	\$2,992.3	\$3,902.8
Right-of-Way	\$627.1	\$692.9	\$900.7	\$584.8
Total	\$2,414.6	\$3,402.2	\$3,893.0	\$4,487.6

The Draft Hybrid Design Concept has the highest estimated construction cost, but the lowest right-of-way cost. One of the goals of the Draft Hybrid Design Concept was to reduce residential right-of-way impacts, which would commensurately reduce right-of-way acquisition costs. The measures taken to reduce right-of-way impacts included constructing more of the alignment on structure or building other features that resulted in higher construction costs – the Draft Hybrid Design Concept has a capital cost that is about 595 million dollars higher than Alternative E, the alternative with the next highest construction cost.

S.8 Tier 2 Community Advisory Committee Recommendations

The Tier 2 Community Advisory Committee first convened on February 3, 2004 and met a dozen times over a period of seven months between February 2004 and August 2004 in order to develop their recommendations for the I-710 Study.

The charge of the Tier 2 Committee was to review key local issues and opportunities identified by the Tier 1 Community Advisory Committees, consider issues of local and regional importance from a corridor-wide perspective, and provide recommendations to the Oversight Policy Committee on a comprehensive transportation solution for the I-710 Corridor.

The Tier 2 Committee covered a number of issue areas, including: health, jobs and economic development, safety, noise, congestion and mobility, community enhancements, design concepts, environmental justice, and organization and process. Consequently, the Tier 2 Committee recommendations are wide ranging in scope and encompass not only transportation improvements, but also policy proposals, strategies to improve the current environment, specific items for further study, and conditions for future implementation. The

Tier 2 Committee work effort also incorporates the suggestions, ideas, and input from the Tier 1 Committees that represent the most directly impacted communities along I-710.

Several of the Tier 2 meetings were devoted to the preparation of a report, documenting the Committee’s findings and recommendations. Great care was taken to develop precise wording to convey the convictions and intent of the overall group.

Three overarching principles defined the priorities of the Tier 2 Committee and reflected the consensus that emerged during their deliberations:

1. This is a corridor – considerations go beyond the freeway and infrastructure.
2. Health is the overriding consideration.
3. Every action should be viewed as an opportunity for repair and improvement of the current situation.

Table S-7 lists the summary recommendations from the Tier 2 Committee, which are excerpted directly from the executive summary of the Tier 2 Community Advisory Committee’s full report entitled *Major Opportunity/Strategy Recommendations and Conditions*, prepared with the assistance of Moore, Iacofano, Goltsman, Inc. (MIG), on August 2004. The full report from the Tier 2 Committee, including their conditions, is provided in the Appendices of the *I-710 Major Corridor Study Final Report* in its entirety.

**Table S-7
Tier 2 CAC Summary Recommendations**

Topic Area	Tier 2 CAC Recommended Strategies
Health	<ol style="list-style-type: none"> 1. Develop an action plan to improve air quality in the corridor. 2. Implement a corridor level action plan to improve community air quality. 3. Implement local alternative fuels/electrification and/or hydrogen policies and programs to reduce diesel emissions. 4. Pursue opportunities for incremental improvements. 5. Implement port-specific air quality improvement strategies.
Jobs and Economic Development	<ol style="list-style-type: none"> 1. Position the I-710 corridor and Gateway communities for a post-oil economy. 2. Create a community environment that attracts and retains businesses and residents who can support a new gateway cities economy. 3. Enable the I-710 corridor and Gateway communities to become more proactive in today’s economy. 4. Institute corridor-wide programs and partnerships to equip area residents with the skills needed to move into higher-paying jobs in the new economy. 5. While promoting the importance of all business, specifically recognize small business as an economic driver and foster its growth within the communities. 6. Consistent with current law, advocate policies at the national, state, regional and local levels to require businesses that benefit from any potential I-710 improvements to pay living wages.

Table S-7 Continued
Tier 2 CAC Summary Recommendations

Topic Area	Tier 2 CAC Recommended Strategies
Safety	<ol style="list-style-type: none"> 1. Continue support and implementation of safety programs. 2. Increase enforcement of traffic and vehicle safety laws and regulations. 3. Increase public and truck education on safety and neighborhood issues. 4. Implement infrastructure improvements. 5. Separate trucks and cars.
Noise	<ol style="list-style-type: none"> 1. Provide appropriate and effective sound walls to reduce noise impacts to neighborhoods and schools adjacent to the freeway. 2. Implement noise mitigation programs. 3. Conduct a study to assess how truck traffic from extended gate hours for trucks and 24/7 port operations will impact communities, and assess what mitigations may be appropriate.
Congestion and Mobility	<ol style="list-style-type: none"> 1. Maximize use of existing infrastructure. 2. Implement expanded public transit solutions. 3. Provide a comprehensive bicycle and pedestrian network with connectivity throughout the area. 4. Develop a consistently implemented plan with cities and residents to mitigate construction impacts and maintain access. 5. Support cooperative planning among all ports along the West Coast.
Design Concepts	<ol style="list-style-type: none"> 1. Endorse the specific Tier 1 CAC recommendations included in the Appendix of this Tier 2 Report. 2. Support capacity enhancement improvements for the I-710 Freeway upon meeting the conditions recommended in this Tier 2 Report, including those recommended by both Tier 1 and Tier 2 CACs. 3. If economic and environmental studies show that expansion of the freeway is necessary, develop new transportation infrastructure for I-710 that separates cars from trucks. 4. If economic and environmental studies show that expansion of the freeway is necessary, locate the new truck lanes in such a way as to minimize community impacts. 5. Redesign unsafe and congested interchanges on I-710. 6. Consider future needs and requirements in implementing any new I-710 design. 7. If economic and environmental studies show that expansion of the freeway is necessary, upgrade of the existing freeway must satisfy criteria detailed in this Tier 2 Report.

Table S-7 Continued
Tier 2 CAC Summary Recommendations

Topic Area	Tier 2 CAC Recommended Strategies
Community Enhancements	<ol style="list-style-type: none"> 1. Preserve existing parks, open space, and natural areas. 2. Develop and implement community enhancement projects. 3. Provide programs to minimize construction impacts. 4. Develop and implement a plan for arterial streetscapes. 5. Mitigate light and glare in surrounding communities.
Environmental Justice	<ol style="list-style-type: none"> 1. Include the corridor communities in the planning process, in a meaningful way, including provision of appropriate language translation. 2. Ensure that impacts do not disproportionately fall on low-income people or people of color. 3. Ensure that the benefits from the projects flow to the corridor communities.
Organization and Process	<ol style="list-style-type: none"> 1. This Tier 2 Report will be formally “agendized” and presented to the OPC when it convenes in September 2004 for consideration and decision. All Tier 2 members will be invited to the OPC meeting, and the presentation of the Tier 2 report will be delivered by a representative group of Tier 2 spokespersons. 2. Following the OPC’s meeting, there will be a follow-up meeting(s) of the Tier 2 Committee to discuss actions taken by the OPC. 3. Prior to the beginning of any formal EIR for the I-710 Major Corridor Study, Metro (MTA) and the Gateway Cities COG will work with the communities, appropriate agencies, organizations and community groups in developing a collaborative process for community participation in the environmental review process. This process will continue to work collaboratively throughout the EIR process.

S.9 Technical Advisory Committee Recommendations

The role of the Technical Advisory Committee was to provide technical oversight of study methods, assumptions, and findings throughout the course of the I-710 Major Corridor Study and to make recommendations to the Oversight Policy Committee prior to key decision points. Between March and May, 2003, the TAC met several times to hear and review technical reports from the study team on the evaluation results of the Final Set of Alternatives – Alternatives A, B, C, D, and E. The TAC members also attended numerous public and community meetings that were held within their respective jurisdictions to hear public concerns on the five alternatives. Through this process, the TAC immersed itself in the details of the elements that made up the various alternatives.

On May 28, 2003, the Oversight Policy Committee directed the TAC to start with Alternative B and create a “hybrid” alternative recommendation that combines appropriate elements from all five alternatives. The OPC further directed that these elements must be acceptable to each affected city with the purpose of minimizing right-of-way acquisitions and the objective of

preserving existing housing stock, yet work together as an integrated strategy consistent with adopted guiding principles. The following month, June 2003, the TAC formally adopted the OPC's guiding principles to guide the next phase of their effort in developing a technical recommendation for a Hybrid Strategy. [The Guiding Principles are listed in Section S.1 of this report.]

For a period of several months, individual TAC members met with their communities and with the Gateway Cities COG's engineer to develop a community-based design that incorporated the most appropriate elements for a Hybrid Design Concept for I-710. This community-based design process looked at exceptions to federal and state highway design standards as well as other opportunities to avoid residential property takes. TAC members from potentially impacted cities actively participated in their respective Tier 1 community advisory committees to help identify and resolve technical issues for each of their cities. The TAC Chair served as an active member of the Corridor-wide (Tier 2) Community Advisory Committee. In addition, several TAC members routinely attended the Tier 2 CAC meetings either to observe or to serve as a technical resource, which helped provide both continuity and interface among these advisory bodies to the I-710 Study.

The TAC reconvened, as a whole, beginning in February 2004 to hear status reports on the development of a community-based design concept for the Hybrid Strategy and to receive updates on the activities of the Tier 1 and Tier 2 Community Advisory Committees. During March and April of 2004, the TAC reviewed conceptual plans of the Hybrid Design Concept, representing the work of the Gateway Cities COG engineering team and the Tier 1 community advisory committees.

In early September 2004, the TAC met again to receive design review comments from Caltrans/FHWA and to receive the Tier 2 CAC Report, *Major Opportunity/Strategy Recommendations and Conditions*. At this meeting, the TAC also formulated their recommendations for a Hybrid Strategy for the I-710 Study Area for consideration by the Oversight Policy Committee. Through their recommendation, the TAC sought to bring the greatest transportation benefit to the overall I-710 Corridor in terms of public health, safety and mobility, while adhering to the Guiding Principles.

The TAC made no further changes to the draft Hybrid Design Concept (presented in Section S.6 of this report) with the understanding that the segment of the I-710 Corridor between the BNSF/UP railroad yards in Vernon/Commerce and SR-60 is still under study and that findings from this focused study effort, including any new freeway-to-freeway ramp connections between I-710 and I-5, will need to be integrated with the overall I-710 Hybrid Design Concept prior to initiating environmental studies on I-710. The TAC further recognizes that additional design options will be explored and refinements will necessarily occur to the Hybrid Design Concept as it moves forward into project development (e.g., environmental studies and preliminary engineering). Examples of these design issues include items such as the specific location of truck lane ingress/egress ramps; evaluation of traffic impacts of proposed ramp closures; proposed local interchange configurations; and weave distances between ramps that connect to I-710. Some of these design issues were identified during the course of the I-710 Study and are called out in Section S.10 of this report (Issues for Further Consideration). Yet others will be identified through the more detailed environmental and engineering studies that typically occur in future phases of project development.

Table S-8 summarizes the recommendations for a Hybrid Strategy that were developed by the TAC on September 9, 2004.

**Table S-8
Summary TAC Recommendations - Hybrid Strategy**

Component	Descriptive Elements
Hybrid Design Concept ¹ (Ocean Blvd. to the Intermodal Railroad Yards ²)	<ul style="list-style-type: none"> ➤ 10 general purpose traffic lanes on I-710 ➤ 4 exclusive truck lanes along I-710, between Ocean Boulevard and the intermodal railroad yards in Vernon / Commerce, including dedicated ingress/egress points for trucks at selected locations ➤ exclusive truck ramps from the truck lanes to the intermodal railroad yards in Vernon / Commerce ➤ new local interchange at Slauson on I-710 ➤ interchange modifications at 15 local interchanges and 2 freeway-to-freeway interchanges on I-710
Alternative A – No Build Improvements	<ul style="list-style-type: none"> ➤ Future improvements to the existing transportation system that are already planned and committed and are, therefore, expected to be in place by 2025. Examples of these projects include: replacement of all of the pavement and construction of a new concrete, median divider on I-710 between Ocean Boulevard and I-10; added bus service throughout the I-710 Study Area; and improvements to truck-impacted intersections, among other future transportation projects.
Alternative B – TSM/TDM Improvements	<ul style="list-style-type: none"> ➤ Transportation strategies to better manage how the existing freeways, roadways, and the transit systems operate in the I-710 Study Area. Examples include: added bus service for local communities; the completion of the ramp metering system on I-710, advanced technologies to manage traffic and to inform motorists about alternate routes to avoid traffic congestion; and programs to reduce truck diesel emissions and encourage a shift of truck traffic into the late evening or early morning hours. (See Section S.4 of this report, Alternative B, for a complete list.)
Truck Inspection Facility	<ul style="list-style-type: none"> ➤ Precise configuration and location of the truck inspection facility within the I-710 Study Area to be determined through further study.
Arterial Roadway Improvements	<ul style="list-style-type: none"> ➤ Operational and/or capacity improvements to selected arterial roadways within the I-710 Study Area. The scope and extent of the proposed improvements as well as those arterials to be included in this component of the Hybrid Strategy to be determined through further study.

Notes: ¹Detailed information on the Hybrid Design Concept is provided in I-710 Major Corridor Study "Hybrid" Alternative (Locally Preferred Strategy) Technical Report, Gateway Cities COG, April 2004.

²The portion of the I-710 Corridor between the BNSF /UP intermodal railroad yards in Vernon / Commerce and SR-60 is currently under study. Results from this focused study effort will be integrated with the Hybrid Design Concept prior to initiating follow on environmental studies.

S.10 I-710 Oversight Policy Committee Actions

The I-710 Oversight Policy Committee met on September 30, 2004 to receive the reports from the Tier 2 Community Advisory Committee and the Technical Advisory Committee, as well as public comment related to both reports. After added consideration of these two reports, the OPC then met on November 18, 2004 and adopted the Locally Preferred Strategy (LPS) for the I-710 Major Corridor Study. In addition they adopted four recommendations providing direction and guidance on the future phases of project development and on companion actions.

The Locally Preferred Strategy

The OPC approved the Hybrid Design Concept and the related supporting elements as the Locally Preferred Strategy:

- Hybrid Design Concept, which consists of ten (10) mixed flow lanes, specified interchange improvements, and four (4) truck lanes between the intermodal rail-yards in Vernon/Commerce and Ocean Boulevard in Long Beach (see Figure S-11)
- Alternative B – Transportation System Management/Transportation Demand Management Improvements
- Improvement to arterial highways within the I-710 Corridor
- Construction of truck inspection facilities to be integrated with the selected overall design concept

The LPS adds general purpose capacity to I-710, as well as separating trucks from autos to the extent feasible by adding truck-only lanes. The LPS includes all of the transportation projects of the No Build Alternative as these comprise the future condition in the I-710 Corridor. As described above, the LPS also includes all of the programs, policies, and strategies from Alternative B. Based on the OPC Action of November 18, 2004, the Locally Preferred Strategy was forwarded to the MTA Board for its consideration and action.

The OPC, as part of the LPS decision, also committed to an additional “mini” study of the segment of the Corridor between Atlantic/Bandini and SR-60 to determine an acceptable design concept and scope for that segment of the Corridor. The results of this mini-study will be reviewed by the impacted Tier 1 CACs, the Tier 2 CAC, and the TAC. These advisory committee recommendations will be considered by the OPC prior to its adoption of the design concept and scope for this segment of the Corridor, which will then be referred to the MTA for inclusion in the I-710 Corridor LPS. It is anticipated that these efforts will be concluded by Summer 2005.

Additional OPC Actions

The OPC adopted four additional actions to support the LPS decision and in response to community issues regarding the I-710 Corridor, as expressed in the Tier 2 CAC’s report. These actions are:

- Request the Gateway Cities Council of Governments to return with suggested steps for initiating the development and implementation of a corridor level Air Quality Action Plan to include not only technical but also funding, institutional structure and legislative strategies as well as an approach to holding public agencies with jurisdiction in the

Corridor accountable for progress in meeting air quality and public health objectives in the Corridor and Region.

- Forward the Tier 2 report in its entirety to be accepted as pre-scoping guidance to the preparation of the EIR/EIS.
- Request the Gateway Cities Council of Governments to identify and pursue appropriate avenues to implement those Tier 2 recommendations that prove to exceed the scope of any I-710 transportation improvement project and report back to the community.
- Request MTA and COG staff to suggest a process and structure for continuing community participation throughout the environmental analysis.

S.11 MTA Board Action

The MTA Board met on January 27, 2005 to adopt the Draft Final Report of the I-710 Major Corridor Study. Additionally the Board acted to:

1. Authorize the Chief Executive Officer to proceed with the preparation of a Scope of Work and Funding Plan that will include funding commitments from multiple partners for the environmental phase of the project pursuant to the Major Corridor Study's Locally Preferred Strategy and use input from the I-710 Community Advisory Committees in the environmental scoping process. The Scope of Work should also include assessment of impacts to the I-170/SR-60 interchange and evaluation of alternative project delivery methods.
2. Direct MTA staff to report back to the Board with the results of the East Los Angeles Mini-Study and that results be included into the Locally Preferred Strategy prior to initiating scoping for the EIR/EIS;
3. Receive the TIER II report to be accepted and utilized as pre-scoping guidance for the EIR/EIS;
4. Direct the MTA CEO, with the assistance of our state and federal advocates, to work with the appropriate governmental and non-governmental agencies to form a multi-jurisdictional entity to coordinate the appropriate aspects of the project, including identification of a funding plan with funding sources from multiple partners, and upon formation, the multi-jurisdictional partnership be tasked with identifying strategies for achieving near-term improvements to the Corridor's air quality and that the strategies be identified prior to initiation of the EIR/EIS Request for Proposals.

S.12 Issues for Further Consideration

While consensus for a Locally Preferred Strategy was reached among study decision-makers, it was with the understanding that a number of issues of concern that were raised during the study process would be revisited during the environmental review, preliminary engineering, final design, and construction phases of the proposal.

Figure S-11

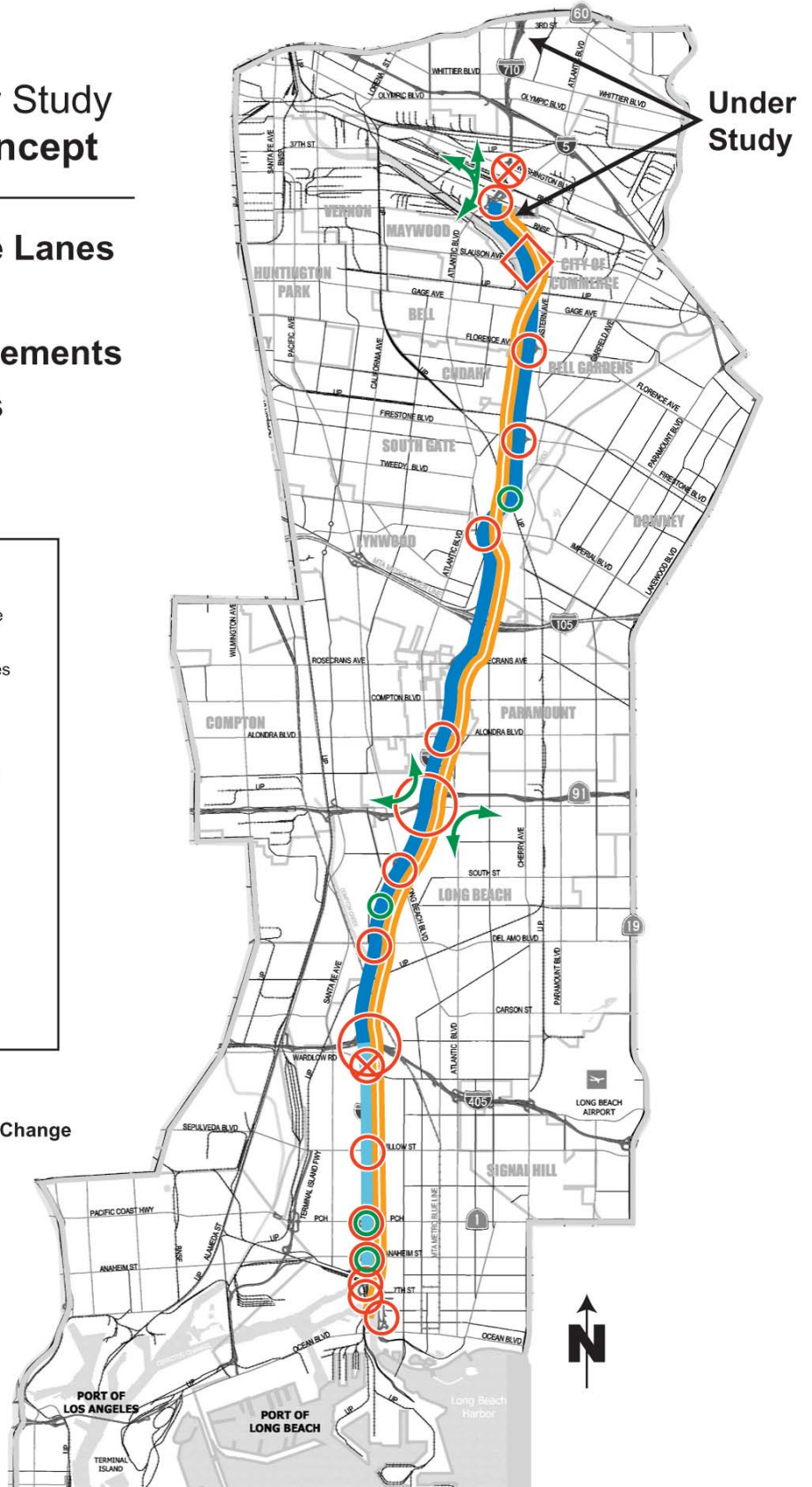
I-710 Major Corridor Study Hybrid Design Concept

- 10 General Purpose Lanes
- 4-Lane Truckway
- Interchange Improvements
- Direct Truck Ramps

LEGEND	
	Add One Mixed Flow Lane (Each Direction)
	Add Two Mixed Flow Lanes (Each Direction)
	Exclusive Truck Facility
	Interchange Improvement
	New Interchange
	Eliminate Interchange
	Truck Ramps
	Truck Ingress/Egress

Preliminary Concepts, Subject to Change

Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc., April 2004



For the most part, these are issues that were beyond the scope and authority of the I-710 planning study. Some are matters about which design assumptions had to be made for study purposes and yet about which considerable controversy remains. Others have to do with phasing of the overall project and ensuring that it supports the overall health and quality of life issues in the I-710 Study Area. These issues represent critical concerns of several of the local representatives, the community advisory group members, and the public, and will become part of future discussions as the various aspects of the project move into the next phases.

Air Quality Action Plan – The Tier 2 Community Advisory Committee (CAC) determined that air quality is the number one public health issue in the I-710 Corridor. The OPC agrees and has approved a resolution requesting the GCCOG develop and implement a corridor level Air Quality Action Plan, independent of the future environmental studies of proposed improvements to I-710. This study will need to be developed and a framework for continued participation with the affected communities implemented. In addition, this Action Plan will need to inform the future environmental studies of the proposed I-710 improvements.

Public Involvement Plan for EIS/EIR Phase – Concurrent with their LPS decision, the OPC has also approved a request to MTA and GCCOG staff to suggest a process and structure for continuing community participation throughout the upcoming environmental analysis of the proposed I-710 infrastructure improvements. The OPC has committed to the public to continue the high level of community participation achieved with the Tier 1 and Tier 2 CACs through the environmental analysis phase of proposed I-710 improvements. The agency staff will need to work with the affected communities to determine if the current CAC process best serves the community engagement process in the EIS/EIR phase or whether a different process is preferred.

Mini-Corridor Study – As part of their LPS decision, the OPC acknowledged that additional study and community consensus building is required to determine the LPS design concept and scope for the northern segment of the Corridor between Atlantic/Bandini and SR-60. The OPC has committed to undertake this “mini” corridor study and incorporate its results into the LPS. The OPC further commits to consider recommendations from the impacted Tier 1 CACs, Tier 2 CAC and TAC prior to its decision on the LPS for this segment of the Corridor. It remains to be determined if transportation infrastructure improvements that are acceptable to the local communities can be developed for this segment of the Corridor.

Freeway Design Issues – The Hybrid Design Concept adopted as the LPS contains several design exceptions to achieve the objective of increasing corridor roadway capacity while minimizing right-of-way impacts. Caltrans and FHWA have performed a preliminary review of the conceptual design of the LPS and have expressed concern regarding several design features. These concerns will be addressed in subsequent engineering development phases of the project. While the objective is to minimize right-of-way impacts, addressing design issues/concerns may require revising acquisition needs. These impacts will be reviewed with the affected communities to ascertain whether a consensus can be maintained on the design concept that is acceptable to Caltrans, FHWA, and other agencies whose facilities and operations are impacted by the design.

Definition of Arterial Street Improvements – As part of the LPS, the OPC approved an element of “improvement of arterial highways within the I-710 Corridor”. The scope and extent of these arterial improvements will need to be defined in future project development phases. The TAC had differences of opinion as to the scope of arterial improvements within each of the respective local jurisdictions, which range from lane additions, to intersection improvements to signal system upgrades or spot improvements. These improvements will also need to achieve consistency, such as lane continuity, among jurisdictions. At a minimum, pavement on arterials to withstand the anticipated detour traffic in advance of I-710 construction that can handle the weight of heavy duty trucks would need to be examined.

Determination of Truck Inspection Facility(ies) – Construction of truck inspection facilities integrated with the overall design concept is a component of the LPS. During the MCS, a candidate site was identified for an inspection facility adjacent to northbound I-710 between Long Beach Blvd. and Del Amo Blvd. However, specific sites have not been subjected to more detailed scrutiny. Siting issues which will need to be addressed include proximity to the Ports, adequate space to queue trucks awaiting inspections, noise and air emissions impacts to surrounding communities and traffic safety. These decisions will also be influenced by emerging inspection facility technologies.

Phasing of Improvements – All of the elements in the Locally Preferred Strategy (LPS), including the Hybrid Design Concept, have a price tag in excess of \$5 billion and their implementation will need to be phased over several years. Decisions will need to be made regarding the order of phasing of implementation of the LPS components, including items such as the truckway, added travel lanes for I-710, and interchange improvements. Considerations in these decisions will include constructability, maintenance of traffic, funding availability, and political consensus. A phasing plan will need to be agreed upon by the funding and implementing agencies as part of the EIS/EIR phase of the project development process.

Technology, Construction and Noise Impacts

The OPC at its November 2004 meeting adopted guiding principles stating that the analysis during the EIR/EIS Phase include detailed review of construction and noise impacts and mitigation; and the feasibility of alternative technologies for movement of goods in the corridor.

Project Funding

MTA views the I-710 Corridor Improvement Project as one of national significance. As a consequence, the MTA intends to assemble a multi-jurisdictional coalition of funding partners. In order to access federal and state funds for the project, innovative and conventional local revenue sources must be analyzed in detail. A detailed financial plan will be prepared exploring such revenue sources as container fees and truck-way tolls, during the next phases of project planning and development.

1.0 INTRODUCTION

1.1 Study Background

As the principal transportation connection between East Los Angeles and the Ports of Long Beach and Los Angeles, the I-710 Corridor plays an important role in the regional, statewide and national transportation system, serving both person trips and goods movement needs. Figure 1.1-1 provides a project location map for the I-710 Corridor within the greater Los Angeles region of Southern California. The I-710 freeway is a major north-south link in the freeway/highway network that serves the heart of the region.

The I-710 freeway currently experiences high levels of congestion and emissions during the peak hours, a condition that is exacerbated by heavy truck volumes, design problems, and operational choke points along this 20-mile segment of the freeway. In addition, trucks and passenger vehicles that use surface streets and arterials as a means to avoid freeway congestion on I-710 contribute to existing traffic and quality of life concerns for the communities that line the I-710 Corridor. Moreover, travel conditions are expected to worsen in future years as projected increases in freight and vehicular traffic continues to outstrip available capacity on I-710.

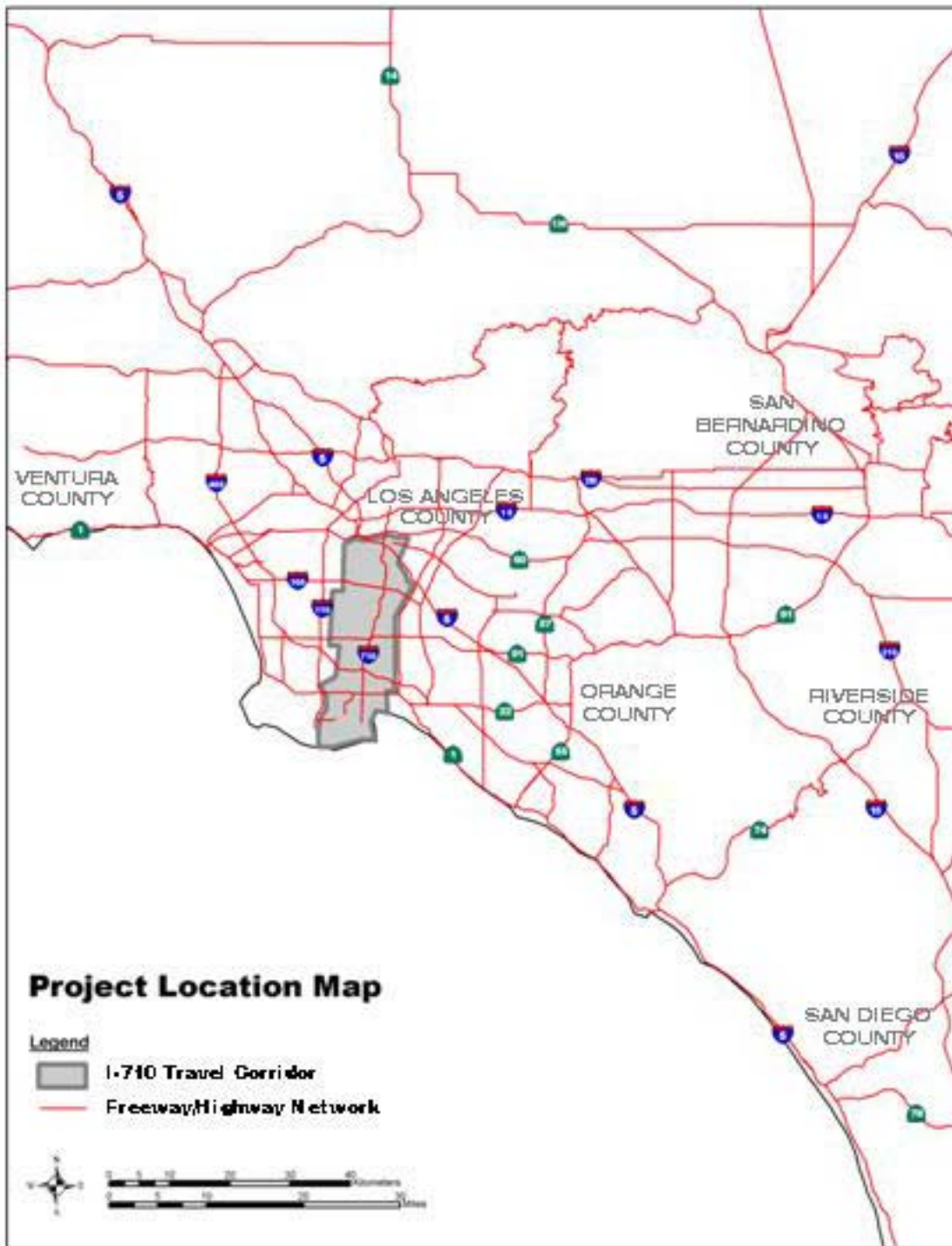
In May 2000, a memorandum of understanding (MOU) was executed among four partner agencies to guide the preparation of a major corridor study for the I-710 Corridor: (1) Los Angeles County Metropolitan Transportation Authority (MTA); (2) Gateway Cities Council of Governments (COG); (3) California Department of Transportation (Caltrans) District 7; and (4) Southern California Association of Governments (SCAG).

The I-710 Major Corridor Study was undertaken to analyze the traffic congestion and mobility problems along the I-710 travel corridor and to develop transportation solutions to address these problems as well as some of the quality of life concerns experienced in the I-710 Corridor. The I-710 Study follows the requirements of a Regionally Significant Transportation Investment Study (RSTIS) – a formal planning process used by transportation agencies in the six-county Southern California region to make better decisions about transportation. It is a collaborative process that involves the public, local cities and communities, concerned citizens, environmental groups, business interests, transportation and environmental resource agencies, and elected officials.

A key outcome of the I-710 Major Corridor Study is the selection of a locally preferred strategy to carry into the environmental phase of project development. As illustrated in Section 9 of this report, the Locally Preferred Strategy is a package of both near-term and long-term transportation improvements. This I-710 Major Corridor Study also provides preliminary cost estimates and related technical information describing the Locally Preferred Strategy that will enable project sponsors to seek funding for future phases such as the environmental studies, project design, and eventually, implementation.

The *I-710 Major Corridor Study Final Report* summarizes and documents the major steps that led to the selection of the Locally Preferred Strategy for the I-710 Corridor. This report also identifies and describes issues raised by project decision-makers and participating agencies during the I-710 Study that will require further consideration as the project enters into subsequent phases of analysis and project development.

**Figure 1.1-1
Project Location Map**



Source: Parsons Brinckerhoff, 2001.

1.2 I-710 Corridor Study Area

The I-710 Study Area encompasses the sphere of influence of the I-710 travel corridor. The project study area is about twenty miles long and a little over six miles wide. The Study Area boundaries are generally defined as follows:

- State Route 60 (northern boundary)
- Lakewood Boulevard / Rosemead Boulevard (eastern boundary)
- Ports of Long Beach and Los Angeles (southern boundary)
- Wilmington Avenue / Alameda Street (western boundary)

A map of the I-710 Study Area is shown in Figure 1.2-1. The I-710 Corridor contains, either wholly or in part, the following communities and local jurisdictions:

- City of Bell
- City of Bell Gardens
- City of Bellflower
- City of Carson
- City of Commerce
- City of Compton
- City of Cudahy
- City of Downey
- City of Huntington Park
- City of Lakewood
- City of Long Beach
- City of Los Angeles
- City of Lynwood
- City of Maywood
- City of Paramount
- City of Signal Hill
- City of South Gate
- City of Vernon
- Rancho Dominguez (unincorporated Los Angeles County)
- East Los Angeles (unincorporated Los Angeles County)

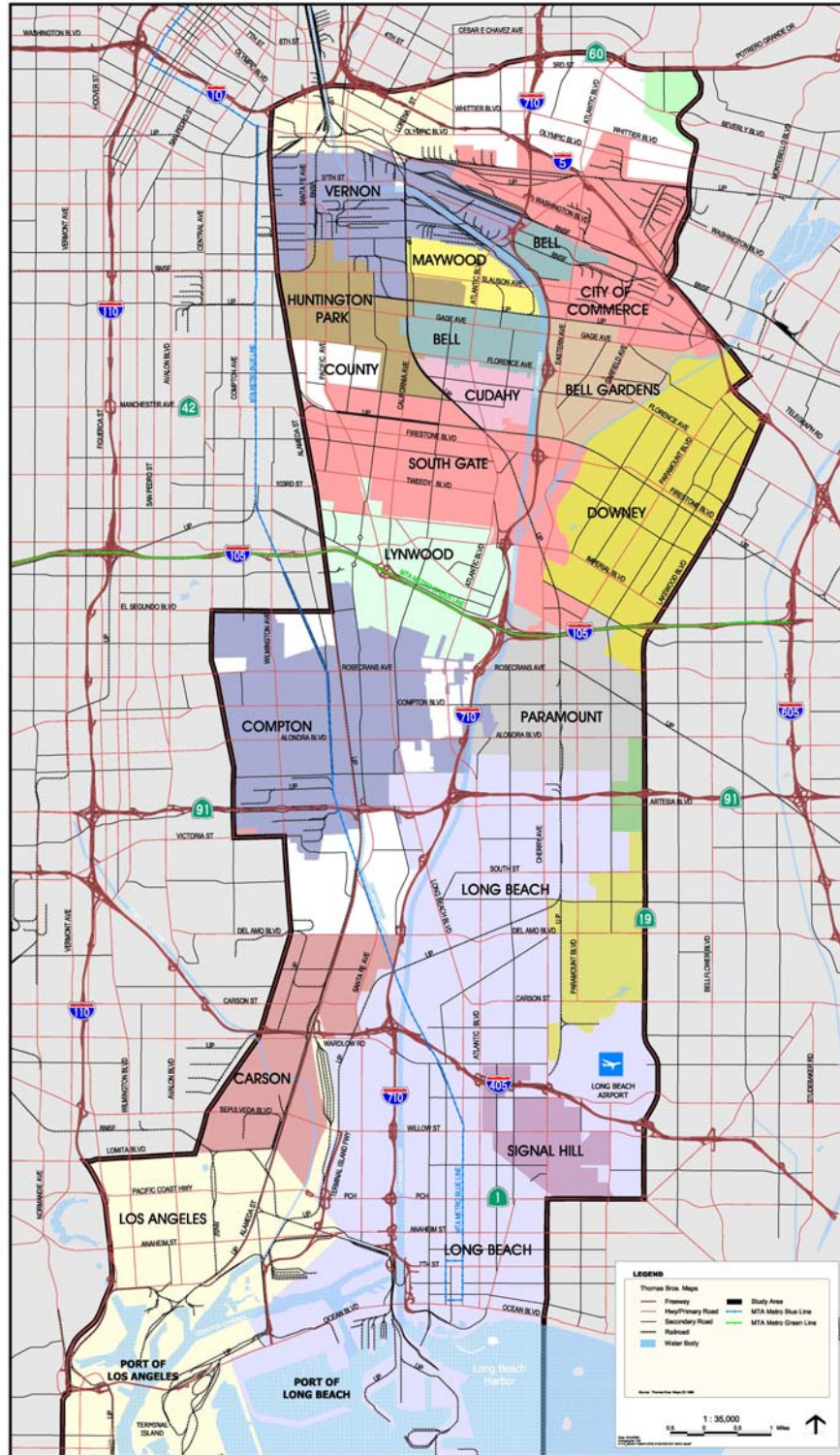
1.3 Project Organization

The I-710 Major Corridor Study was conducted through the cooperative effort of several agencies, organizations, and localities with jurisdiction in the I-710 Corridor Study Area as well as through the active participation of numerous community groups, interested citizens, and project stakeholders.

Daily project management and oversight of the consultant team(s) was provided by the Los Angeles County Metropolitan Transportation Authority in partnership with three other principal agencies: Caltrans, Gateway Cities COG, and SCAG. The principal partners met monthly to guide the activities of the I-710 Major Corridor Study. A list of the consultant firms that played a role in the I-710 Study or that prepared technical source material is included in Appendix A of this report.

The I-710 Oversight Policy Committee (OPC) was established prior to the initiation of the I-710 Study. The OPC provided guidance for policy direction and key project decisions such as purpose and need, guiding principals, alternatives considered, evaluation criteria, the final set of alternatives, and selection of a locally preferred strategy. The OPC is comprised of elected officials from participating cities and the County of Los Angeles; executive managers and/or senior staff from three of the principal partners (MTA, Caltrans, and SCAG); and a Commissioner from each of the Ports of Long Beach and Los Angeles. The OPC met on an as needed basis throughout the duration of the study, generally prior to major decision points. A description of the membership of the OPC is provided in Appendix B. Historical copies of meeting agendas and meeting minutes can also be found in Appendix B.

**Figure 1.2-1
I-710 Corridor Study Area**



Source: Parsons Brinckerhoff, June 2001.

In addition to the OPC, two advisory groups were established for the I-710 Study: (1) the I-710 Technical Advisory Committee (TAC) and (2) the I-710 Community Advisory Committees (CAC).

The I-710 TAC was created at the onset of the study and is made up of technical and engineering staff from the municipalities located within the I-710 Study Area; the principal partners; the Ports of Long Beach and Los Angeles; and staff from the Federal Highway Administration/Federal Transit Administration (FHWA/FTA), Southern California Air Quality Management District (SCAQMD), the California Highway Patrol (CHP), and other stakeholders such as the Automobile Club of Southern California. A list of the I-710 TAC membership is provided in Appendix C of this report. The TAC's role was to monitor project status, provide coordination of work activities, support the exchange of technical information, review interim work products, and work to resolve technical issues that surfaced during the conduct of the study. The I-710 TAC also made formal recommendations to the I-710 Oversight Policy Committee at key study milestones. Agendas and meeting minutes that trace the activities and recommendations made by the TAC are provided in Appendix C.

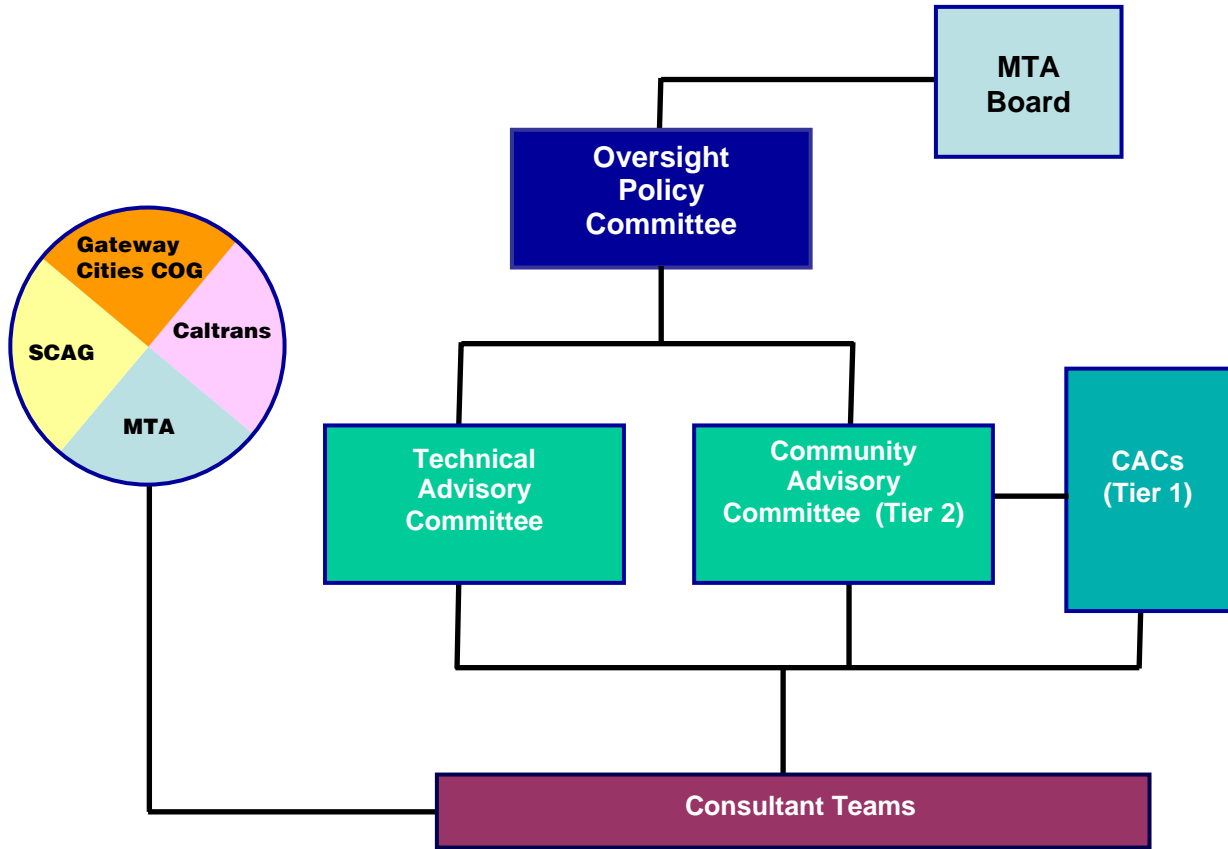
The MTA Board directed staff to establish a Community Advisory Committee (CAC) for the I-710 Major Corridor Study in May 2003 in response to concerns expressed by the communities regarding the potential impacts of the final set of five alternatives when these were made public in the spring of 2003. This concept was fully endorsed by the OPC, which then took steps in early summer of 2003 to develop and implement a tiered Community Advisory Committee structure for the I-710 Study to strengthen the level of public input for project decision-making. Each city is different and the tiering structure of the CACs needed to be able to respond to the organizational framework and processes within each city. The membership, tiering structure, roles and responsibilities, and key activities of the Community Advisory Committee(s) are explained in Section 2.5 of this report.

In general terms, each city located along the alignment of I-710 formed a local Community Advisory Committee to capture the unique concerns and issues associated with each city. These are called the Tier 1 CACs. In addition, a larger, Tier 2 Community Advisory Committee was formed that included representatives from the Tier 1 CACs as well as other project stakeholders appointed by the OPC members and/or drawn from community groups, environmental groups, and businesses with a specific interest in the I-710 Study.

The Tier 2 Community Advisory Committee, along with the TAC, provided formal recommendations to the OPC that greatly influenced the development of comprehensive strategy for the I-710 Study Area. These recommendations are summarized in Section 7 of this report. The Tier 2 Committee's full report, *Major Opportunity/Strategy Recommendations and Conditions* (August 2004), as well as findings and conclusions developed by the Tier 1 CACs that were documented by MIG, Inc., during the course of the I-710 Study, is included in Appendix S of this report.

An organization chart that outlines the channels of communication and hierarchical relationships among these groups and committees is shown in Figure 1.3-1 on the following page. It is important to note that three of the four principal agencies (MTA, Caltrans, and SCAG) have members that sit on both the Technical Advisory Committee and the Oversight Policy Committee.

**Figure 1.3-1
I-710 Study Organization Chart**



Whereas the specific membership might evolve, it is envisioned that these committees will continue in some fashion after the conclusion of the I-710 Major Corridor Study in order to ensure continuity and follow-through as the different elements of the project proceed into environmental study and development.

1.4 Study Process

The I-710 Major Corridor Study is both a planning tool and an evaluative process, consisting of a series of analytical steps. The analytical steps are interrelated and generally represent a series of major milestones as the study progresses. Figure 1.4-1 illustrates these activities and how one step led to another in the I-710 Study process. It is important to note that an active public outreach program was part of all of these steps so that public comments and input could be sought prior to each study decision point. Section 2 of this report elaborates upon the community outreach activities that took place in parallel with the overall I-710 Study process. The final decision point in the study is the selection and adoption of a Locally Preferred Strategy (i.e., a comprehensive transportation solution) for the Study Area.

Figure 1.4-1
I-710 Study Flow Chart

The following paragraphs provide a brief description of the analytical phases that comprise the decision-making framework for the I-710 Major Corridor Study.

Existing and Future Conditions: The first step was to compile information about the Study Area and the metropolitan region to assess the existing and future (Year 2025) socio-demographic, safety, and transportation system conditions. This assessment is intended to determine the underlying root causes of travel patterns, problems, and issues related to the transportation system in the I-710 Corridor.

Purpose and Need: In this phase, the purpose and need for transportation improvements was carefully defined for the I-710 Study Area. Travel patterns, transportation system performance, and past studies were reviewed and analyzed. The Purpose and Need Statement summarizes this technical information along with public input and identifies key trends and issues. These issues led to the determination of specific goals and objectives to be achieved by transportation improvements in the I-710 Corridor Study Area. The purpose and need for transportation improvements is documented in the *I-710 Major Corridor Study Purpose and Need Statement* (December 2001).

Goals and Objectives: The goals and objectives are derived from the purpose and need for transportation improvements in the I-710 Study Area as well as regional transportation goals for the Southern California metropolitan region described in SCAG's *CommunityLink 21: 2001 Regional Transportation Plan* (April 2001). Along with purpose and need, these goals and objectives shaped the development of transportation alternatives and established the evaluative framework for how transportation alternatives should be assessed and compared throughout the course of the study.

Alternatives Development: As part of this step, a candidate pool of initial alternatives was developed to address mobility problems and other concerns in the I-710 Study Area. The Initial Set of Alternatives was structured to provide a range of multi-modal transportation infrastructure and service improvements. The initial alternatives emphasized different transportation modes, potential alignments, and levels of investment, and thus addressed different aspects of the study goals and objectives. Included in the initial set of twelve alternatives were the No Build and Transportation Systems Management / Travel Demand Management (TSM/TDM) Alternatives as well as a number of build alternatives.

Alternatives Screening: The initial set of twelve alternatives was subjected to a "screening process," which narrowed down these alternatives to a reduced set. The reduced set of alternatives should be manageable in number and should include only those alternatives that have a "reasonable" chance of becoming the Locally Preferred Strategy. During screening, the initial alternatives were assessed based on screening criteria derived from the goals and objectives identified for the Study Area, combined with community input. The screening criteria applied both numerical and qualitative measures to assess the relative performance of each alternative. This process resulted in the identification of those alternatives or combination thereof that best met the various study goals and objectives for the I-710 Corridor. These were named the Final Set of Alternatives.

Alternatives Evaluation: During this analytical phase, preliminary technical studies were performed on the Final Set of Alternatives. The purpose of these studies was to elicit evaluative information on the alternatives as well as provide a higher level of definition of their

respective operational and physical characteristics. These technical studies included: conceptual engineering; travel demand forecasting; environmental analysis; estimation of capital costs; and right-of-way impact analysis. Once the technical studies were performed, this information was used to assess the travel benefits, costs, and impacts of the Final Set of Alternatives. Key trade-offs among the alternatives were identified and evaluated. In the I-710 Study, a set of guiding principles was established near the conclusion of the alternatives evaluation step to further refine the purpose and need for improvements and to set priorities for judging the performance of proposed transportation strategies.

Operational and Policy Improvements / Hybrid Design Concept: Based on the array of technical information, evaluation findings, and public feedback on the Final Set of Alternatives, an important step in the I-710 Study was to identify and select those transportation improvements needed to address existing and future transportation problems in the Study Area as well as human health, safety, and other public concerns. The study effort then focused on developing a new hybrid design concept that built upon those few elements of the Final Set of Alternatives that were most acceptable to the public and local communities in the Study Area. A key aspect of this step was the explicit consideration of operational and policy improvements that would result in actions needed to improve public health and that are needed to manage trucks and goods movement on a systemwide basis so as not to unduly impact local communities and residents in the Study Area.

Selection of a Locally Preferred Strategy: The Locally Preferred Strategy is drawn from the “Operational and Policy Improvements” and the “Hybrid Design Concept” based on a series of recommendations made by the advisory committees and other project stakeholders. The Locally Preferred Strategy (LPS) is a design concept that consists of added infrastructure, design improvements, policy initiatives, and operational strategies that combine to form the selected transportation solution for the I-710 Corridor. The LPS and accompanying documentation serve as the basis for follow-on environmental studies and development activities by the sponsoring agencies. Once approved by the Oversight Policy Committee and the MTA Board of Directors, the LPS is submitted for adoption into the long-range transportation plan for the SCAG region so that funding needed for development and implementation can be sought.

2.0 PUBLIC INVOLVEMENT

The I-710 Major Corridor Study involved an extensive public outreach component. The I-710 Study Area stretches 20 miles by 6 miles and ultimately involved 14 cities, the Ports of Long Beach and Los Angeles, the Gateway Cities Council of Governments, MTA, Caltrans, and SCAG. In order to ensure participation from the community and all interested stakeholders, a public involvement process was followed to accomplish the following goals:

- Create a defensible and inclusive community outreach process that allows those with a relevant stake in the I-710 Major Corridor Study to participate in its development.
- Emphasize coordination among all the parties responsible for execution of the I-710 Major Corridor Study and, at the same time, maximize public involvement throughout the planning process.
- Implement a public outreach program that responds public concerns and work actively with agencies and stakeholders involved in the I-710 Major Corridor Study to identify transportation solutions.
- Assist in obtaining a consensus on a Locally Preferred Strategy.
- Document results and findings from the outreach program.

Section 2.0 describes the public involvement process followed throughout the I-710 Study, including the scoping phase, alternatives screening phase, alternatives evaluation phase and the locally preferred strategy development phase. The public and community feedback obtained during the I-710 Study are summarized in the subsequent sections of this report in association with the discussion of each phase of the I-710 Study. The details of the public involvement process during the various phases of the I-710 Study are set forth in separate study reports. The summary information on public involvement provided throughout this report is drawn from the following:

I-710 Major Corridor Study Informal Value Analysis Issues Analysis (CPG Inc., August 2001)
I-710 Major Corridor Study Initial Alternatives Issues Analysis (CPG Inc., August 2002)
I-710 Major Corridor Study Final Set of Alternatives Issues Analysis (CPG Inc., October 2003)
Community Report (MIG Inc., January 2005)

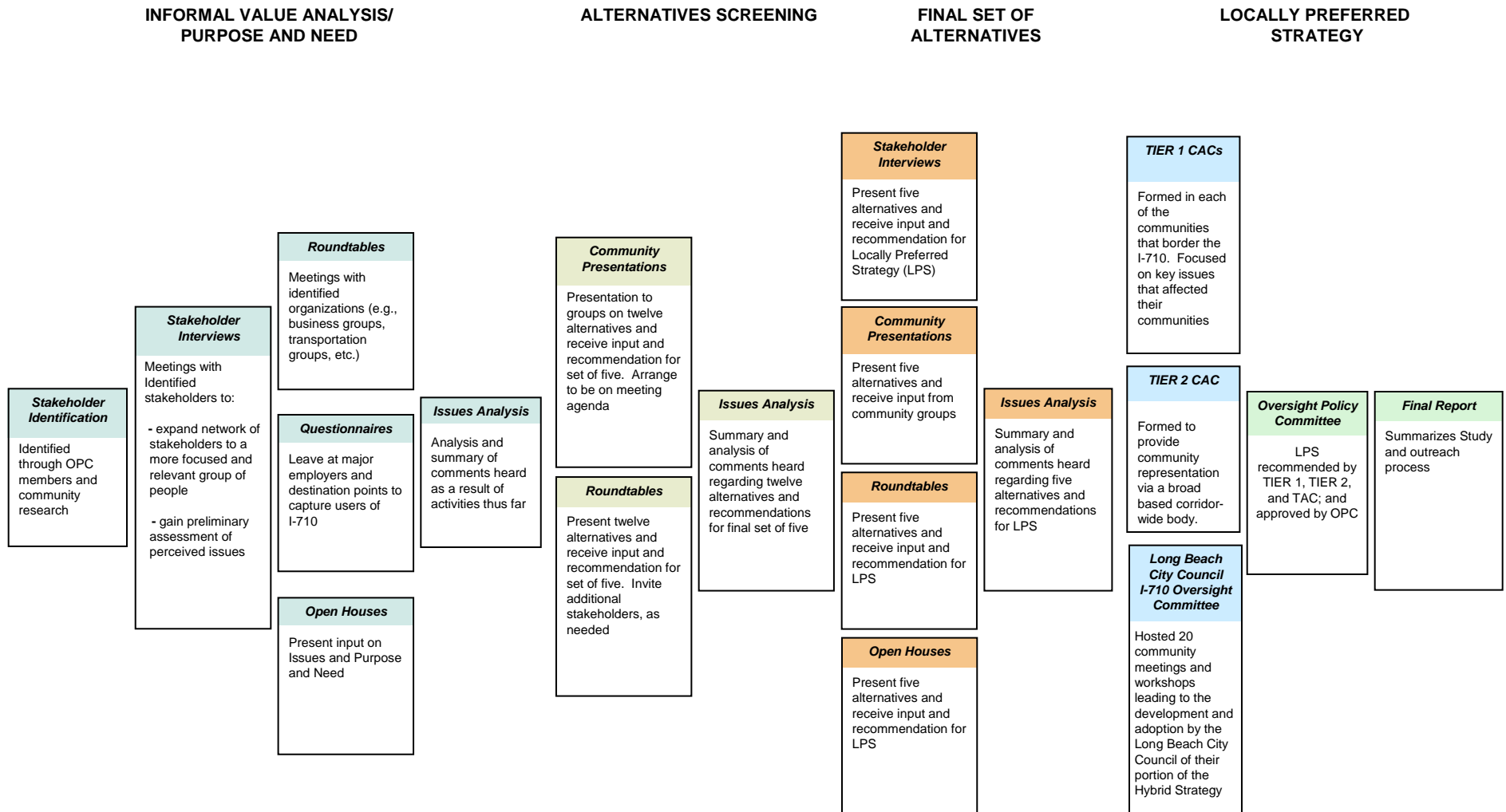
2.1 Public Involvement Framework

Public involvement supported the I-710 Study's technical process. The I-710 Major Corridor Study outreach plan flow chart (Figure 2.1-1) shows the steps in the original outreach plan and how they related to the decision milestones of the I-710 Major Corridor Study as described in Section 1.0 of this report. The outreach plan was later modified in response to public input, as described in Section 2.5. As illustrated on the chart, public outreach was a significant, on-going, and active component of the I-710 Study. The communities in the Study Area were contacted throughout the study process to both gather and disseminate information. Public outreach was not suspended during those periods of the study process when technical information was being developed to support to subsequent decision milestones.

The following discussions describe the community outreach strategies, work activities, and target audiences supporting each major study decision milestone. Note that some of these strategies were ongoing throughout the duration of the I-710 Study – for example, the study hotline and study web site.

Figure 2.1-1

I-710 Major Corridor Study
Outreach Process Flow Chart



2.2 Initial Scoping Phase

For the purpose of the I-710 Major Corridor Study, stakeholders were defined as “a public or private party affected by or otherwise interested in the I-710 Major Corridor Study and its consequences”. To formally initiate the public involvement process, the Oversight Policy Committee (OPC) members were consulted to identify stakeholders from each city within the Study Area. Once this was accomplished, the following meetings and activities were conducted to introduce the I-710 Study and gather input for the determination of the Purpose and Need for transportation improvements in the Study Area. The stakeholders involved in these activities included elected officials and city staff, interest groups and organizations, frequent users of the I-710 and residents within the Study Area. The following details the process of public involvement for this phase of the I-710 Study. The information disseminated at each of the meetings was uniform in content. The purpose of having the different types of public involvement mechanisms was to increase the probability that the different community and stakeholder perspectives were recognized and addressed. Notes of the meetings, sign-in sheets, and public information materials can be found in Appendix F of this report.

2.2.1 Agency Stakeholder Interviews

Meetings with the participating cities within the I-710 Study Area were arranged and conducted with the transportation agencies and the Ports of Long Beach and Los Angeles. Representatives from the cities included elected officials, public works directors, city engineers and other city staff members. A set of questions was developed to gather relevant input and information, and the responses were documented and assessed. Members of both the technical and outreach teams were present at these meetings.

2.2.2 Community Roundtables

In addition to gathering information regarding issues and problems in the I-710 Corridor, the stakeholder meetings with city representatives provided information on how best to outreach to their particular communities. This was also an exercise in identifying major organizations, employers and other community groups in each city.

In May 2001, roundtable sessions were conducted to outreach to specific members of the communities. The roundtable format allows small groups of participants with similar interests to gather and receive information. The roundtable sessions are structured to enable participants to explore issues in depth with members of the study team. It also provides the opportunity to express concerns and opinions about the I-710 Study. For this initial set of roundtables, over 300 notices were mailed out to representatives of different interest groups identified through the agency stakeholder interviews. The roundtables consisted of the following groups and attendees:

- Elected Officials
- Agencies
- Major Employers and Corridor Destination Points
- Business Organizations
- Trucking and Transportation Businesses
- Community and Neighborhood Groups

2.2.3 Motorist Questionnaires

A bilingual questionnaire was developed to capture the opinions of those motorists who frequently travel I-710 within the Study Area. Distribution of questionnaires was through coordination among the sponsoring agencies, individual cities, major employers and assistance from attendees of the roundtable sessions. Questionnaires were also available for on-line submittal through the I-710 Major Corridor Study web site. Over 2,000 questionnaires were distributed throughout the Corridor and 263 were completed. A majority of the respondents resided outside of the Study Area and used I-710 to reach their places of employment.

2.2.4 Public Open Houses

To conclude the outreach process for this phase of the I-710 Study, three public Open Houses were conducted to outreach to the general public and study area residents. Open Houses were held in Commerce (Northern Study Area), Lynwood (Mid Study Area) and Long Beach (Southern Study Area) in June 2001. Staff members representing the Los Angeles County MTA, Caltrans and the consultant team were available to answer questions from the members of the public who attended. Four elected officials or representatives from their offices attended as well. The Open Houses allowed attendees to peruse potential transportation improvement concepts, mark “problem areas” on display boards, identify issues and make suggestions for improvements. Comment sheets were also available to submit thoughts regarding specific topics.

Noticing for the Open Houses took the form of invitations being sent to interested parties identified at the previous meetings, advertisements in city newsletters and local editions of newspapers and posting on local cable stations and the study web site. In addition, respondents to the motorist questionnaires wishing to be contacted regarding public meetings were also sent notices.

2.2.5 Public Information Materials

Public information materials provided at the Roundtable sessions and Open Houses included:

- Welcome Sheet (Open Houses only)
- Introductory Project Fact Sheet
- Displays describing Study Area, study process and timeline, study purpose and need, and possible improvements (Open Houses only)
- Comment Sheets (Open Houses only)
- Questionnaires

All noticing and materials distributed at the meetings were translated into Spanish. Bilingual staff was also present to maximize public participation and input.

2.3 Initial Set of Alternatives Screening Phase

In March 2002, based upon both the technical analysis and public input, a set of twelve initial alternatives were proposed to address the problems and issues as delineated in the *I-710 Major Corridor Study Purpose and Need Statement* (December 2001). Upon adoption of the

twelve initial alternatives by the I-710 Technical Advisory and Oversight Policy Committees, a public outreach process was initiated to present the proposed alternatives and gain feedback about them. The goal of this phase of outreach was to hear comments from stakeholders and integrate public input into the “screening” of the Initial Set of Alternatives down to a more reduced set of alternatives. The following section details meetings and discussions held from April 2002 to late June 2002 as components of this phase of the outreach process.

Public outreach activities during this phase of the I-710 Study consisted of elected official briefings, agency briefings, community presentations and roundtable discussions. Meeting notes, sign-in sheets, and public information materials are included in *I-710 Major Corridor Study Initial Alternatives Issues Analysis* (CPG Inc., August 2002) and are available for reference with the MTA.

2.3.1 Elected Official/City Staff Briefings

Letters announcing the adoption of the Initial Set of Alternatives were sent out to all local, state and federal elected officials within the Study Area. The letter, signed by the OPC Chair, provided a brief status of the I-710 Study and an opportunity for an individual briefing. These individual briefings allowed the elected officials and/or their offices the opportunity to learn more about the I-710 Study and ask specific questions on the Initial Set of Alternatives and how they may affect their respective constituents. The following elected officials and/or cities requested and received briefings:

- Office of United States Senator Dianne Feinstein
- United States Congresswoman Hilda Solis
- Office of California State Assemblymember Marco Antonio Firebaugh
- Office of California State Assemblymember Alan Lowenthal
- Office of California State Assemblymember Jenny Oropeza
- Office of Los Angeles County Supervisor Yvonne Burke
- Office of Los Angeles County Supervisor Gloria Molina
- Office of Los Angeles County Supervisor Zev Yaroslavsky
- Councilmember of Pico Rivera and MTA Board Member Bea Proo
- City of Long Beach, Council Study Session
- Long Beach Councilmember Bonnie Lowenthal
- Office of Long Beach Vice-Mayor Dan Baker
- City of Carson staff
- City of Vernon staff

2.3.2 Stakeholder Briefings

Briefings were arranged and documented with stakeholders of the I-710 Major Corridor Study. The following stakeholders were briefed on this phase of the I-710 Study and their input solicited:

- California Trucking Association
- Long Beach Transit
- Pacific Maritime Association
- Steamship Association of Southern California
- Port of Los Angeles

- Port of Long Beach
- Union Pacific Railroad
- Alameda Corridor Transportation Authority
- Gateway Chambers Alliance
- BNSF Railroad
- Center for International Trade and Transportation (CITT), California State University, Long Beach
- South Coast Air Quality Management District

2.3.3 Community Presentations

Community presentations were conducted at ongoing meetings of community groups within the I-710 Study Area. Letters offering presentations were sent out to over 100 community groups, and 18 presentations were requested and conducted in both English and Spanish. The following groups requested and received presentations on this phase of the I-710 Study:

- North Long Beach Project Area Committee
- North Long Beach Community Action Group
- Long Beach Optimists Club
- Downtown Long Beach Association – Board of Directors
- Downtown Long Beach Association – Office and Retail Council
- Coolidge Triangle Neighborhood Association (Long Beach)
- Beach Citizens for Long Beach
- West End Community Association
- Westside Political Action Committee (Long Beach)
- Pro-West Neighbors United (Long Beach)
- Model City Democratic Group of Commerce
- United Families of Bristow
- Huntington Park Kiwanis Club
- Lynwood Community Council
- Lynwood Rotary Club
- Maywood Lions Club
- Rio-Hondo Rotary Club (Commerce and Bell Gardens)
- South Gate Rotary Club
- League of Women Voters (Downey)

2.3.4 Roundtable Discussions

The Initial Set of Alternatives were also presented to the public by conducting community roundtable discussions with various interest groups. These were conducted in May 2002 to outreach to particular members of the I-710 Study Area communities. The roundtable format allowed groups with similar interests to gather and receive information and have the opportunity to express concerns and opinions about the I-710 Study.

Notices were sent to representatives for each roundtable group. Over 800 notices were sent out. The roundtables consisted of the following groups:

- Elected Officials/City Staff
- Agencies

- Major Employers and Destination Points
- Community Groups/Residents

Notices were sent to individuals and organizations representing business organizations and interests as well as trucking and transportation businesses, but no representatives for these groups attended. A seventh category of "Interested Stakeholders" were invited to attend any roundtable of their choice. Interested Stakeholders were defined as those who returned questionnaires during the Informal Value Analysis stage, meeting attendees, and/or those who made website and hotline requests to be added to the project mailing list.

2.3.5 Public Information Materials

Public information materials provided at the Elected Official Briefings, Agency Briefings, Community Presentations and Roundtable discussions, included:

- Fact Sheet No. 2
- Purpose and Need Statement
- Initial Alternative description packet
- Comment Sheet

Copies of all of the I-710 Study Fact Sheets are provided in Appendix D of this report. All public information materials distributed at the meetings were available in Spanish and posted on the web site established by the Gateway Cities Council of Governments expressly for the I-710 Study. Materials were available by request through the study hotline number as well.

2.4 Final Set of Alternatives Evaluation Phase

The next phase of the public involvement process for the I-710 Study involved conducting outreach and gathering feedback regarding the final set of five alternatives. The goal of this phase of the I-710 Study was to select the best combination of transportation improvements from among the Final Set of Alternatives that would eventually move through subsequent project development studies.

During this phase of the I-710 Study, outreach efforts were conducted with elected officials at all levels of government within the Study Area, as well as with numerous community, business, and environmental groups regarding the Final Set of Alternatives. Once the potential impacts of the alternatives, including right-of-way impacts, became available, the previously approved outreach plan was revised to extend significantly beyond what is typically done for a major corridor study. This included additional outreach to the most potentially affected communities. The following sub-sections provide more detail on this phase of the public involvement process. Meeting notes, sign-in sheets, and public information materials are included in *I-710 Major Corridor Study Final Set of Alternatives Issues Analysis* (CPG Inc., October 2003) and are available for reference with the MTA.

2.4.1 Elected Official Briefings

As was done in the previous study phases, briefings were held with elected officials and staff at the local, state, and federal levels of government, all of whom represent stakeholders within the I-710 Study Area. These briefings provided elected officials and their staff the opportunity

to view the Final Set of Alternatives, comment on the potential impacts to their communities, and offer their preferences for a Locally Preferred Strategy.

During this phase of the I-710 Study, the following elected officials and/or staff members were briefed:

- Office of United States Senator Dianne Feinstein
- Office of United States Senator Barbara Boxer
- Office of State Senator Gloria Romero
- Office of Assembly Member Alan Lowenthal
- Office of Assembly Member Marco Firebaugh
- Office of Assembly Member Jenny Oropeza
- Office of Los Angeles County Supervisor Gloria Molina
- City of Bell City Council
- City of Bell Gardens City Council
- City of Carson City Council
- City of Commerce City Council
- City of Compton City Council
- City of Cudahy City Council
- City of Downey City Council
- City of Huntington Park City Council
- City of Long Beach City Council
- City of Lynwood City Council
- City of Maywood City Council
- City of South Gate City Council
- City of Vernon City Council

2.4.2 Community Group Briefings

Throughout the alternatives evaluation phase of the I-710 Study, meetings were held with key community organizations within the Study Area, as well as any other groups interested in receiving a presentation regarding the Final Set of Alternatives. These organizations were invited to participate in the process as soon as the Final Set of Alternatives was determined. The following is a listing of the organizations that requested and received briefings regarding the Final Set of Alternatives:

- West Long Beach Association (Long Beach)
- Compton Town Hall (Compton)
- North Long Beach Project Area Committee (Long Beach)
- Friends of the Los Angeles River-Board of Directors (Los Angeles)
- West End Community Association (Long Beach)
- The Long Beach Alliance for Children with Asthma (Long Beach)
- Coolidge Park Triangle Association (Long Beach)

After each presentation, groups were given the opportunity to ask questions and submit oral or written comments regarding the alternatives.

2.4.3 Targeted Outreach Efforts

A mailing was conducted in October 2002 inviting local elected officials and interested stakeholders to request individual or group briefings regarding the Final Set of Alternatives. The following groups were contacted via this mailing:

- Elected Officials Within the Study Area
- Stakeholders Who Had Previously Attended Meetings During the Initial Phase
- Businesses Within the Study Area
- Public Agencies
- Community Groups
- Hotels
- Trucking and Transportation Groups
- Major Employers Within the Study Area
- Major Attractions
- Environmental Groups

Targeted outreach efforts were also directed towards churches and schools throughout the Study Area. After the initial mailing, all churches and schools in the stakeholder database received follow-up calls, asking if their organizations were interested in receiving a briefing regarding the Final Set of Alternatives. Briefings were then held with all those stakeholders who requested one, which included:

- Mayor Rosalina Lopez, City of Commerce
- Traffic Commission, City of Commerce
- Bristow Family Association (Commerce)
- Paul Hernandez, Principal, Jefferson Elementary School (Compton)
- Public Works Department, City of Downey
- Downey/Los Alamitos Kiwanis (Downey)
- Huntington Park Kiwanis (Huntington Park)
- Office of Council Member Dan Baker, City of Long Beach
- Office of Council Member Val Lerch, City of Long Beach
- Office of Council Member Tonia Reyes Uranga, City of Long Beach
- Wrigley/Los Cerritos Association (Long Beach)
- Alamitos Beach Neighborhood Association (Long Beach)
- Apartment Association of Southern California (Long Beach)
- Long Beach Development Cabinet-Council Presentation, City of Long Beach
- Office of Assembly Member Alan Lowenthal
- Long Beach Area Chamber of Commerce
- City of Lynwood
- Community Affairs Commission, City of Lynwood
- Juliana Dawson, Principal, Montera Avenue Elementary School (South Gate)
- South Gate Optimist Club
- Public Works Department, City of South Gate
- Churches in Action (South Gate)
- Office of Assembly Member Marco Firebaugh
- Office of U.S. Senator Barbara Boxer
- Office of U.S. Senator Dianne Feinstein

2.4.4 Environmental Groups Outreach Efforts

As information became available regarding the potential impacts of each of the Final Set of Alternatives, it was important that local environmental groups had ample opportunities to provide feedback about the I-710 Study, as well as any potential impacts to the environment that would need to be addressed further in subsequent project development studies. A meeting with the environmental community was held in January 2003. The following is a listing of the organizations invited to attend this meeting:

- Angeles Chapter of the Sierra Club
- California Latino Civil Rights Network-Southern California Region
- Carson African American Empowerment Coalition
- Coalition for Clean Air
- Communities for a Better Environment
- Conservation Corps of Long Beach
- El Dorado Audubon Society
- Environment Now
- Environmental Defense Fund
- Ethnic Coalition
- Filipino Community of Carson
- Friends of the Los Angeles River
- Japanese American Citizens League
- Liberty Hill Foundation
- Los Angeles Audubon Society
- Los Angeles Conservation Corps
- LA River Project-Occidental College
- Los Angeles & San Gabriel Rivers Watershed Council
- Madres del Este de Los Angeles
- Mexican-American Political Association
- NAACP-Long Beach Chapter
- NAACP-Los Angeles Chapter
- Natural Resources Defense Council-Regional Office
- North East Trees (NET)
- Office of Samoan Affairs
- San Gabriel & Lower Los Angeles Rivers and Mountains Conservancy
- San Pedro Bay Estuary Project
- Santa Monica Mountains Conservancy
- Search to Involve Pilipino Americans (SIPA)
- Southern California Indian Center
- Stop Taking Our Parks (STOP)
- Surfrider Foundation-Long Beach Chapter
- The California Public Interest Research Group
- The Greenbelt Committee-Long Beach
- Trust For Public Land
- USC Keck School of Medicine, Preventive Medicine
- Watts/Century Latino Organization

The ten attendees present at the meeting were representatives of the following organizations:

- California League of Conservation Voters
- Communities for a Better Environment
- East Yard Communities for Environmental Justice
- The Los Angeles and San Gabriel Rivers Watershed Council
- The University of Southern California.

Attendees were first given a presentation regarding the Final Set of Alternatives. At the conclusion of the presentation, everyone had the opportunity to ask questions and submit comments regarding each of the alternatives.

2.4.5 Roundtables

Roundtable sessions, with the goal of bringing members of similar stakeholder groups together to review and exchange information, were held in April 2003 to discuss the Final Set of Alternatives. These meetings allowed the public to be briefed about the benefits and impacts of the Final Set and the opportunity to provide comments regarding the alternatives.

Roundtable sessions were attended by the following groups:

- Elected Officials Roundtable
- Business Owners Roundtable
- Agencies Roundtable
- Environmental Organizations Roundtable
- Community Groups Roundtable
- Trucking and Transportation Organizations Roundtable
- Civic and Community Centers Roundtable

2.4.6 Open Houses

A total of three open houses regarding the I-710 Major Corridor Study and the Final Set of Alternatives were held at the end of April 2003 in the cities of Long Beach (Southern Study Area) and Bell Gardens (Mid Study Area), and in the unincorporated area of East Los Angeles (Northern Study Area). The open house format was used to facilitate the exchange of information with the general public, as well as allow for one-on-one public interaction with the study staff.

As a part of the outreach notification effort for the open houses, Public Information Officers of all of the cities along the I-710 were contacted to provide suggestions and feedback on how to best inform their cities' residents about the meetings. While not all cities had a public information officer, the following cities assisted in notifying the public regarding the open houses:

- City of Bell
- City of Bell Gardens
- City of Carson
- City of Commerce
- City of Huntington Park
- City of Long Beach
- City of Lynwood
- City of Maywood
- City of Paramount
- City of South Gate
- City of Vernon

Due to the emerging public and local agency concerns related to the potential impacts of the Final Set of Alternatives, additional efforts were made to notify the public of the open houses. Some of the methods used to notify the public in this outreach effort included:

- Mailing 157,000 open house flyers to potentially-impacted residents along the 20-mile I-710 alignment
- Placing open house information on MTA buses that run throughout the Study Area
- Placing open house flyers at public locations including senior centers, libraries, and City Halls
- Including information in city newsletters
- Including information in Chamber of Commerce newsletters
- Linking individual cities' websites to the I-710 Study website and/or placing open house information directly onto city websites
- Including information in city utility bills
- Placing information on electronic sign boards citywide
- Distributing press releases regarding the open houses to local community newspapers.
- Distributing flyers at city council meetings
- Placing information on local cable access channels and as a "crawler" during city council meetings
- Placing information on a city's telephone on-hold message
- Distributing open house flyers to local residents via the use of the Explorer Scouts

As a result of these extensive outreach efforts, attendance at each of the open houses increased from 100 to over 500 people.

2.4.7 Impacted Community Meetings

Due to the initial, strong negative reaction to the potential property impacts of the Final Set of Alternatives, public meetings were also held in the cities whose communities would be most impacted. This was done to maximize the opportunity that local residents and businesses had to review and comment on the Final Set of Alternatives. Impacted cities are those that were identified as having the greatest amount of potential right-of-way impacts among the three proposed build alternatives. The cities included were Commerce/East Los Angeles, Long Beach, and Bell Gardens.

Notices for these impacted community meetings in Commerce, Long Beach, and East Los Angeles were mailed out two weeks prior to each meeting, utilizing mailing information provided by local elected officials and city representatives, as well as information gathered at previous public meetings. The City of Long Beach also sent additional meeting notices to residents, while the City of Bell Gardens handled all noticing to local residents regarding the impacted community meetings being held in their city.

From late April until early June 2003, a total of nine impacted community meetings were held, including three in Commerce, three in Long Beach, two in Bell Gardens and one in East Los Angeles.

2.4.8 Public Information Materials

Public information materials provided at the Environmental Groups Meeting, Roundtable Sessions, Open Houses, and Impacted Community Meetings included:

- Welcome Sheet
- Comment Sheet

- Project Fact Sheet (Roundtables/Open Houses/Impacted Community Meetings only)
- List of Oversight Policy Committee and Technical Advisory Committee Members (Open Houses/Impacted Community Meetings only)
- Final Set of Alternatives (Open Houses/Impacted Community Meetings only)
- Property Acquisition Process Fact Sheet (Open Houses/Impacted Community Meetings only)
- Several Ways to Contact Us Sheet (Open Houses/Impacted Community Meetings only)
- The I-710 Major Corridor Study Report to the Public (Open Houses/Impacted Community Meetings only)

All noticing and materials distributed at public meetings were translated into Spanish. Some materials used for meetings in the City of Long Beach were also translated into Tagalog and Khmer. Professional interpreters were hired and translation equipment was secured to provide simultaneous translation in Spanish to interested stakeholders at all public meetings. Bilingual staff members were also available at each public meeting to maximize one-on-one public participation, interaction, and input.

2.5 Development of Locally Preferred Strategy Phase

In response to public and community concerns expressed during the Alternatives Evaluation phase, particularly with respect to proposed right-of-way impacts, air quality issues, and the public involvement process, the MTA Board acted in May 2003 to revise the direction of the I-710 Study. The MTA Board directed their staff to work with the participating agencies and committees to develop a hybrid alternative using selected elements from the Final Set of Alternatives that results in meaningful improvement to the I-710 Corridor without impacting residents and businesses. In addition, the May 2003 MTA Board action addressed the I-710 community outreach process by directing staff to:

Form advisory committees in key areas along the Corridor where current design alternatives require the acquisition of large amounts of private property. These committees should be comprised of residents and business owners and staff should work with local jurisdictions to identify members. The establishment of these committees should begin immediately.

In late May 2003, the OPC adopted Guiding Principles to govern the conduct of the remainder of the I-710 Major Corridor Study, with the goal of developing a consensus for a hybrid design concept and, eventually, a locally preferred strategy. See Section 3.3 of this report for a copy of the Guiding Principles. One of these guiding principles specifically addressed public involvement:

Improve public participation in the development and consideration of alternatives and provide technical assistance to facilitate effective public participation.

The OPC also proposed a two tiered public involvement process to respond to this guiding principle and govern the public involvement process through this final phase of the I-710 Major Corridor Study. Section 2.5 briefly describes this phase of public involvement.

2.5.1 Community Advisory Committees

Based upon agency staff recommendations, the OPC approved formation of Community Advisory Committees at its July 2003 meeting. The purpose of the I-710 Community Advisory Committees (CACs) is as follows:

- Solicit community (residents, businesses, institutions, labor, environmental and health interests, etc.) input and engagement on issues of local and regional importance relating to the present and future of the I-710 Corridor from the Port of Long Beach to SR-60.
- Encourage a representative and broad base of public participation both within and beyond the CACs
- Provide a vehicle to incorporate and respond to public input in planning for the I-710 Corridor.
- Assist the OPC and the TAC in educating and communicating information about the I-710 Program.
- Promote constructive dialogue in an environment of trust, credibility and mutual respect in the community outreach process and in the transportation planning process.
- Strive to understand and reconcile diverse interests and objectives.
- Develop consensus on a set of corridor solutions, including the hybrid alternative, consistent with the goal of reinvigorating corridor economies and sustaining safe, healthy and vibrant communities.
- Provide a long-term structure for community engagement with any environmental process that ultimately evolves from the Major Corridor Study to ensure that implementation is faithful to the community vision and the community outreach process.

2.5.2 Tier 1 – Community Level CAC

As described above, the OPC established a two-tier CAC framework, including a community level set of committees (Tier 1) and a single corridor-wide committee (Tier 2). Tier 1 consists of community level community advisory committees. The communities represented by the Tier 1 CACs are 14 corridor cities and two unincorporated areas, with the understanding that the City of Long Beach would identify no more than four impacted communities based on the length (8 miles) of the I-710 freeway frontage within that city. The City of Long Beach ultimately decided to develop its own public involvement process in lieu of a Tier 1 CAC and retained consultants for facilitation (DSO) and engineering (MMA) to develop a consensus within Long Beach on a preferred strategy.

Each I-710 Corridor community, through its city council (or for unincorporated areas through its county supervisor), could establish a community advisory committee whose focus is strictly on issues related to the I-710 Corridor and its current and future impacts on their communities.

Many of the I-710 Corridor City Councils, as well as the unincorporated area in East Los Angeles, had already developed such committees or were in the process of doing so. For directly impacted communities (those where potential right-of-way impacts had been identified), professional outreach facilitators assisted in forming a Tier 1 Committee if the City Council or County Supervisor had not already done so. For indirectly impacted communities (those where no potential right-of-way needs have been identified), the formation of a Tier 1 Committee was optional. Through this process, the following jurisdictions created Tier 1

Committees: Bell Gardens, Carson, Commerce, Compton, East Los Angeles, Lynwood, and South Gate.

Members of Tier 1 Committees, who were selected by their City Councils, were drawn from impacted neighborhoods and were encouraged to incorporate representation from existing neighborhood-based associations. Each Tier 1 Committee was asked to elect a chairperson to guide the meetings and reconcile issues. These committees began meeting in fall 2003/winter 2004, and with the exception of Commerce and East Los Angeles, completed their work in summer 2004. [Note: Commerce and East Los Angeles will continue to meet during a subsequent “mini-study” to identify a design concept from Washington Boulevard to SR-60 at the north end of the Corridor. See Section 10.0 of this report, Issues for Further Consideration.]

The Long Beach City Council I-710 Oversight Committee was appointed by the City Council in June 2003 and was charged with the responsibility of addressing the significant policy issues that the City faces regarding the improvements to the I-710 freeway. This three-member committee began working with residents and businesses along the I-710 Corridor to develop a solution for improving the I-710 freeway that serves both the traveling public and the residents and businesses that are most impacted by the I-710 freeway.

The Long Beach City Council I-710 Oversight Committee solicited broad community input and received recommendations from Long Beach residents at twenty community meetings and workshops hosted by the I-710 Oversight Committee from August 2003 through May 2004. These were attended by hundreds of the Long Beach community members. “Long Beach City Council I-710 Oversight Policy Committee, Summary of Outreach” (September 2004), included in Appendix E of this report, provides a summary of the concerns and recommendations elicited by these efforts. Long Beach’s I-710 Oversight Committee also appointed the four city representatives to the Tier 2 CAC.

2.5.3 Tier 2 – Corridor Level CAC

The Tier 2 Community Advisory Committee was formed to provide community representation via a broad based corridor-wide body. As a result, the initial membership consisted of:

- The Chair of each Tier 1 CAC
- For each community that did not have a Tier 1 CAC, a member appointed by the City Council or County Supervisor
- Four members representing the City of Long Beach
- 15 members appointed by the OPC to provide representation from the environmental community, business, labor, institutions, and academia
- The Chair of the I-710 Technical Advisory Committee

In order to empower the Tier 2 CAC to engage additional perspectives or interests that it deems important, the OPC delegated to the Tier 2 CAC the authority to appoint, by two-thirds vote, up to ten additional members. The Tier 2 CAC voted to add one additional member representing environmental justice. Table 2.5-1 lists the agencies and interests represented on the Tier 2 CAC.

Employing Moore, Iacofano, Goltsman Inc. as a resource, the Tier 2 CAC structured its work based on key issue areas that were identified by the Tier 1 Community Advisory Committees. These issue areas included:

- Health
- Jobs and Economic Development
- Safety
- Noise
- Congestion and Mobility
- Community Enhancements
- Design Concepts
- Environmental Justice
- Organization and Process

The structure included procedures and mechanisms to encourage consensus building in the development of their recommendations for improvements for the I-710 Corridor. This consensus building process has been sensitive to the input of the directly impacted communities.

Feedback Loops

The Tier 1 Community Level Committees provided direct input to the Tier 2 Corridor Level Committee, which in turn was charged with providing input directly to the OPC. The Corridor Level Tier 2 Committee was also responsible for providing feedback to the Community Level Tier 1 Committees.

Use of Professional Facilitators

Consistent with the OPC's adopted guiding principle to "provide technical assistance to facilitate effective public participation," in recognition of the diversity of the Corridor communities, economic interests and political jurisdictions, and understanding the limitations of existing agency staff, it was recommended that professional facilitators be used to support the functioning of the CACs. As a result, MTA selected the firm of Moore, Iacofano, and Goltsman (MIG). These facilitators worked directly with the communities to further refine the proposed CAC structure and to assure that all the issues that are of importance to the communities were brought forth.

Table 2.5-1
Tier 2 CAC Membership

Academia

USC School of Medicine
California State University, Long Beach, Department of Economics

Business

Long Beach Convention & Visitors Bureau
California Trucking Association
Megatoys, Inc.

Environment

Legal Aid Foundation
Los Angeles and San Gabriel Rivers and Mountains Conservancy
Low Income and Immigrant Housing Advocate
Long Beach Alliance for Children with Asthma
San Pedro and Peninsula Homeowners Coalition
Coalition for Environmental Health and Justice (appointed by Tier 2 CAC)

Labor

Teamsters
International Longshore Workers Union
Building Trades Council

Institutions / Additional Stakeholders

Automobile Club of Southern California
South Bay Council of Governments

Communities (Tier 1 Representatives)

City of Bell	East Los Angeles (Unincorporated Los Angeles County)
City of Bell Gardens	
City of Carson	City of Long Beach (4 representatives)
City of Commerce	City of Lynwood
City of Compton	City of Maywood
City of Cudahy	City of Paramount
City of Downey	City of South Gate
City of Huntington Park	City of Vernon

I-710 Technical Advisory Committee

TAC Chair

Source: *Community Report*, MIG Inc., January, 2005.

3.0 PURPOSE AND NEED

In transportation planning, a study's goals and objectives are driven by the problems and opportunities in the study area as identified through an assessment of existing and future travel conditions in the corridor combined with public input. This section provides an overview of the planning issues in the I-710 Corridor that shaped the development of transportation alternatives, evaluation criteria, and ultimately the study recommendations for a Locally Preferred Strategy. The Purpose and Need Statement also provides the basis for eliminating infeasible alternatives throughout the study process.

3.1 Existing and Future Conditions

3.1.1 Projected Growth

A key factor that influences travel conditions in the I-710 Study Area is growth – growth in population, growth in employment, and, in the case of the I-710 Corridor, growth in economic activities related to goods movement. The planning horizon year for the I-710 Study is 2025.

**Figure 3.1-1
Population Density (1998, 2025)**

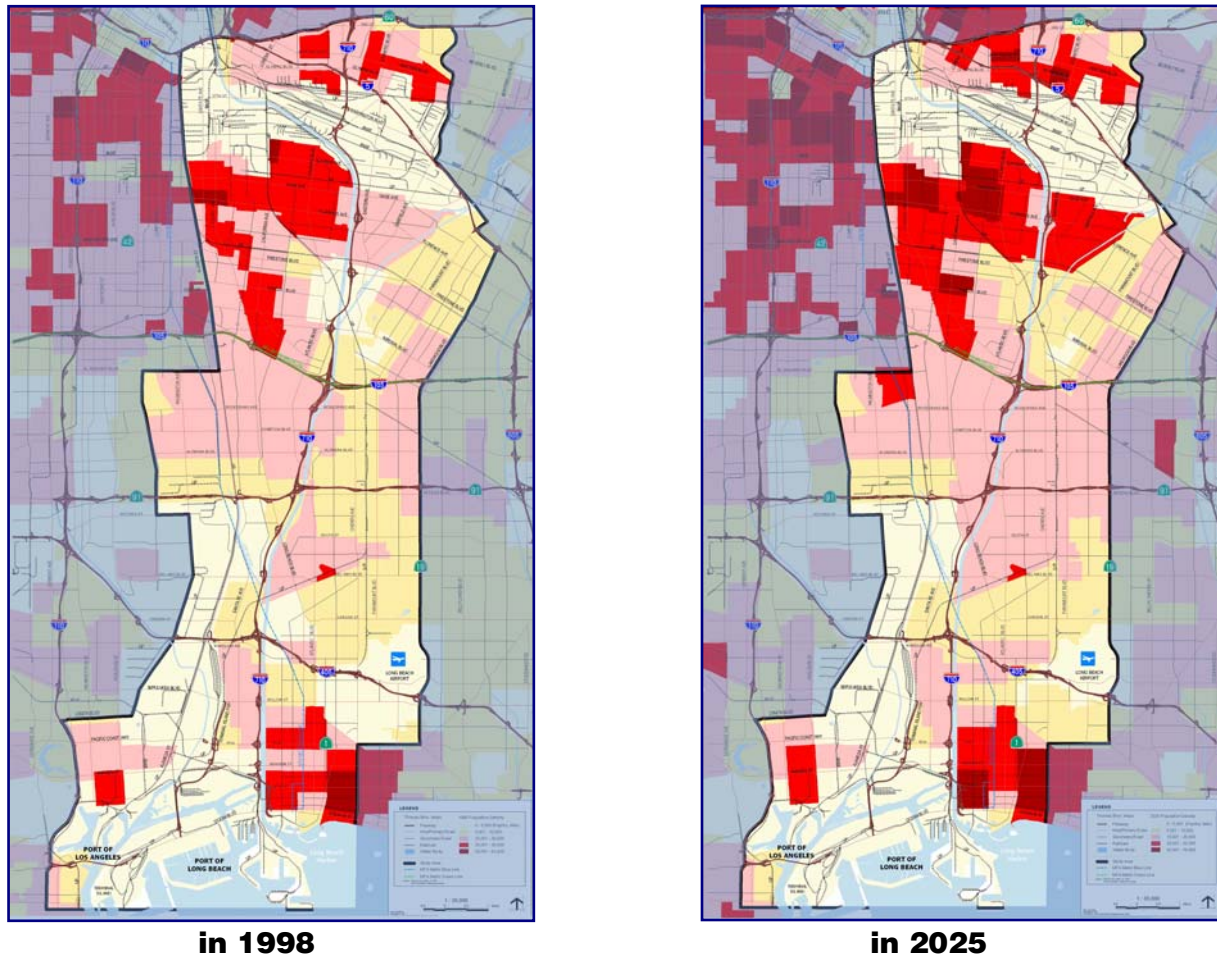
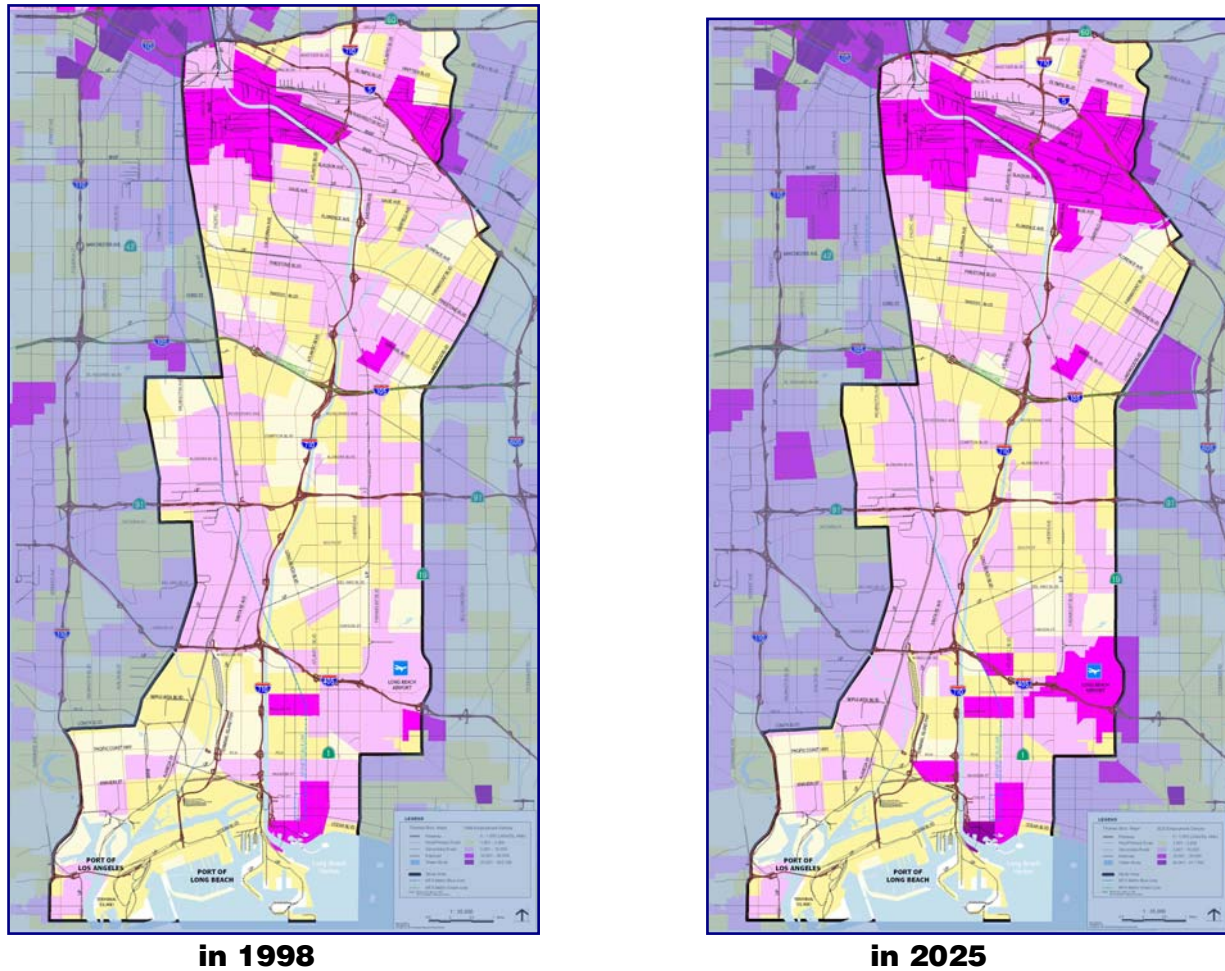


Figure 3.1-1 shows the areas of highest population density (persons per sq. mile) within the I-710 Study Area for 1998 and 2025 respectively. The overall population density is about three times higher in the I-710 Corridor compared to Los Angeles County as a whole.

The I-710 Corridor encompasses several residential areas, which translates to relatively high numbers of residents living within the Study Area. The overall population within the I-710 Study Area is projected to grow at a steady pace over the next twenty five years, from 1,134,200 to 1,375,000, an estimated 21.2% increase in total population between 1998 and 2025. Much of the I-710 Study Area is already built out. Whereas some new development and higher intensity residential uses are planned in selected locations, high birthrates, larger families, and continued immigration are the leading variables in the projected population increases.

Employment is another factor in traffic growth. Figure 3.1-2 portrays the areas of highest employment density (employees per sq. mile) within the I-710 Study Area for 1998 and 2025.

**Figure 3.1-2
Employment Density (1998, 2025)**

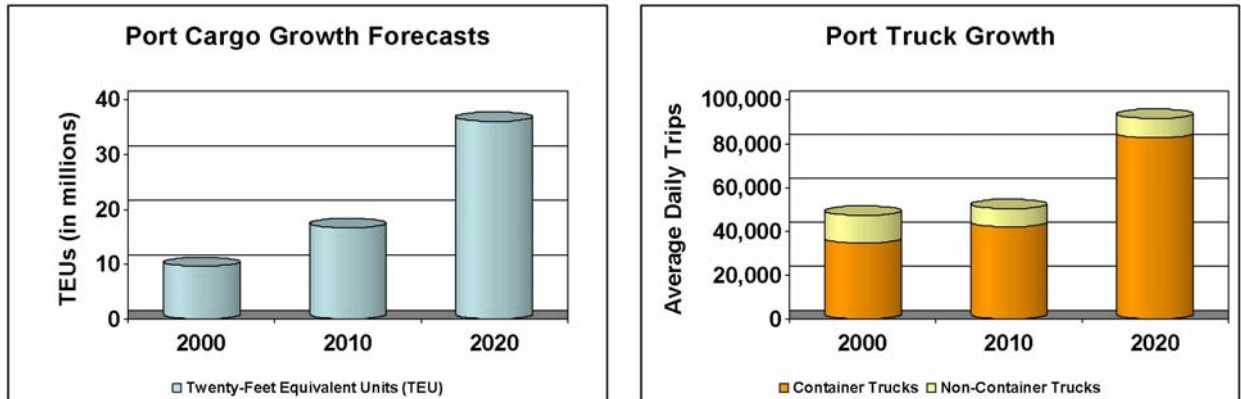


Source: Los Angeles County Metropolitan Transportation Authority, Long Range Transportation Plan Forecast Data Files, 2001.

High density employment areas are an indicator of the places within the I-710 Corridor that are most likely to attract large concentrations of person trips during the peak travel hours, particularly the home to work commute trip. Compared to other areas within Los Angeles County, the patterns of employment within the I-710 Study Area are more dispersed and employment densities are generally lower. This is mainly due to the nature of the commercial land uses within the I-710 Corridor, which are largely industrial, with some commercial retail. However, total employment in the I-710 Corridor is expected to grow from 508,300 jobs to 642,600 jobs, an estimated 26.4% increase over the next twenty-five years.

The I-710 Study Area contains several land uses and activity areas related to goods movement and the transport of cargo. The Los Angeles / Long Beach port complex, located at the southern terminus of the I-710 Corridor, is the third largest container port in the world. Port activity in the Study Area is expected to increase. Figure 3.1-3 depicts the relationship between projected increases in container traffic, as measured in twenty-foot equivalent units (TEUs), and the expected number of trucks that will be traveling to and from the Ports of Los Angeles and Long Beach in 2010 and 2020.

**Figure 3.1-3
Port Cargo and Truck Forecasts**



Source: Meyer, Mohaddes Associates, Inc., *POLB/POLA Transportation Study Technical Report*, June 2001.

3.1.2 Projected Traffic Volumes

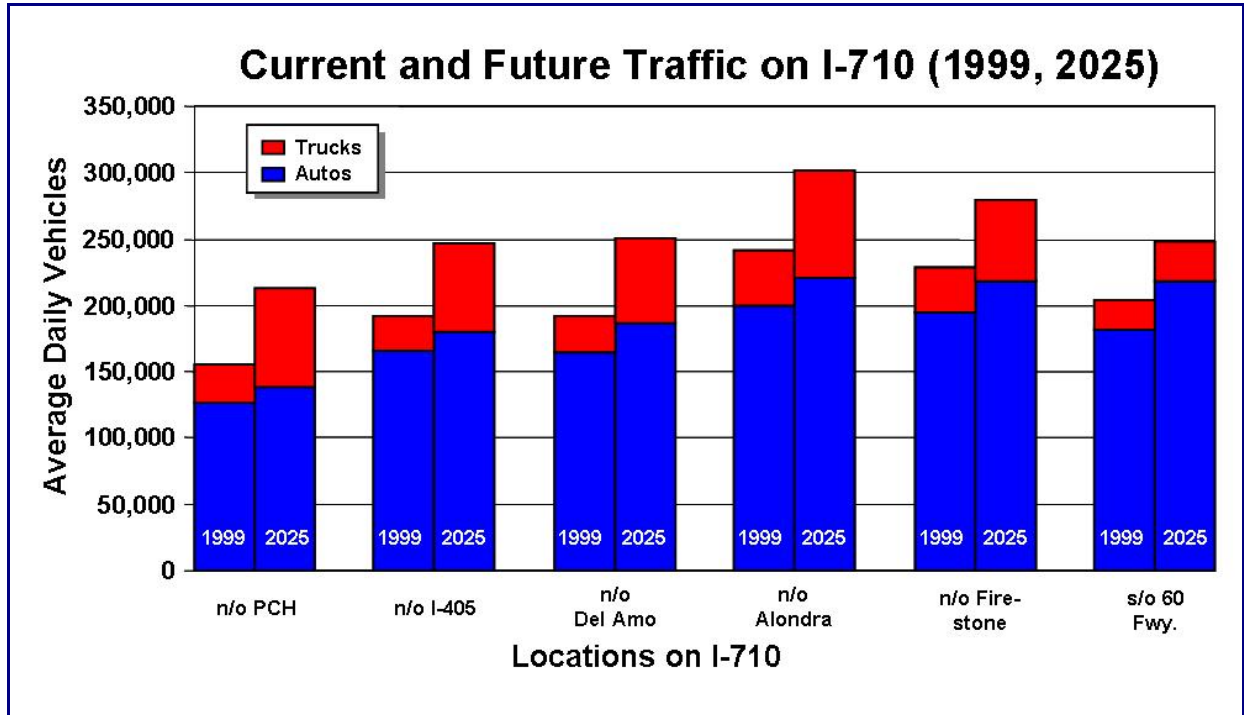
I-710 is already experiencing bouts of congestion throughout the day. Auto use is highest during the a.m. and p.m. peak periods as commuters travel to and from work. Truck traffic occurs throughout the day, but it is at its highest during the midday, generally between the hours of 9 a.m. and 3 p.m.

Increases in population, employment, and goods movement between now and the future year will lead to more traffic on I-710 and on the streets and roadways within the Study Area as a



whole. This trend is evident in Figure 3.1-4, which shows the anticipated amount of traffic growth which is expected to occur at different locations on I-710 unless corrective action is taken.

**Figure 3.1-4
I-710 Projected Traffic**



Source: Kaku & Associates, Inc., I-710 Major Corridor Study Existing & Future Conditions, September 2001.

Figure 3.1-4 also shows that trucks are increasing at a somewhat higher rate between now and the future year compared to other vehicles in the traffic stream.

3.1.3 Design Deficiencies

The I-710 freeway was designed decades ago, before containerization of oceangoing freight. The design for a specific context, based on the expected growth in traffic volumes, expected level of truck volumes, and expected operational characteristics of the vehicles using the facility. In general, the facility has remained essentially as it was constructed throughout the last several decades. Due to growth in traffic volumes exceeding those originally estimated and the high levels of truck traffic that has been realized in recent years, the facility does not have the capacity to accommodate current demand. In addition, many aspects of the design do not operate efficiently or safely due to the heavy truck traffic and the size and maneuverability of those trucks.

The design features that are most directly associated with the current operational problems on the freeway facility are discussed below. In every case the operational problems are worsened by the presence of heavy truck traffic.

Interchanges with Local Streets

The I-710 Study Area encompasses 18 interchanges with local streets. The spacing between many of these interchanges is less than standard. For example, Pico Avenue, Anaheim Street, and Pacific Coast Highway are very closely spaced (less than 800m separation). Close spacing of interchanges limits the weaving distance (the distance over which vehicles entering the freeway at one interchange can merge left into the mainline traffic while other vehicles are merging right to exit at the next interchange).

Many of these existing interchanges are cloverleaf configurations (e.g., Anaheim, Willow, and Florence) requiring weaving of traffic over a short distance to accommodate the on and off ramp movements. Close spacing of interchanges and cloverleaf ramps both lead to non-standard weaving distances. The necessary weaving distance is based on the number of vehicles weaving and, of course, trucks require substantially more weaving distance than do automobiles.

The interchange with Atlantic and Bandini Boulevards is a non-typical configuration. Six on and off ramps provide connections with these local streets near their intersection. The configuration and the signage arrangement are confusing to drivers. The northbound off-ramp to northbound Atlantic Boulevard serves as the connection to I-5 south, which is not provided at the I-710/I-5 interchange. This connection serves heavy truck volumes and does not provide enough storage capacity for the trucks and other automobiles that queue at the Bandini intersection where the ramp terminates. This lack of storage frequently results in off-ramp traffic backing onto the freeway.



Ramp Entrance at Del Amo Blvd.

Many of the local interchange ramps have non-standard geometry, which greatly limits the operational efficiency of the ramps and the interchange as a whole. In some cases narrow lane widths on the ramps and non-standard turning radii for trucks at ramp entrances further diminish the operational effectiveness of the ramps. In many cases the existing ramps have non-standard acceleration distances and steep climbing grades (e.g., Washington), which lead to a degradation of capacity on the ramps

entering and exiting the freeway, particularly with truck traffic. These non-standard geometric features typically result in autos and trucks proceeding through the intersections and ramps at low speeds and trucks taking up more than one lane, which greatly limits the capacity of the interchange as a whole.

There is also a significant lack of storage on many of the off-ramps throughout the corridor (e.g., the interchange at Florence Avenue). The number of lanes and length of storage areas provided are not adequate in many cases to store the vehicles queuing and the ramp intersection. Often this results in traffic backing up into the mainline freeway lanes, which can cause congestion and safety concerns.

Interchanges with other Freeways

Within the project limits, four of the five freeway-to-freeway interchanges have significant non-standard geometric features. The major deficiencies are noted in the table below. The exception is the I-710/I-105 interchange which was constructed within the last 10 years. It contains standard geometrics and has no apparent deficiencies.

**Table 3.1-1
Freeway-to-Freeway Interchanges – Key Design Concerns**

Cross Freeway	Existing Deficiencies
I-405	On/off ramps for Wardlow Rd. are in close proximity to the interchange. Low speed/capacity connections (loop ramps) for the SB to EB, EB to SB and NB to WB movements.
SR-91	On/off ramps for Atlantic Blvd., Alondra Blvd. and Long Beach Blvd. are located in close proximity to the interchange. Low speed/capacity connections (loop ramp) for the NB to WB movement.
I-105	No major problems
I-5	Missing connections from NB-710 to SB-5 and SB-710 to NB-5. Left side egress to NB I-5. On/off ramps to Washington Blvd. are located in close proximity to I-5/I-710 interchange.
SR-60	Local interchange hook ramps to 3 rd Street within interchange. May not be a significant issue provided that volumes remain low. SR-60 ramps merge with I-170 south of SR-60 and are in close proximity to I-5/I-710 interchange.

Source: Parsons Brinckerhoff, Field Review, May 2001.

In the case of I-5, connections are not provided for all of the traffic movements. The left-side egress at I-5 north is of particular concern because the truck traffic that is required to stay in the outside lanes must merge to the left through lanes of automobile traffic to accomplish the connection.

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

The close proximity of local interchanges and ramps to the freeway-to-freeway connections also limits the weaving distances on the mainline freeway degrading capacity and creating safety concerns as described below.

Mainline Freeway

The speed, capacity, and safety of the mainline freeway are negatively impacted by several existing design features that are discussed as follows.

Non-Standard Weaving Distances

As mentioned earlier in the discussion of interchanges, the weaving distances are significantly constrained by both the spacing of the interchanges and the ramp configurations. This negatively impacts the mainline freeway capacity and safety by introducing a significant number of conflicts in the outer lanes between ramp merge and diverge points.

The weaving distance is the distance over which vehicles entering the freeway at one interchange can merge left into the mainline traffic while other vehicles are merging right to exit at the next interchange. The necessary weaving distance is based on the number of vehicles weaving and, of course, trucks require substantially more weaving distance than do automobiles. For I-710, there is heavy truck traffic in the outer two lanes during the peak periods as well as throughout the remainder of the day. This intensifies the conflicts in the weaving sections due to the size and density of the truck traffic.

Narrow or Non-Existent Shoulders

Throughout much of the Study Area the shoulders provided are narrow (non-standard) width and in some segments no shoulders are provided at all. Because of the lack of shoulders, the current freeway facility does not provide sufficient enforcement areas for the California Highway Patrol (CHP), nor does it provide adequate areas for disabled motorists. Along significant segments of the route, vehicle breakdowns and enforcement activities cause operational and safety problems on the mainline freeway.

Narrow Lane Widths

Several locations along the NB I-710 contain non-standard width lanes (approximately 3.30 m instead of 3.60 m). For example, I-710 bridges over the railroad yards south of I-5. These narrow lanes tend to reduce the motorist's comfort level and speed, thus reducing overall capacity, especially when trucks are present. In most cases, currently programmed rehabilitation and improvement projects will address the lane and shoulder width deficiencies.



No Shoulders, Southbound, Approaching Atlantic/Bandini Interchange

The number of through lanes on I-710 varies throughout the full length of the corridor. I-710 is four lanes in each direction between I-405 and SR-60, except for the section between Atlantic-Bandini and I-5, which is five lanes in each direction. South of I-405, the number of through

lanes drops to three lanes in each direction. This condition enables bottlenecks to form on the mainline freeway as high volumes of traffic are compressed into fewer lanes. This is particularly evident on I-710 south of I-405, where long queues of trucks and cars frequently form in the peak periods.

Non-Uniform Ramp Metering

Approximately half of the existing interchanges along the corridor contain ramp meters at the on-ramps. The benefit of these ramp meters is limited by the fact that they are only at spot locations and hence there is not a coordinated plan along the full length of the corridor. Some of the ramps have limited storage distances, and if additional meters are installed they would have to include ramp widening to provide storage capacity. String-lining of a given segment of the facility, preferably between freeway-to-freeway interchanges, is recommended by Caltrans to determine the ramp metering cycle lengths / storage needs.

Median Barriers

The median barrier along significant portions of the route is an older (outdated) metal beam type that is no longer in standard use. This poses both maintenance and safety concerns. It appears that all existing metal beam median railing will be upgraded with currently proposed Caltrans projects.

3.1.4 Safety

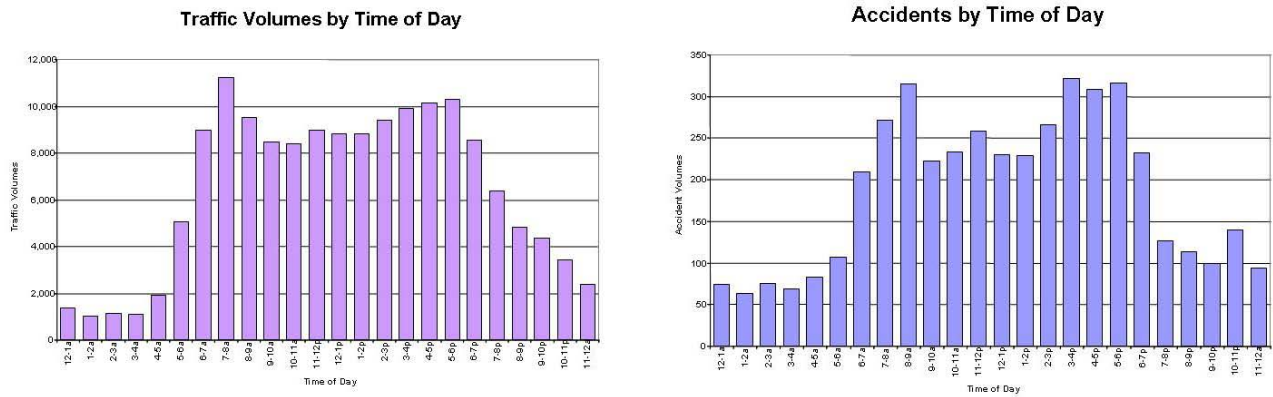
According to accident data collected and reported by Caltrans over a three-year period, on average, I-710 experiences about five accidents each day between Ocean Boulevard and SR-60. This includes property damage accidents, injury accidents, and fatalities. The individual causes of these accidents vary and can be traced to items such as speeding, motorist inattention, or unsafe lane changes. However, three major patterns have emerged related to the high incidence of accidents on I-710 compared to other freeways in the LA basin: (1) design deficiencies; (2) high traffic volumes; and (3) the mix between autos and trucks.

Figure 3.1-5 on the following page gives some indication where the accidents are occurring on the main travel lanes of I-710. Accident data locations are specific (to the nearest hundredth of a mile). The dots show the high incident locations on I-710 (yellow = between 10 and 30 accidents took place at that milepost location; orange = between 30 and 50 accidents; and red = over 50 accidents). Figure 3.1-5 clearly shows that the accidents are clustering at the interchanges.

Non-standard geometrics and design features on I-710 could potentially compromise traffic safety. In many cases, the curves are too tight on the ramps and the weave distances are too short. The two worst locations are at the I-405 interchange and just south of the I-5 interchange, as evidenced by the accident data shown in Figure 3.1-5 and confirmed by the motoring public.

The second contributing factor to the safety problem on I-710 is high traffic volumes. Figure 3.1-6 shows the relationship between traffic volumes at one location on I-710 and accident volumes, by time of day. The occurrence of accidents is highest during the peak periods. As traffic volumes increase, so does the propensity for accidents.

**Figure 3.1-6
Correlation between Traffic Volumes and Accidents**



Source: Caltrans Traffic Operations, Traffic Counts, October 1999, and Traffic Accident Surveillance and Analysis System (TASAS) Data Files, July 2000.

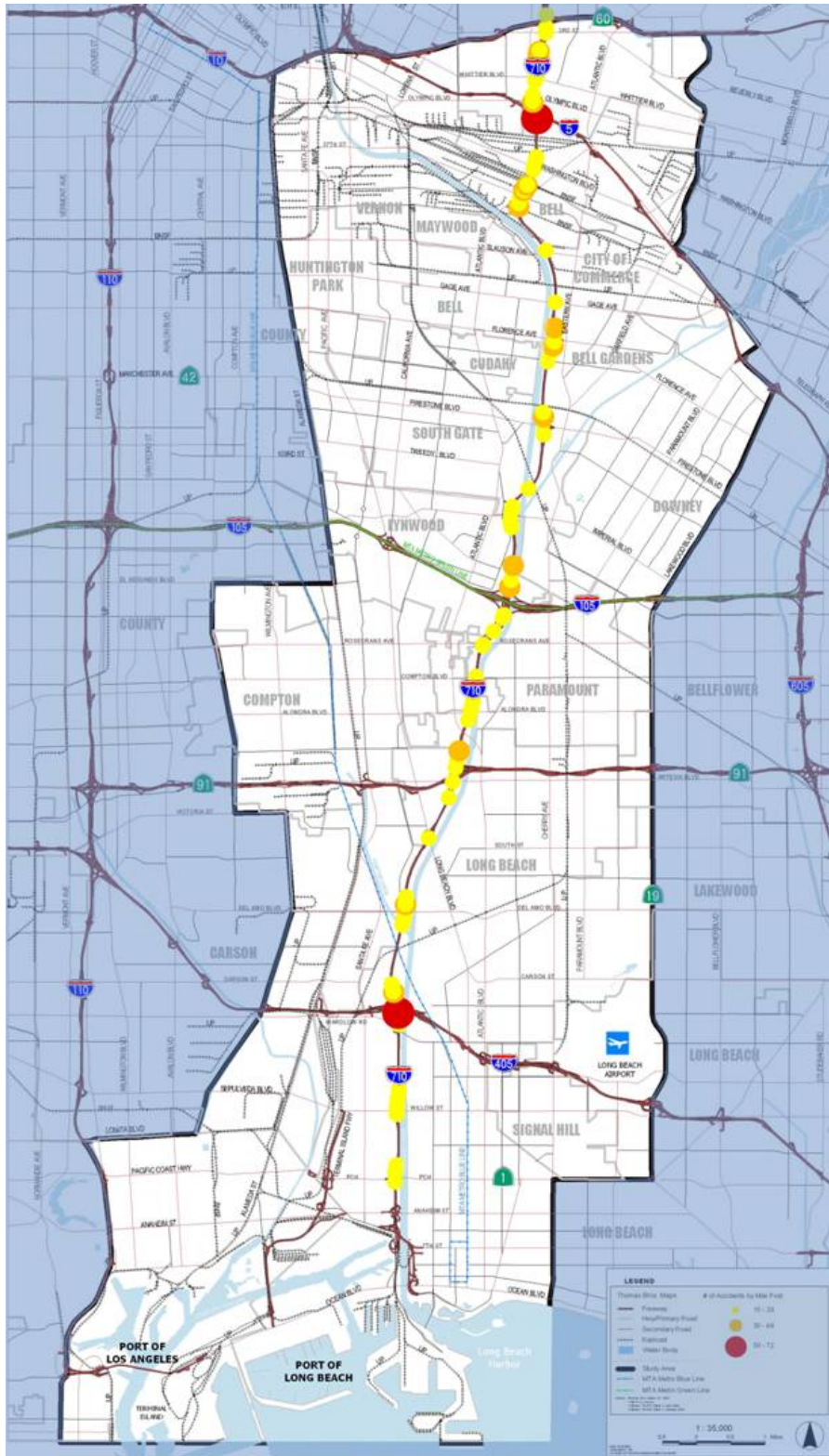
The third major factor related to safety concerns is the mix of vehicles using I-710. At present, about 14% to 19% of the traffic on I-710 is heavy duty trucks. By 2025, the truck percentages are expected to be between 22% and 35% of general traffic, depending upon what segment of I-710 is being viewed. Truck percentages tend to be highest for the I-710 segments south of I-405, closer to the Ports.

By state law, heavy duty trucks are relegated to the two right-hand lanes of the freeway. Most of the mixing occurs as autos attempt to get on and off the I-710 freeway at the interchanges. Another location that is especially problematic is that trucks are permitted in the left-hand lanes near the I-5 interchange since the connector ramps from northbound I-710 to northbound I-5 are located on the left-hand side of the freeway. Trucks travel at different speeds compared to other vehicles in the traffic stream.

Trucks are slower to accelerate and slower to stop, which uses up more freeway capacity and also causes friction among these different vehicle types as impatient drivers dart in and out of traffic to avoid the slower moving vehicles. In addition, the difference in mass between a car and a truck makes an incident between these two vehicle types cataclysmic to the auto. Over one third of the accidents that occur on I-710 involve a heavy duty truck.



**Figure 3.1-5
High Accident Locations**



Source: Caltrans, Traffic Accident Surveillance and Analysis System (TASAS) Data Files, July 2000.

3.1.5 Air Quality and Public Health

Diesel exhaust, which is produced when an engine burns diesel fuel and is commonly found throughout the environment, is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses and cars and off-road diesel engines that include locomotives, marine vessels and heavy duty equipment. Diesel exhaust is a complex mixture of thousands of gases and fine particles (commonly known as soot) that contains more than 40 toxic air contaminants. These include many known or suspected cancer-causing substances, such as benzene, arsenic, formaldehyde, and nickel. The sizes of diesel particulate matter (DPM) that are of greatest health concern are those that are in the categories of fine and ultra fine particles. The composition of these particles may be composed of elemental carbon with absorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements.

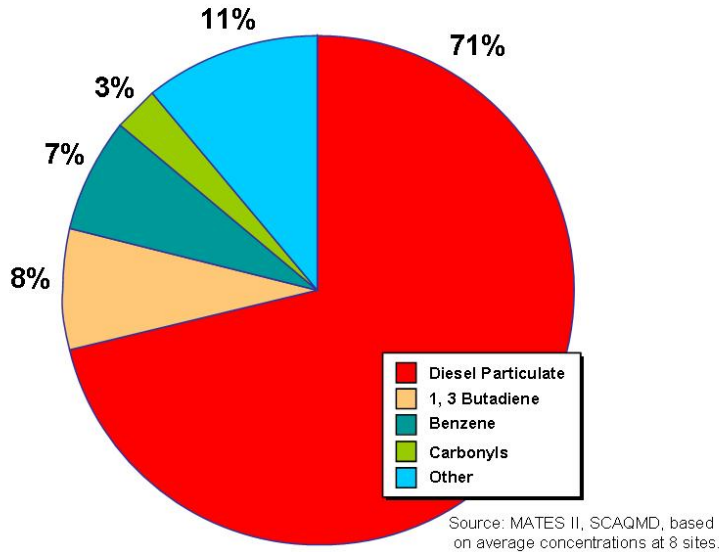
Diesel exhaust particles and gases are suspended in the air, so exposure occurs whenever a person breathes air that contains these substances. The fine and ultra fine particles are respirable, which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to diesel exhaust matter comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or aged through lingering in the atmosphere. This is of concern because I-710 corridor is a major route that is heavily utilized by heavy-duty diesel truck traffic, traveling to and from the Ports of Long Beach and Los Angeles.

There is limited information on human exposure to just diesel particulate matter but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. In 1998, the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) completed a comprehensive health assessment of diesel exhaust. OEHHA developed a cancer potency factor using DPM as a surrogate measure for diesel exhaust exposure. This assessment formed the basis for a decision by the California Air Resources Board (ARB) to formally identify particles in diesel exhaust as a toxic air contaminant that may pose a threat to human health.

In March 2000, the South Coast Air Quality Management District (SCAQMD) completed a study that measured and estimated the effect of 29 toxic compounds within the Greater Los Angeles Area. Entitled MATES-II, which stands for Multiple Air Toxics Exposure Study, this study pinpointed some of the leading air pollutants that contribute to carcinogenic risk for people that live and work in the I-710 Study Area. In this discussion, 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 period of 70 years. A key conclusion of the MATES II Study is that mobile emissions sources, specifically diesel particulates, are the primary contributor to carcinogenic risk in the South Coast Air Basin. The approximate breakdown is shown in Figure 3.1-7.

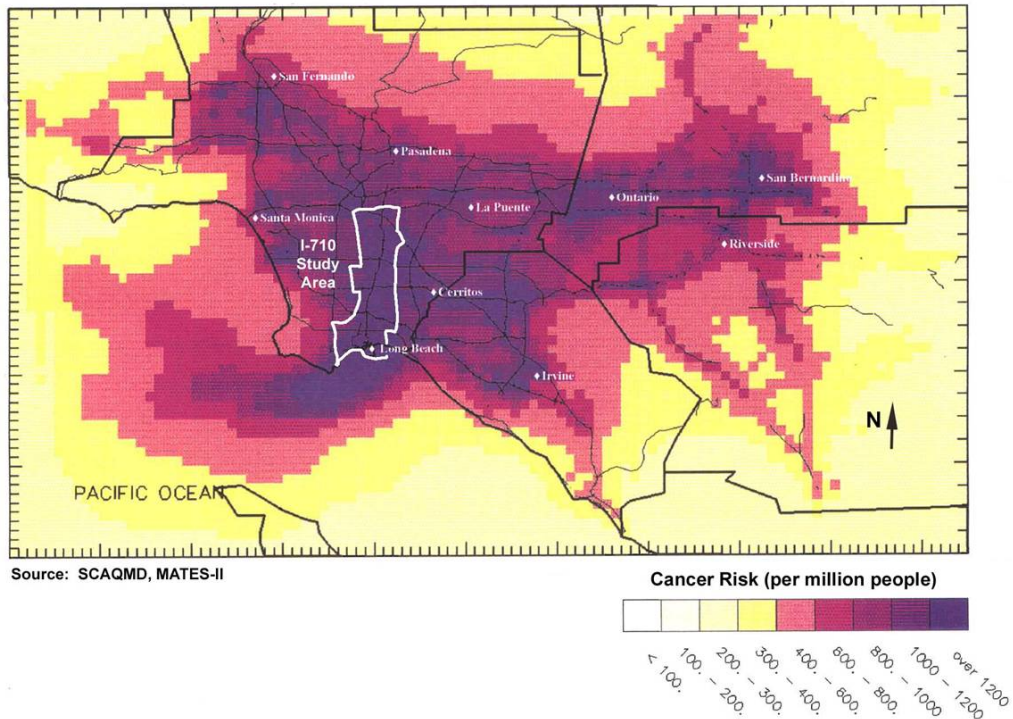
Using modeling techniques, SCAQMD was able to estimate the geographic distribution of carcinogenic risk attributable to all emissions sources based on measured levels of air toxins throughout the South Coast Air Basin. This includes both mobile and stationary sources.

**Figure 3.1-7
Sources of Carcinogenic Risk (Toxic Air Contaminants)**



The resulting map, shown in Figure 3.1-8, shows the cancer risk per million people. The I-710 Study Area is superimposed on this figure. This map clearly indicates that the health risk associated with toxic air pollutants is of particular concern to I-710 communities.

**Figure 3.1-8
Estimated Carcinogenic Risk (All Sources)**



Per SCQAMD, about 48% of the diesel particulate matter comes from diesel vehicle exhaust produced by heavy-duty diesel trucks. Although there are exceptions (e.g., downtown Los Angeles, Los Angeles/Long Beach Harbors), diesel particulate emissions are more concentrated along major freeway corridors in the South Coast Air Basin. Effects of diesel particulates on lung functions¹, asthma, and other respiratory conditions², were presented by experts from the University of Southern California (USC) during meetings of the Technical Advisory Committee (TAC) and the Oversight Policy Committee (OPC).

3.2 Need for Action

Based on the examination of existing and future travel conditions, the I-710 Corridor is already experiencing serious performance problems due to a number of interrelated reasons. With the exception of the I-105 interchange, no major work has been done on I-710 since it was built approximately 50 years ago, before containerization of oceangoing freight. This means that traffic volumes have overwhelmed the existing design capacity of the interstate, particularly at the interchanges. This, in turn, has led to congestion and safety problems along the full length of the facility.

A complicating factor is the large numbers of trucks that use I-710 to travel between the Ports and rail freight yards located near Interstate 5 (I-5), and to warehousing and distribution points scattered throughout the Southern California urban area. Near Long Beach, trucks make up nearly twenty percent of the traffic stream during the day, compared with an average daily truck percentage of 6 to 13 percent on similar freeways in Los Angeles County. It is not uncommon to see a line of trucks, nose to tail, in the two right-hand lanes of the freeway, which greatly restricts movement across lanes as other vehicles attempt to enter and exit the freeway. In terms of utilization of highway capacity, one truck is the equivalent of two passenger cars or more depending upon prevailing roadway conditions. Moreover, trucks move at different speeds compared to general-purpose traffic and often have difficulty negotiating the tight turns, short weave distances, and steep grades at most of the I-710's interchanges. Additionally, trucks are a major source of diesel particulate emissions, which contribute to carcinogenic risk in the South Coast Air Basin.

High traffic volumes, design deficiencies, freeway congestion, and the interaction between cars and trucks in the traffic stream, create potentially unsafe conditions. Field officers of the California Highway Patrol consider I-710 to be one of the worst freeways in the Los Angeles County area with regard to safety. According to state records, I-710 experiences an accident rate that is well above the statewide average for freeways of this type. About five accidents per day occur on I-710 between Ocean Boulevard and SR-60. Accidents, particularly truck-related accidents, form bottlenecks as emergency workers close travel lanes to clear the scene. As a result, these incidents lead to additional congestion, delay, and occasionally secondary accidents on I-710 as approaching vehicles unexpectedly run into the back of a queue. When I-710 shuts down, freeway traffic spills over onto local roadways and arterials searching for an alternative route, creating additional congestion on those facilities as well.

¹ Ms. Andrea Hricko, Associate Professor of Preventive Medicine, University of Southern California; June 25, 2003 OPC Meeting. (See Meeting Minutes in Appendix B)

² Dr. John Peters, Co-Director, Children's Environmental Health Center, Keck School of Medicine of USC; April 9, 2003 TAC Meeting. (See Meeting Minutes in Appendix C).

I-710 is, and is expected to remain, a primary route for trucks carrying containers to and from the Ports. I-710 also serves as the gateway to the City of Long Beach, including several cultural, business, and tourist attractions of great economic importance to this area of Los Angeles County. The amount of congestion and traffic delay currently experienced on I-710 is not only disruptive to Port operations that must accommodate “just-in-time” goods delivery and inventory processes, but also hurts trucking, manufacturing, and other commercial interests within the region as shipments are delayed and as trucks sit in traffic. Idling trucks produce diesel particulates affecting air quality and thus exacerbating public health concerns of nearby residents. In addition, the I-710 freeway is visually unattractive, which degrades the motorist’s experience and detracts from the impressions formed of the communities surrounding it.

The planning horizon for the I-710 Study is 2025. Both population and employment within the Study Area are expected to grow by about 20 percent between now and 2025. According to demand projections produced by the Ports of Long Beach and Los Angeles, container traffic will more than double during that same time period. These figures indicate that the existing transportation problems on I-710 and other study area roadways will get much worse and will affect the competitive position of the Los Angeles region, as well as other U.S. businesses and industries, unless corrective action is taken.

Finally, there is a significant percentage of mobility-constrained and minority populations within the I-710 Study Area. Improvements to transit services are needed to better serve those without access to autos for their travel needs and to attract drivers from their cars to help reduce traffic congestion. Future transportation improvements also need to be sensitive to the distribution of their benefits and impacts, so as not to disproportionately affect any one ethnic group or community.

Analysis of these current and projected conditions in the I-710 Study Area, as well as public input, has led to the identification of several key problem areas for the I-710 Corridor, which was approved in December 2001 by the I-710 Oversight Policy Committee. Many of these problems and needs are interrelated. Table 3.2-1 lists and describes these problem issue areas in no particular order of importance:

**Table 3.2-1
I-710 Corridor Problem Statements**

Problem/Need	Problem Statement
Recurrent Traffic Congestion	Traffic demand is overwhelming the existing design capacity of I-710 and related interchanges in the peak periods. Under current conditions, high volumes of both trucks and cars have led to peak spreading and traffic congestion throughout most of the day (6 a.m. to 7 p.m.) on the mainlines of I-710 as well as approaching arterials. This pattern is projected to worsen over the next twenty years.

Table 3.2-1 Continued
I-710 Corridor Problem Statements

Problem/Need	Problem Statement
Non-Recurrent Traffic Congestion	The frequent occurrence of traffic incidents and constraints associated with quickly clearing those incidents causes bouts of traffic congestion on I-710 that cannot be predicted or avoided. Serious incidents can shut down the freeway for an hour or more, with its attendant spillover effects on the local arterial system. These unexpected delays and resulting economic consequences to freight carriers, employers, manufacturing, and business interests in the region are severe. The unexpected nature of traffic congestion on I-710 is also inconvenient and highly disruptive to commuters and residents that depend upon it for their daily travel.
Safety	The number and severity of accidents on I-710 are high when compared to other similar freeways in the Los Angeles region. Accidents on I-710 are largely due to design deficiencies, high traffic volumes, and the current vehicle mix of autos and heavy-duty trucks. These accidents cause property damage, injuries, and fatalities as well as vehicle delays, as traffic slows or comes to a stop on the freeway mainline until the incidents are cleared. In some cases, secondary accidents are triggered as vehicles upstream of the incident run into the back of an unexpected traffic queue.
Goods Movement	To remain economically competitive in the global marketplace, the Southern California region must support and manage increasing demand for goods movement in the I-710 Corridor. With the recent completion of the Alameda Corridor and its corresponding expansion in freight rail capacity, the regional focus has turned to trucks because of the essential role that this travel mode plays in the logistics chain for goods movement. By 2025, the number of heavy duty trucks on I-710 is expected to more than double. Of particular concern in the I-710 Study Area is how to best realize the economic benefits of the movement of goods (freight) and yet lessen the disruptive effects of truck traffic on the freeway and roadway system, and on neighboring communities.
Design Deficiencies	Non-standard design features such as inadequate weave distances, acceleration lanes that are too short, poor turning radii, narrow lane widths, left-side egress locations, lack of shoulders, and missing freeway connectors and access points are a major contributor to safety problems and operational inefficiencies along the full length of I-710 corridor. These non-standard features also constrain the operational capacity of travel lanes and ramps on I-710. This situation contributes to poor levels of service currently experienced by motorists on I-710.

Table 3.2-1 Continued
I-710 Corridor Problem Statements

Problem/Need	Problem Statement
Land Use Constraints	The envelope of state-owned land that contains the I-710 facility is limited along much of the length of I-710, including the interchanges. This means that the buffer of land between the edge of travel way and the state right-of-way line is very narrow in most locations and, in some cases, it is non-existent. In addition, sensitive populations and natural resources such as the Los Angeles River Channel, residential neighborhoods, businesses, cemeteries, schools, and parks are located adjacent to the right-of-way line. If major changes are made to the current geometric configuration of freeway, then the potential for right-of-way impacts is high.
Air Quality/Public Health	As shown by recent Air Quality Management District (AQMD) studies, populations within the I-710 Study Area are regularly exposed to toxic air contaminants that increase carcinogenic risk. A major source of these air toxins is diesel particulates, which is considered to be a local source air pollutant. About half of the diesel particulate matter in the South Coast Air Basin as reported by AQMD (1998) is caused by emissions from vehicles using the freeway and roadway system. Heavy-duty diesel trucks are the leading contributor to on-road sources of diesel particulates.
Environmental Justice/Equity	The I-710 Study Area contains a high number of minority and low-income populations that require special consideration under federal environmental justice guidelines. Proposed transportation improvements should be equitable and should distribute benefits and burdens fairly.
Aesthetics/Noise	The I-710 freeway is unattractive, which affects the perception that visitors, residents, and potential customers have of the Gateway Cities area. In addition, residents and other sensitive receptors located close to I-710 experience high levels of traffic noise, particularly in locations where noise barriers do not presently exist.
Cost-Effectiveness	There are limited financial resources and high competition for transportation dollars within Los Angeles County over the next 25 years. Transportation improvements identified in the I-710 Corridor must compete for these available funds with other worthy projects within the county. To be successful, proposed improvements must be cost-effective, generating the maximum transportation benefits for the dollars invested. In addition, proposed transportation improvements should be realistic and achievable, based on known physical, operational, social, and institutional parameters.
Transit	There is a need to better serve the populations in the I-710 Study Area with transit. Existing transit services warrant solutions to improve the mobility of those who currently use public transit, as well as to make these services more competitive with the automobile so as to attract new riders to help reduce traffic congestion.

Source: Purpose and Need Statement, Parsons Brinckerhoff, adopted by OPC in December 2001.

3.3 Guiding Principles

In May 2003, in response to overwhelming community concern and public response in opposition to the preliminary design concepts for expanding I-710, the focus and emphasis on purpose and need for future transportation improvements for the I-710 Major Corridor Study was refined. The Oversight Policy Committee adopted a set of five guiding principles that established priorities among the problem issue areas as well as guidance for assessing and formulating recommendations for transportation improvements.

I-710 Corridor Guiding Principles

1. Minimize right-of-way acquisitions with the objective being to preserve existing houses, businesses, and open space.
2. Identify and minimize both immediate and cumulative exposure to air toxics and pollution with aggressive advocacy and implementation of diesel emissions reduction programs and use of alternative fuels as well as in project planning and design.
3. Improve safety by considering enhanced truck safety inspection facilities and reduced truck/car conflicts and improved roadway design.
4. Relieve congestion and reduce intrusion of traffic into communities and neighborhoods by employing a comprehensive regional systems approach that includes adding needed capacity as well as deploying Transportation Systems Management and Transportation Demand Management technologies and strategies (TSM/TDM) to make full use of freeway, roadway, rail, and transit systems.
5. Improve public participation in the development and consideration of alternatives and provide technical assistance to facilitate effective public participation.

Source: Oversight Policy Committee Meeting Minutes, May 28, 2003

4.0 ALTERNATIVES CONSIDERED

Section 4.0 identifies and describes the alternatives considered in the I-710 Major Corridor Study. The development and screening of transportation alternatives was a two step process. In the first step, a broad range of twelve alternatives was defined to meet the purpose and need for improvements in the I-710 Corridor. In the second step, a preliminary evaluation was performed to screen the alternatives. This screening process resulted in narrowing down the potential alternatives from a long list of twelve conceptual alternatives to a final set of five alternatives. The final set of five alternatives was then carried forward for detailed technical analysis and evaluation in subsequent phases of the I-710 Study.

4.1 Alternatives Development

Between December 2001 and February 2002, an initial set of twelve transportation alternatives was developed to respond to the need for transportation improvements in the I-710 Corridor. These alternatives are described in the following pages. The development of a broad range of transportation improvements was an important step in the I-710 Major Corridor Study.

4.1.1 Sources for Potential Transportation Improvements

In developing these transportation alternatives for the I-710 Study Area, input from several sources was considered. Technical information on travel patterns, accident statistics, future growth, and transportation system performance was analyzed. Previous studies and current planning efforts relating to both land use development and transportation were also examined. Substantial emphasis was given to discussions with residents, business interests, community leaders, local officials, city representatives, and with agencies such as the California Highway Patrol, about the most critical problems in the I-710 Corridor and what should be done about them.

Comments collected from members of general public and stakeholders through community roundtables, questionnaires, interviews with city staff/officials, and public open houses elicited a number of ideas for transportation improvements in the I-710 Study Area. These public comments are summarized and documented in the *August 2001 Issues Analyses Report*, which is provided in Appendix F of this report. Table 4.1-1 highlights the most commonly heard observations and suggestions from these groups.

**Table 4.1-1
Stakeholder Suggestions for Transportation Improvements**

Suggestions	Public Comment Summary
Added travel lanes for I-710, preferably to handle trucks	One area of consensus among all stakeholders was to separate trucks from general passenger vehicles, in whatever form it may take. Many were in favor of exploring ways to separate truck traffic from general passenger vehicles to improve the flow of traffic and safety. A Truck Only lane was the most favored alternative, but added general purpose and carpool lanes were also suggested. Widening of the freeway or double decking was suggested as well. If widening does occur, most would like the Southern California Edison right-of-way to be used and the Los Angeles river corridor preserved.

Table 4.1-1 Continued
Stakeholder Suggestions for Transportation Improvements

Suggestions	Public Comment Summary
24-Hour Port Operation	Extending port hours or making deliveries at night to alleviate congestion during rush hour was a commonly heard suggestion, particularly in the Long Beach or southern corridor area. Other suggestions regarding the ports included operating on 3 shifts, running 24 hours. The empty container issue should also be addressed. Suggestions included: attaching gate fees to peak hour deliveries, providing economic incentives for after hour deliveries and/or constructing an Inland port.
Truck Travel Restrictions	A “7-7” plan was suggested to move commercial vehicles to a 7 p.m. to 7 a.m. time period and reserve the 7 a.m. to 7 p.m. hours for non-commercial vehicles only. A similar plan restricting truck traffic to certain hours of the day was implemented during the 1984 Olympics and many felt that this system was successful because it alleviated congestion significantly.
Truck Weigh Station	A major goal of the California Highway Patrol (CHP) is to have a weigh station/truck scale located on the I-710. The only other weigh station in the area is the Carson scale on the I-405. Most of the trucks coming out of the ports do not necessarily pass through the Carson scale and this results in inefficient enforcement by the CHP.
I-5/I-710 Interchange	Adding the missing freeway-to-freeway connectors to the I-5/I-710 interchange, and the provision of right-hand-side connectors in general, were viewed as necessary improvements for this corridor. It is widely believed that the construction of these interchange ramps would increase the safety of this corridor as well as decrease the congestion on both the freeway and connecting arterials such as Atlantic Boulevard and Washington Boulevard.
Slauson On/Off-Ramp	Nearly every city, particularly in the northern section of the corridor, expressed a need for construction of an on and off ramp at Slauson Avenue on the I-710. Slauson Avenue is heavily industrial and is the major destination for port deliveries. Currently Washington Boulevard and Atlantic Avenue are the arterials of choice for many trucks to gain access to Slauson Avenue. An off-ramp at Slauson Avenue is believed by respondents to solve most of the traffic issues on Washington Boulevard, Atlantic Avenue and other nearby arterials.
Reconfiguration of Ramps	The radii of the I-710 on/off ramps need to be reconfigured to accommodate the size of the large trucks and to reduce the possibility of trucks overturning. The ramps on the I-710 from the I-405 are particularly tight and the “hair-pin” turns are perceived to lead to many collisions. Reconfiguration of the short ramps is also necessary to reduce the back-up of trucks on the freeway.
Direct Off-Ramp for Trucks into Rail Yards	A direct off-ramp for trucks to the rail yards on Washington Boulevard was suggested by cities in the northern section of the Corridor. It was felt that an off-ramp leading directly into the rail yards would alleviate congestion on arterial streets.

Table 4.1-1 Continued
Stakeholder Suggestions for Transportation Improvements

Suggestions	Public Comment Summary
Upgrades to Street Arterials	As a result of the congestion on the I-710, motorists are using arterial streets as an alternative to the freeway. This is particularly evident when an accident occurs on the I-710. The truck traffic on heavy shipping days can also affect the local bus transit system by making it difficult for buses to pass through, resulting in long delays of service. Any construction to the I-710 Freeway must be preceded by improvements to parallel arterials.
Improved Landscaping	Besides the issues of high truck volumes and congestion on the I-710 Freeway, the poor aesthetic condition of this freeway has been mentioned during numerous meetings. Improving the look and landscape of this corridor should be included in all plans for improvement.
Improved Signage	Some of the signs are difficult to read. In other cases, they cannot be seen because of all of the trucks in the way. The signage near Long Beach is confusing and in need of improvement. For example, lanes to the Queen Mary should not be confused with lanes to the port, which is currently the case.
Improved Incident Management	On a freeway with a perceived high volume of accidents and spills, a better incident management system needs to be implemented. Use of all intelligent transportation system (ITS) tools for incident management is important for clearing the roadway and for motorist information. The synchronization of traffic signals on arterials during particularly heavy congestion could improve the flow of traffic. Increasing the width of shoulders was also suggested as a way to move accidents and break downs off the freeway, when possible. Shoulders also allow for proper enforcement of the freeway.

Source: *Issues Analyses Report*, Consensus Planning Group, August 2001.

4.1.2 Approach to Alternatives Development

The purpose of developing various alternatives is to identify a fairly large list of possible transportation options so that these different alternatives can be studied and compared to each other to come up with the best solution for the I-710 Corridor. The twelve alternatives developed for the I-710 Study include operational improvements to existing transportation programs and services as well as major construction projects involving a substantial financial investment in the transportation system, particularly I-710. A building block approach was used to develop the alternatives, generally from the simplest to the more complex, starting with Alternative 1, the “no action” alternative. Considerable attention was then devoted to developing Alternative 2, the Transportation Systems Management/Transportation Demand Management Alternative, which has more of an operational and policy focus as opposed to transportation improvements that would involve major construction to the transportation system. Those alternatives that would require a major capital investment, and thus construction, are called “build” alternatives. For the I-710 Major Corridor Study, the build alternatives were further classified into three categories: low build, medium build, and high build.

During alternative development, preliminary concepts of alternatives were discussed with representatives from local jurisdictions, community leaders, and members of the public over a period of several weeks in workshops, open houses, and briefings. During this phase of the I-710 Study process, the planning effort was geared toward adding new solutions and on broadening the range of alternatives. Study participants were asked to consider the purpose and need for transportation improvements within the I-710 Study Area and suggest either new alternatives or changes to the preliminary alternatives. Through this process, Alternative 11 was added by the I-710 Technical Advisory Committee in January 2002 and Alternative 12 was added by the I-710 Oversight Policy Committee in February 2002.

Even though some of the twelve alternatives contain similar transportation features, each alternative is structured to be fundamentally different from the others. This is done so that the different benefits, costs, and impacts of these alternatives can be examined and understood. The alternatives also emphasize different modes of travel or answer specific transportation needs that have been identified in the I-710 Study Area. These different travel modes include: general purpose traffic (all types of vehicles); high occupancy vehicles (HOV or carpools); trucks; goods movement (both trucks and freight rail); and passenger rail.

In summary, the twelve initial alternatives are:

- Alternative 1 – No Build Alternative
- Alternative 2 – Transportation Systems Management/Transportation Demand Management (TSM/TDM) Alternative
- Alternative 3 – Low General Purpose Alternative
- Alternative 4 – Low Truck Alternative
- Alternative 5 – Medium HOV Alternative
- Alternative 6 – Medium General Purpose Alternative
- Alternative 7 – Medium Truck Alternative
- Alternative 8 – High General Purpose Alternative
- Alternative 9 – High Truck Alternative
- Alternative 10 – High Goods Movement Alternative
- Alternative 11 – High HOV Alternative
- Alternative 12 – High Rail Alternative

The build alternatives may be classified based on their respective levels of capital investment as shown on the chart below. For example, Alternative 3 represents a low-range investment with an emphasis on serving general purpose trips, whereas Alternative 9 represents a high-range investment designed to handle growing truck demand.

**Table 4.1-2
Build Alternatives Grouped by Levels of Investment**

Mode	Low-Range	Mid-Range	High-Range
General Purpose (GP)	Alternative 3	Alternative 6	Alternative 8
Truck	Alternative 4	Alternative 7	Alternative 9
Goods Movement			Alternative 10
High Occupant Vehicle (HOV)		Alternative 5	Alternative 11
Rail			Alternative 12

Source: Initial Set of Alternatives, Parsons Brickerhoff, February 2002.

The Initial Set of Alternatives, described in Section 4.2 of this report, includes both capital improvements and operational strategies, emphasizing different transportation modes and potential alignments.

4.2 Initial Set of Alternatives

Section 4.2 describes each of the twelve alternatives that comprise the Initial Set of Alternatives. As explained in Section 4.1, a building block approach was used to develop the Initial Set of Alternatives, beginning with Alternatives 1 and 2. The text descriptions point out key similarities and differences among the alternatives. All of the No Build (Alternative 1) improvements are included in all the other alternatives. Also, the TSM/TDM improvements (Alternative 2) are carried forward into all of the remaining build alternatives (Alternatives 3 – Alternatives 12) since these operational improvements increase the effectiveness of these build alternatives. Maps are provided for all of the build alternatives, here, in Section 4.2. For a more detailed portrayal of the Initial Set of Alternatives, look to Appendix G of this report.

Alternative 1 - No Build Alternative

Also called the “No Project” Alternative, the No Build Alternative examines what travel conditions will be like by 2025, the future planning horizon year for the I-710 Study. The No Build Alternative is the starting point for the development of the other eleven transportation alternatives and is the future baseline scenario against which these alternatives are compared.

The No Build Alternative encompasses future improvements to the existing transportation system that are expected to be in place by 2025. Major transportation projects that are already under construction or that are already planned to occur are folded into the No Build. Examples of these projects include the construction of the Alameda Corridor, replacement of all of the pavement on I-710 by Caltrans, added bus service throughout the I-710 Study Area, and improvements to truck-impacted intersections, among other future transportation projects.

Alternative 2 - TSM/TDM Alternative

The TSM/TDM Alternative is made up of a list of operational improvements that provide the greatest benefit to the transportation system in the I-710 Study Area and that stops just short of a major financial investment in new transportation facilities. The TSM/TDM Alternative includes several transportation strategies to better manage how the existing freeways, roadways, and the transit systems operate in the I-710 Study Area.

Alternative 2 includes transportation improvements such as added bus service for local communities, the completion of the ramp metering system on I-710, and the use of advanced technologies to manage traffic and to inform motorists about alternate routes to avoid traffic congestion. Other proposed TSM/TDM improvements include the consolidation of truck trips or a shift of truck traffic into the late evening or early morning hours.

As opposed to some of the more capital-intensive alternatives, the TSM/TDM Alternative can potentially be implemented within a short time frame.

Alternative 3 - Low General Purpose Alternative

As one of the low build alternatives, Alternative 3 calls for a capital investment to the highway and roadway system in the I-710 Study Area on top of the improvements that are already occurring in the No Build Alternative and the operational improvements that are proposed in Alternative 2, the TSM/TDM Alternative. See Figure 4.2-1 for a map of Alternative 3.

The purpose of Alternative 3 is to improve traffic flow and safety for all types of vehicles, focusing on a network of the most congested arterial streets that either lead to I-710 or that run parallel to I-710. Alternative 3 responds to projected traffic increases on these arterials as a result of the population and employment growth taking place within the I-710 Study Area. In addition, by improving certain interchanges on I-710 this alternative addresses some of the worst safety concerns on I-710.

Alternative 3 accomplishes this by:

- adding a lane for general purpose traffic in each direction to a network of ten arterials within the I-710 Study Area
- replacing the existing left-side connector ramps at the I-5/I-710 interchange with right-side connector ramps to allow for safer weave movements at this high accident location
- reconfiguring the design of the I-710 interchanges at Florence Avenue and Imperial Avenue.

Alternative 4 - Low Truck Alternative

Alternative 4 is a low build alternative and is illustrated in Figure 4.2-1. Alternative 4 includes the improvements described in the No Build and TSM/TDM Alternatives. In addition, Alternative 4 focuses on safety and mobility problems associated with heavy-duty trucks.

In the northern part of the I-710 Study Area, Alternative 4 includes special roadway facilities called collector-distributor roads that would allow for vehicles to merge safely onto the main travel lanes of I-710 as well as connector ramps, only for trucks, to separate the existing truck and auto movements at the I-5/I-710 interchange.




Alternative 4 also proposes the following improvements:

- Redesigning and rebuilding the I-710/I-405 interchange to improve safety and to better handle high levels of traffic.
- Constructing a California Highway Patrol truck inspection facility adjacent to northbound I-710 between Del Amo Boulevard and Long Beach Boulevard in Long Beach.
- Expanding the use of advanced technology to manage the flow of truck traffic, including improved incident management to help route truck traffic away from traffic trouble spots.
- Adding a general purpose lane in each direction to selected arterials that connect to I-710 and that are projected to carry very high volumes of truck traffic.

Figure 4.2-1
Initial Alternatives 3 & 4

Alternative 3
Low General Purpose
Alternative

LEGEND

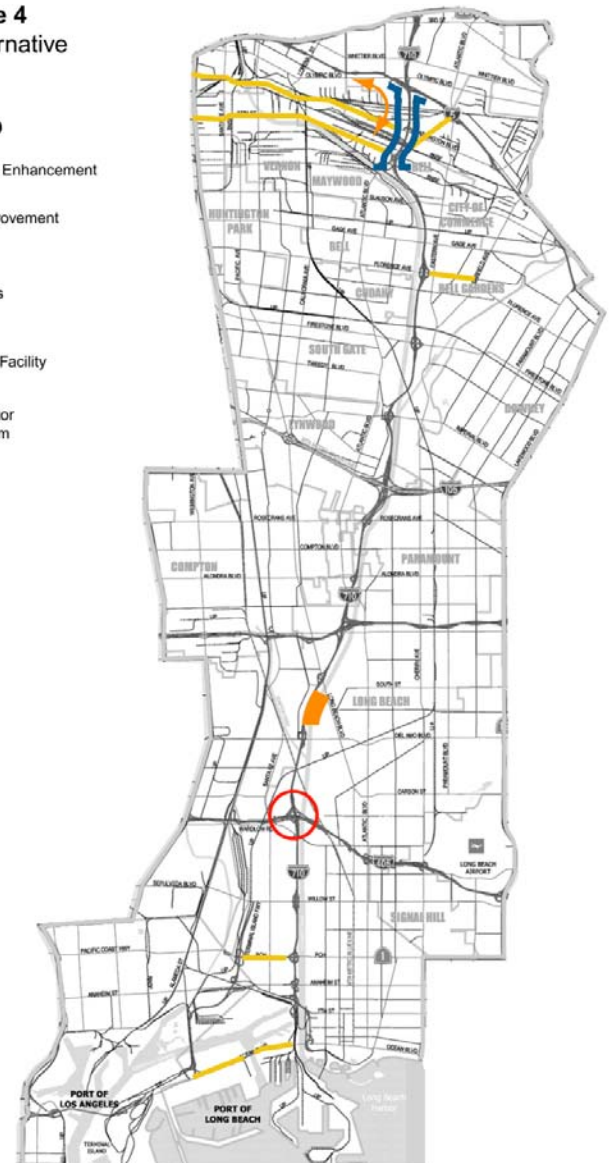
-  Arterial Capacity Enhancement
-  Partial Interchange Improvement
-  Interchange Improvement



Alternative 4
Low Truck Alternative

LEGEND

-  Arterial Capacity Enhancement
-  Interchange Improvement
-  Truck Connectors
-  Truck Inspection Facility
-  Extended Collector Distributor System



Alternative 5 - Medium High Occupancy Vehicle (HOV) Alternative

Alternative 5 is a medium build alternative in that it proposes an additional level of transportation improvements compared to Alternatives 3 and 4. See Figure 4.2-2 for a map of Alternative 5. Alternative 5 calls for the addition of a carpool lane in each direction for the full length of I-710 from 9th Street (City of Long Beach) to the SR-60 Freeway. The new carpool lanes on I-710 would look and operate very much like the HOV lanes that presently exist on the I-105 Freeway. Alternative 5 would also add express bus service on I-710 that would use the new HOV lanes. The main purpose of the HOV lanes is to increase the person-carrying capacity of I-710, by encouraging carpooling and transit use.

Also, under Alternative 5, the entire I-5/I-710 interchange would be completely rebuilt by:

- replacing the existing left-side connector ramps at the I-5/I-710 interchange with right-side connector ramps for general purpose traffic to allow for safer weave movements.
- adding two new connector ramps for general purpose traffic to enable northbound I-710 vehicles to transition directly to I-5 in the southbound direction, as well as the reverse movement (northbound I-5 to southbound I-710); two movements that are currently missing from this freeway to freeway interchange.
- adding two new connector ramps only for carpools and buses, so that they do not need to leave the HOV lanes on I-710 to transition to northbound I-5 as well as the reverse movement (southbound I-5 to southbound I-710).

Alternative 6 - Medium General Purpose Alternative

Alternative 6 is another medium build alternative in that it would involve transportation improvements along the full length of I-710. Alternative 6 is geared toward safety and design improvements, improving access to and from I-710, and adding travel lanes where they are most needed on I-710. Alternative 6 is shown in Figure 4.2-2.

The main features of Alternative 6 are:

- improvements to several of the interchanges along I-710
- a new interchange on I-710 at Slauson Avenue
- the addition of a mixed flow lane in each direction on I-710 from 9th Street in Long Beach to I-405 and from Imperial Boulevard to Atlantic Boulevard.

Alternative 6 also includes collector-distributor roads that would allow for vehicles to merge safely onto the main travel lanes of I-710 between Atlantic Boulevard and the I-5/I-710 interchange.




The interchange improvements involve redesigning and rebuilding each interchange to operate more safely and to accommodate higher volumes of traffic. In addition, the I-5/I-710 interchange would be rebuilt by:

- replacing the existing left-side connector ramps at the I-5/I-710 interchange with right-side connector ramps to allow for safer weave movements.
- adding two new connector ramps to enable northbound I-710 vehicles to transition directly to I-5 in the southbound direction, as well as the reverse movement (northbound I-5 to southbound I-710); two movements that are currently missing from this freeway to freeway interchange.

Figure 4.2-2
Initial Alternatives 5 & 6

Alternative 5
Medium HOV Alternative





LEGEND

-  One HOV Lane (Each Direction)
-  Interchange Improvement
-  Direct HOV Connector



Alternative 6
Medium General Purpose Alternative

LEGEND

-  Add One Mixed Flow Lane (Each Direction)
-  Interchange Improvement
-  Extended Collector Distributor System
-  New Interchange



Alternative 7 - Medium Truck Alternative

Alternative 7 is also categorized as a medium build alternative, however, Alternative 7 is designed to respond to the high level of truck trips that are projected to occur within the I-710 Study Area. See Figure 4.2-3 for a map of Alternative 7. Alternative 7 focuses on improving safety, reliability of travel, and access to I-710, with an emphasis on heavy-duty trucks. Consequently, Alternative 7 contains several design features such as direct truck ramps and truck bypass lanes to separate truck traffic from other vehicles at those locations in the I-710 Study Area that experience heavy truck movements or where points of conflict are most likely to occur between heavy duty trucks and auto traffic on I-710.

A key difference between Alternative 7 and the other two medium build alternatives (Alternatives 5 and 6) is that Alternative 7 does not propose any additional “through” lanes for I-710. However, Alternative 7 would add lanes to the mainlines of I-710, called auxiliary lanes, at several locations between local interchanges to improve the flow of traffic as vehicles enter and exit I-710. Alternative 7 would also increase the width of the two right-hand lanes on I-710 in each direction to accommodate larger vehicles such as trucks and to provide some additional space between different-sized vehicles that are frequently required to travel next to each other on I-710.

Specific design features of Alternative 7 include:

- Truck bypass lanes that would divert “through” truck traffic out of the mixed flow traffic stream and carry these trucks to the right and around major freeway-to-freeway interchanges, thereby minimizing conflicts between trucks and autos at these major meeting points on I-710.
- Direct truck ramps that would be built only for trucks to use at those local interchanges on I-710 that experience very high volumes of heavy duty trucks. In these cases, autos would use the existing on- and off-ramps at the interchanges and heavy duty trucks would use the new truck-only ramps.
- Added lanes for selected arterial roadways that connect I-710 with freight facilities and with land uses that attract high numbers of trucks in order to improve traffic flow and reliability of travel.
- Redesign and reconstruction of three freeway-to-freeway interchanges on I-710 for safety purposes and to handle the high traffic flows: I-405/I-710, SR-91/I-710, and I-5/I-710. Under Alternative 7, the design improvements proposed for the I-5/I-710 interchange would be essentially the same as those described for this interchange in Alternative 6.

Alternative 8 - High General Purpose Alternative

Alternative 8 is geared toward improving mobility for general purpose traffic as well safety and design improvements in addition to improving access to and from I-710. Alternative 8 is categorized as a high build alternative in that it represents another level of financial investment above the medium build alternatives (Alternatives 5, 6, and 7). Alternative 8 is shown on Figure 4.2-3.

Figure 4.2-3
Initial Alternatives 7 & 8

Alternative 7
Medium Truck Alternative





LEGEND

-  Arterial Capacity Enhancement
-  Interchange Improvement
-  Direct Truck Ramps
-  Truck Bypass Lanes



Alternative 8
High General Purpose Alternative

LEGEND

-  Add Two Mixed Flow Lanes (Each Direction)
-  Add One Mixed Flow Lane (Each Direction)
-  Interchange Improvement
-  New Interchange



Alternative 8 proposes two additional travel lanes in each direction for some sections of I-710 and one additional travel lane in each direction for the remaining sections. Alternative 8 would involve a significant increase in freeway capacity for general purpose traffic, between Ocean Boulevard and SR-60, compared to existing conditions. Essentially, Alternative 8 seeks to provide sufficient freeway capacity to reduce the congestion problems that motorists currently experience on I-710 and that are expected to worsen in future years.

As part of Alternative 8, approximately ten local interchanges and three freeway-to-freeway interchanges would be redesigned and rebuilt, including the I-5/I-710 interchange. Alternative 8 also proposes a new interchange on I-710 at Slauson Avenue. Plus, Alternative 8 would involve the construction of auxiliary lanes between local interchanges to improve traffic operations on the main travel lanes of I-710 as vehicles enter and exit the freeway.

Alternative 9 - High Truck Alternative

Alternative 9 is another high build alternative. See Figure 4.2-4. Alternative 9 focuses on truck movement within the I-710 Study Area. Alternative 9 is unique in that it would involve the construction of additional travel lanes to be used only by trucks along the same general alignment as the existing I-710 freeway. In concept, Alternative 9 seeks to remove as many trucks as possible from the present mix of traffic on I-710, thereby reducing points of conflict between autos and trucks. In this manner, trucks would realize the benefit of new travel lanes. At the same time, the vehicles remaining on I-710 would benefit from the additional capacity freed up by those trucks no longer using I-710.

Several sections of the truck lanes, if not all, would need to be elevated on a separate roadway structure so as to avoid the need to widen I-710 as much as possible. The exclusive truck facility would either be located in the median or adjacent to I-710 depending upon the location and best fit given the various physical constraints along the I-710 Corridor such as the Los Angeles River. Access and exit ramps for the truck-only lanes would be built approximately every three or four miles. This means that not all trucks would elect to use the new truck-only lanes, particularly for short trips on I-710. Also, a toll may be required for the use of the truck-only lanes, depending upon future traffic conditions in the I-710 Corridor.

In addition to the truck facility, Alternative 9 proposes the redesign and reconstruction of three freeway-to-freeway interchanges on I-710 for safety purposes and to handle the high level of traffic volumes at these locations. The three interchanges are: I-405/I-710, SR-91/I-710, and I-5/I-710.

Alternative 10 - High Goods Movement Alternative

Alternative 10 is a high build alternative that seeks a comprehensive solution for all types of trips associated with goods movement in the I-710 Study Area, including trucks. A map of Alternative 10 is provided in Figure 4.2-4. Alternative 10 proposes the construction of four additional travel lanes at surface level in the median of I-710 that would be separated from mixed flow traffic by concrete barriers. To accomplish this, I-710 would need to be reconstructed along the full length of the Corridor, from 9th Street in Long Beach to the SR-60 Freeway. These new travel lanes, called special purpose lanes, would primarily be used by automobiles since medium- and heavy-duty trucks would be prohibited from entering the new lanes.

Figure 4.2-4
Initial Alternatives 9 & 10

Alternative 9
High Truck Alternative

LEGEND

-  Exclusive Truck Facility (4 Lanes)
-  Exclusive Truck Facility (6 Lanes)
-  Interchange Improvement
-  Approx. Truck Ingress/Egress Location



Alternative 10
High Goods Movement Alternative

LEGEND

-  Dual Roadway Facility
-  Exclusive Truck Facility
-  Arterial Capacity Enhancement
-  Interchange Improvement
-  New Interchange
-  Approx. Vehicle Ingress/Egress Location



With the new lanes autos would tend to use the inner travel lanes for their trips and trucks would be directed to the outside lanes. Use of the faster, less-congested special purpose lanes could require a toll, depending upon future traffic conditions on I-710. Access points that would allow vehicles to enter and exit the inner lanes would be provided about every three or four miles.

This means that autos that are making relatively short trips would likely opt for the outside lanes or would elect to remain on the arterial roadway system. For this reason, Alternative 10 also proposes that an additional travel lane be added in each direction to four key arterial streets that run parallel to I-710.

In addition to improvements on the I-710, Alternative 10 proposes that special roadway facilities be built, to be used primarily by trucks, to connect the Terminal Island Freeway with Alameda Street and to extend the Terminal Island Freeway up to the I-405 Freeway. The purpose of these new roadway connectors would be to encourage more trucks entering and leaving the Long Beach / Los Angeles Port complex to use the Terminal Island Freeway.

Alternative 10 also includes transportation improvements and operational strategies to better manage truck trips occurring within the I-710 Study Area. Examples of these goods movement strategies include:

- Building a new near-dock rail facility where cargo containers would be transferred from trucks to railcars, reducing the future number of trucks on I-710 that would need to travel to the rail yards along Washington Boulevard in the cities of Commerce and Vernon.
- Building new staging areas for trucks where chassis and containers could be conveniently transferred and stored, while reducing the number of truck trips needed to perform these functions.

In order to respond to the safety and traffic operational problems on I-710, Alternative 10 provides for the redesign and reconstruction of three freeway-to-freeway interchanges and approximately ten local interchanges along the full length of I-710. These interchange modifications would be similar to those described in Alternatives 6 and 8.

Alternative 11 - High HOV Alternative

Alternative 11 is a high build alternative that involves the construction of new carpool lanes, two in each direction, for the full length of I-710. See Figure 4.2-5. The new carpool lanes would be built on elevated roadway structure, most likely in the median of I-710. The elevated roadway structure would reduce the number of places where I-710 would need to be widened to fit in the new HOV lanes. In this case, the proposed HOV lanes would look and operate very much like the elevated carpool lanes that presently exist on the I-110 Harbor Freeway.

Only vehicles with two or more occupants would be allowed to use the new carpool lanes. Alternative 11 would also add express bus service in the I-710 Corridor to take advantage of the travel time savings provided by the new HOV lanes as compared to the more heavily congested mixed flow lanes. Carpools and buses would enter and exit the elevated HOV lanes via special ramps at selected locations along I-710, approximately every three or four miles.

Figure 4.2-5
Initial Alternatives 11 & 12

Alternative 11
High HOV Alternative

LEGEND

-  Elevated HOV Facility
-  Interchange Improvement
-  Direct HOV Connector
-  Approx. HOV Ingress/Egress Location



Alternative 12
High Rail Alternative

LEGEND

-  High Speed Rail
-  Station Location



At some of the freeway-to-freeway interchanges, new freeway connector ramps would be built only for use by HOV traffic, so that carpools do not need to leave the HOV lanes on I-710 to transition to other freeways such as I-405, SR-91 or I-5. In addition, these three freeway-to-freeway interchanges (I-405/I-710, SR-91/I-710, I-5/I-710) would be redesigned and rebuilt to operate more safely for all types of vehicles at these problem locations.

Alternative 12 - High Rail Alternative

Alternative 12 is a high build alternative intended to increase the use of transit in the I-710 Study Area by building a double-track, high-speed passenger rail system between the Queensway Bay area in the City of Long Beach and Union Station in downtown Los Angeles. Alternative 12 is illustrated on Figure 4.2-5.

Depending upon best fit, the new rail line would be located either in the median or alongside I-710, and would transition into a Union Pacific Railroad right-of-way just north of where Imperial Highway crosses I-710. To save on cost, the new rail system would be placed at surface level and separated from the adjacent travel lanes on I-710. However, it is likely that some sections of the new rail alignment would need to be elevated to cross over existing structures or existing transportation facilities.

Trains would travel at an average speed of 50 miles per hour, including stops at rail stations, completing the end-to-end trip in less than thirty minutes. This represents a significant improvement over the 55-minute travel time currently experienced by transit riders, end to end, on the Long Beach to Los Angeles Blue Line.

Trains would run approximately every 15 minutes during peak travel periods and about every 30 minutes at other times of the day. Rail stations would be placed about every five miles to maintain travel times that are more competitive with the automobile since closer station spacing would substantially reduce average train speeds. Proposed rail stations would be sited close to existing rail stations for both the Blue Line and the Green Line to allow for transfers between the different rail systems. Alternative 12 would also provide for bus shuttle service as well as ample parking at the new rail stations.

4.3 Alternatives Screening

4.3.1 Approach / Screening Criteria

During alternatives screening, the Initial Set of Alternatives underwent a preliminary evaluation. The purpose of the preliminary evaluation was to provide decision-makers with the technical information that they would need to help identify those alternatives that are most competitive and that should, therefore, be carried forward for further study and evaluation in the I-710 Major Corridor Study. Alternatives or elements of alternatives that were determined by the TAC to have a lesser chance of becoming the Locally Preferred Strategy were screened out during this process.

An array of screening criteria was developed to gauge the performance of the alternatives in light of the purpose and need for improvements that are described in Section 3.2 of this report. Both qualitative and quantitative measures were used to elicit comparative information on the different transportation modes and improvements that comprised the Initial Set of Alternatives. On March 20, 2002, the proposed screening criteria and methodology were discussed and reviewed by the TAC. See technical memorandum called "I-710 Major Corridor Study Screening Methodology" shown in Appendix H. The screening criteria and related measures used in the I-710 Study to narrow the range of alternatives are summarized as follows:

Mobility

- Travel demand estimates for vehicles, trucks
- Levels of service (volume / capacity) on major routes in the Study Area
- Travel time savings for users of I-710
- Estimated rail/transit ridership
- Improvements in system capacity as measured by the change in volume / capacity across screenlines

Safety

- Estimated reduction in the number of accidents on I-710
- Safety improvements attributable to upgrades in facility type, geometric improvements, access management

Cost

- Estimated capital cost
- Estimated cost per mile

Right-of-Way Impact

- Estimated level of right-of-way impact (in acres)

Environmental Concerns

- Water resources/LA River Impacts
- Visual Impacts
- Noise Impacts
- Environmental Justice Concerns
- Community Cohesion Issues

Public / Community Support

- Assessment of public and community support of alternatives based on key issues

During alternatives screening, it was necessary to focus the analytical effort on key questions and those technical issues that highlight the major differences among the alternatives so that their relative benefits, costs, and impacts could be clearly understood. In certain cases, the predicted benefits, costs, and impacts among some of the proposed improvements were either similar or the differences were relatively small, particularly at this level of project definition. During screening, these smaller or operational improvements were grouped together in logical packages so that their combined effects could be examined or deferred to the more detailed stage of Alternatives Evaluation. Examples of where this occurred included the following: TSM/TDM improvements (e.g., operational strategies associated with goods movement, transit improvements, intelligent transportation systems); interchange modifications; and arterial improvements. The bulk of the screening effort was devoted to identifying “order of magnitude” differences among the proposed transportation concepts of each of the alternatives and answering key questions.

4.3.2 Screening Analysis

In the technical screening process, the screening criteria were applied to the build alternatives included in the Initial Set of Alternatives. The objective of this task was to assess the relative performance of the alternatives based on a uniform set of measures in order to provide an “apples to apples” comparison. The technical screening analysis was structured to produce evaluative information necessary to choose among alternatives or among certain transportation elements of the alternatives rather than to predict the future benefits, costs, or impacts of any given alternative. Where possible, screening measures were utilized that allowed for the comparison of different transportation modes. In some cases, the screening factors were mode specific in that they were used to distinguish among different alignments or features of a particular transportation mode. For example, the level of improvement in roadway congestion as measured by volume to capacity ratios was most applicable to the roadway elements of the alternatives, whereas estimated ridership and carpool demand were most pertinent to the transit, rail, and HOV elements of the alternatives. The ability of the different alternatives to shift traffic into alternative modes of transportation or off of the existing travel lanes of I-710 was another important aspect of the screening analysis. In addition, the screening analysis focused on the build alternatives (Alternatives 3 – 8), as both the No Build Alternative (Alternative 1) and the TSM/TDM Alternative (Alternative 2) are normally carried forward into the next phase of study (Alternatives Evaluation) for purposes of consistency with regional and federal planning requirements.

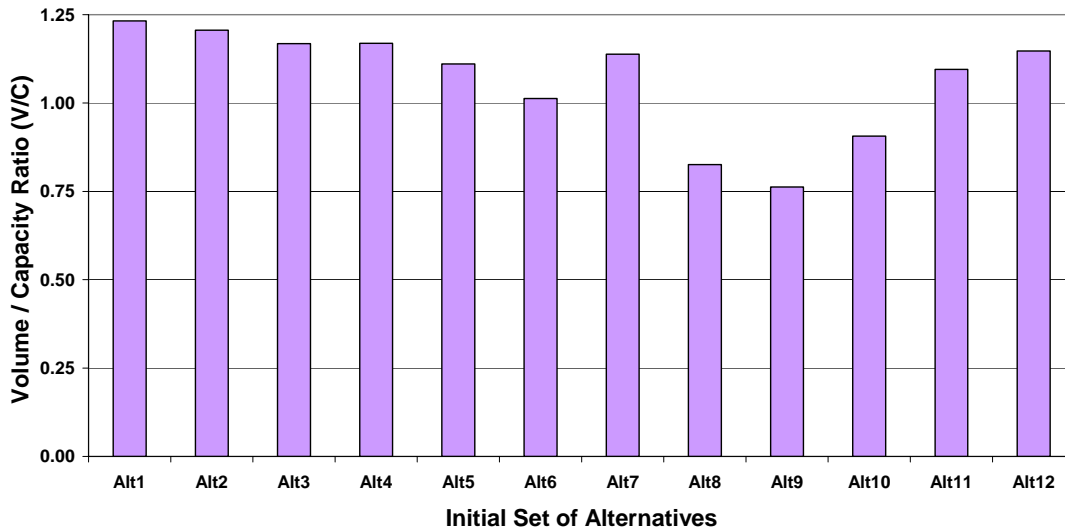
The following discussion highlights some of the principal screening activities and technical findings that describe the overall performance of each build alternative based on the screening criteria that were judged to be most relevant to the decision at hand. Whereas all the screening criteria were important, screening analysis for the I-710 Study focused very closely on estimated right-of-way impacts, safety, environmental and community concerns, and anticipated mobility benefits relative to cost.

Mobility Benefits

In the screening analysis, outputs from SCAG’s regional travel demand forecast model for the future year condition (2025) was utilized as well as projected increases in heavy duty truck trips into and out of the Ports of Los Angeles and Long Beach. The regional forecast model accounts for future changes to the transportation infrastructure (planned and committed transportation projects) in the I-710 Study Area as well as demographic changes such as future employment and population growth. Due to schedule and budget constraints, travel demand forecast runs were not conducted for the Initial Set of Alternatives. Rather, sketch planning tools were used to redistribute future year travel demand based on the proposed capacity changes and transportation facility improvements associated with the proposed alternatives.

Figure 4.3-1 portrays the effect that each of the alternatives has on level of service on the I-710 freeway as measured by the average volume/capacity ratio on the southbound travel lanes in the am peak period in the Year 2025. Generally speaking, this measure illustrates where the highest levels of congestion are projected to occur. A high volume-to-capacity ratio (v/c) indicates a congestion problem. Figure 4.3-1 indicates that if no action is taken - Alternative 1 - the average v/c ratio on I-710 would be about 1.23, well over the design capacity of the freeway. A v/c ratio over 1.00 means that the freeway is operating at full capacity (LOS F). According to metropolitan planning guidelines, a v/c ratio of 0.9 or less (LOS E or better) is desirable in urban areas such as Los Angeles County, but not always achievable.

Figure 4.3-1
Volume/Capacity Ratios on I-710 in the AM Peak Period



Source: Kaku Associates, Inc. and Cambridge Systematics, Inc., Data Analysis Files, April 2002.

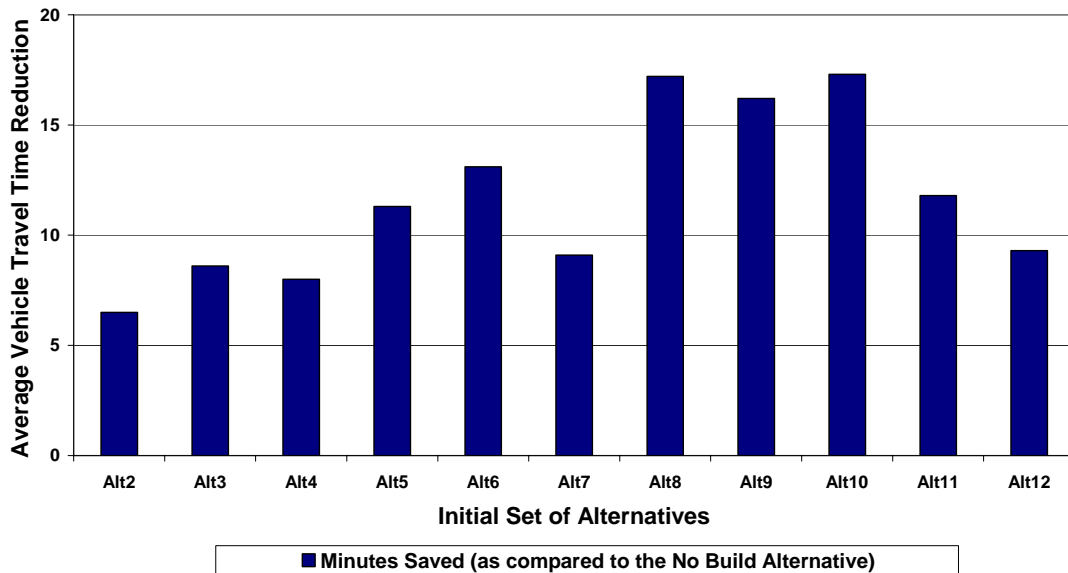
Figure 4.3-1 shows that only three alternatives (Alternatives 8, 9, and 10) have the potential to improve the level of service on I-710 to a v/c ratio below 1.00. These three alternatives provide a great deal of roadway capacity along the full length of I-710. In addition to added travel

lanes, Alternatives 9 and 10 contain design features that separate cars from trucks. The carpool lanes proposed under Alternative 11 do not improve level of service on I-710 as much as Alternatives 9 and 10, mostly because the number of vehicles that are expected to use the carpool lanes in Alternative 11 are not as high as those vehicles using the special purpose lanes in Alternative 9 (truck lanes) and Alternative 10 (express lanes).

Alternative 9 performs the best under this measure because heavy duty trucks use up more roadway capacity compared to autos and separating trucks from general purpose traffic by providing a separate truck facility has a more observable effect on I-710's travel lanes.

Figure 4.3-2, below, addresses the concept of travel time savings in the I-710 Corridor. If a motorist were to travel the full 20-mile length of I-710 in the southbound direction in the am peak period, Figure 4.3-2 shows the number of minutes that would be saved under each of the alternatives compared to the No Build Alternative for the typical motorist (i.e., general purpose lanes). This measure directly captures the benefit attributable to the individual user of I-710. Alternatives 8, 9, and 10 would provide the greatest travel time savings per trip compared to the other alternatives at 17.2, 16.2, and 17.3 minutes saved, respectively. This finding is generally consistent with the level of service results shown in Figure 4.3-1.

**Figure 4.3-2
Travel Time Savings (Minutes)**

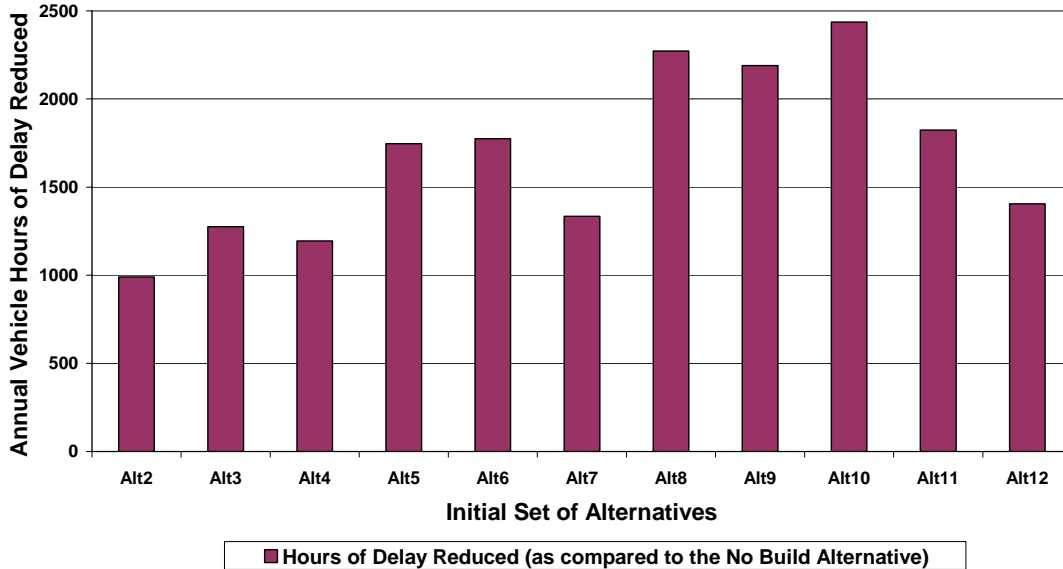


Source: Kaku Associates, Inc. and Cambridge Systematics, Inc., Data Analysis Files, April 2002.

Figure 4.3-3 on the next page looks at the estimated reduction in recurrent traffic congestion over a full year as measured by vehicle hours of delay. Recurrent congestion is traffic congestion that occurs regularly on I-710 during peak periods. In this case, the am peak period is shown. Each of the alternatives is compared to the No Build condition. Again, Alternatives 8, 9, and 10 perform the best with regard to their potential ability to relieve recurrent traffic congestion overall. However, Alternatives 5, 6, and 11 follow next and are

more closely matched to each other under this mobility measure. Both Alternatives 5 and 11 include carpool lanes, which serve to manage congestion during the commute hours as well as improve the person-carrying capacity of the freeway facility.

Figure 4.3-3
Estimated Delay Reduction (Thousands of Hours)



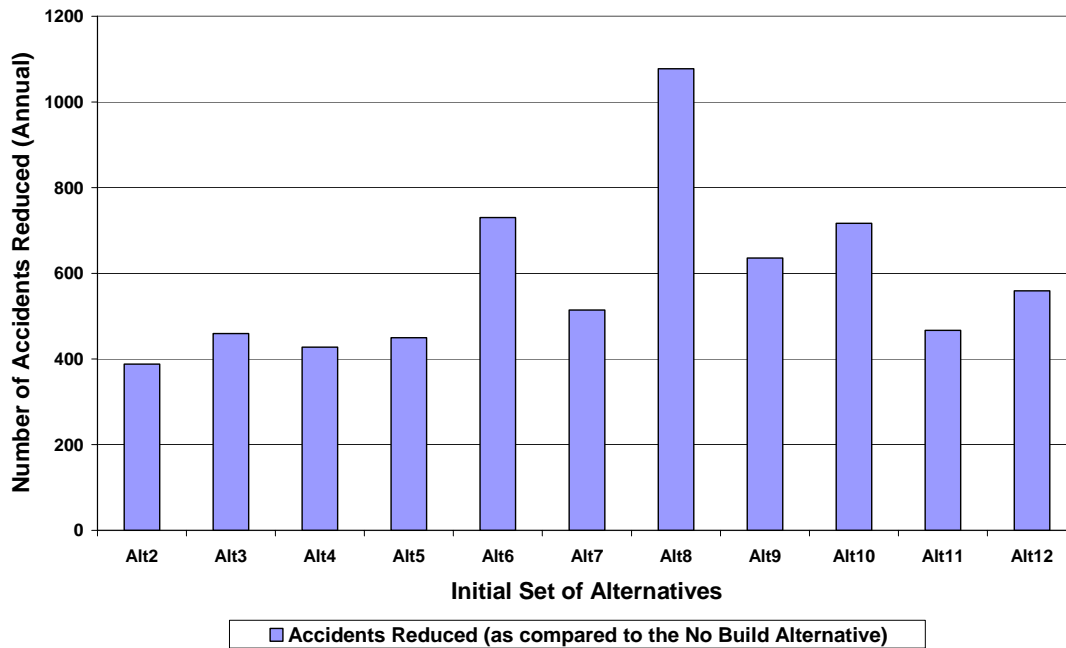
Source: Kaku Associates, Inc. and Cambridge Systematics, Inc., Data Analysis Files, April 2002.

Safety

Figure 4.3-4 is a measure that quantifies the estimated safety benefits attributable to each of the alternatives as compared to the No Build Alternative. This figure illustrates the number of accidents that would be reduced during a one-year period presuming Year 2025 travel conditions. The estimated accident reduction calculation takes into account the effects of improvements in non-recurrent congestion as well as day-to-day traffic congestion on I-710.

Figure 4.3-4 shows that Alternative 8 has the greatest potential to reduce accidents on I-710, followed by Alternatives 6, 10, and 9. Alternative 8 would provide greatest amount of general purpose roadway capacity compared to the other alternatives. This serves to distribute traffic more evenly across all lanes of traffic compared to the other alternatives. In addition, the number of physical conflict points (ingress/egress points for truck, carpool, and express lanes) are not present in Alternatives 6 and 8 compared to Alternatives 5, 7, 9, 10, and 11. Alternatives 9 and 10 also do relatively well due to the high degree of separation between trucks and autos provided by the exclusive truck (Alt. 9) or express lanes (Alt. 10), particularly at the local interchanges along I-710. For a detailed explanation of the methodology utilized for the Safety analysis see technical memorandum called "I-710 Major Corridor Study – IDAS Parameters, Rates" shown in Appendix N of this report.

Figure 4.3-4
Estimated Accident Reduction



Source: Cambridge Systematics, Inc., Data Analysis Files, April 2002.

Potential Right-of-Way Impacts

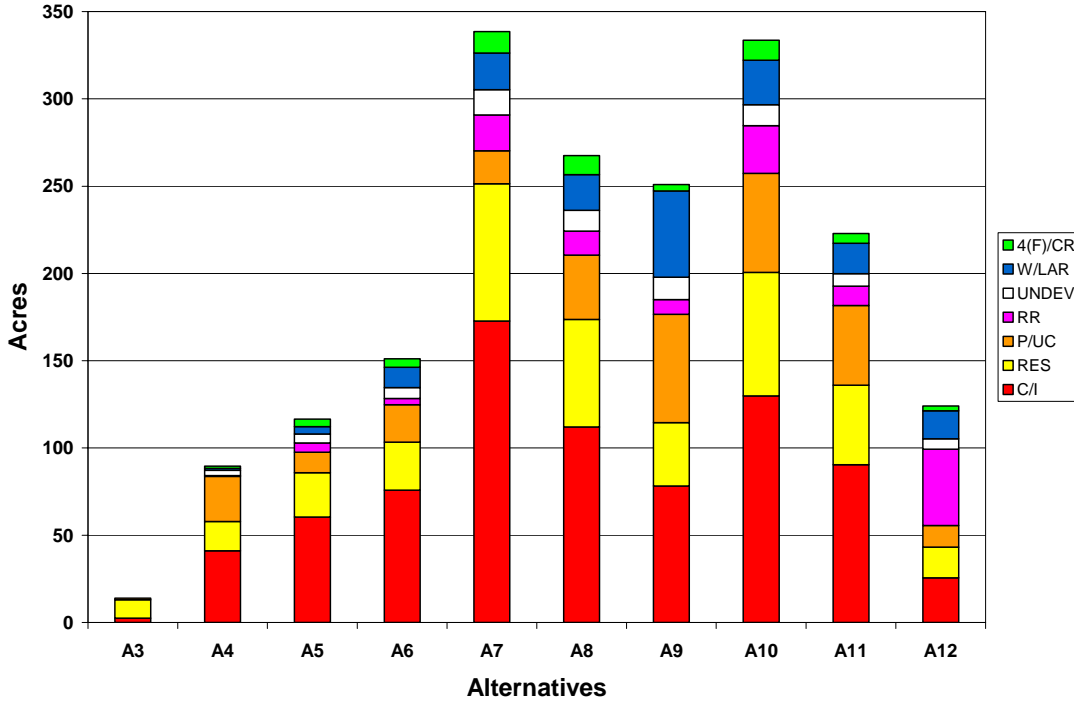
Figure 4.3-5 portrays the potential right-of-way impact of each of the build alternatives compared to the No Build Alternative. Alternative 2 is not expected to result in any right-of-way impacts as the proposed improvements in the TSM/TDM Alternative are either operational, policy-oriented, or are expected to occur exclusively within state right-of-way.

In order to estimate right-of-way impacts, a footprint based on a typical cross section was developed for the proposed features inherent to each build alternative, depending upon the proposed facility (added travel lanes, carpool lanes, truck lanes, interchange modifications, high speed passenger rail) and its application (at-grade, elevated on structure, in freeway right-of-way, or adjacent to I-710). In most cases, the principal consideration was whether or not the proposed improvement could be accommodated in existing public right-of-way; or if it would require a roadway widening; or if it would result in a new roadway alignment altogether.

Using geographic information systems (GIS) analysis techniques and aerial photography, the proposed alignments for the alternatives were drawn. As part of this task, land uses that could potentially be affected by the proposed alternatives were identified and organized into seven land use categories for reporting purposes: (1) commercial/industrial; (2) residential; (3) power/utility corridor; (4) railroad use; (5) undeveloped property; (6) particularly sensitive natural and community resources (e.g., parks, green space, schools, hospitals, or cemeteries); and water resources/LA River. In a few cases, there was overlap between the types of land

use among categories – for example, undisturbed land and a sensitive natural resource. In these cases, the land was given the most sensitive designation of the categories.

**Figure 4.3-5
Estimated Land Use Impacts**



Source: Parsons Brinckerhoff, Data Analysis Files, May 2002.

The footprint for each alternative was then overlaid upon the land use coverages and the amount of new land that would need to be acquired for each alternative was calculated based on the difference between the new footprint and the existing public right-of-way. The detailed results of the right-of-way analysis are presented in Appendix I of this report.

According to Figure 4.3-5, the low build alternatives (Alternatives 3 and 4) perform the best overall with regard to potential right-of-way impacts followed by Alternatives 5, 12. On the other hand, Alternatives 7 and 10 are the worst alternatives, by far, as they are the most intrusive. The truck bypass lanes and exclusive truck lanes proposed in Alternative 7 would be located outside the existing local and freeway interchanges on I-710 in areas where there is minimal state right-of-way available. In Alternative 10, four new travel lanes, plus inside shoulders, would be added, largely at-grade, which would result in extensive freeway widening along the I-710 corridor to accommodate the much wider mainline cross-section. Alternatives 8, 9, and 11 would also required substantial land acquisition beyond the existing state right-of-way line due to both interchange reconfigurations and added travel lanes.

Inasmuch as right-of-way impact is highly correlated to other environmental issues such as noise, environmental justice, and community cohesiveness, Alternatives 7 through 11 pose serious environmental concerns as well.

Estimated Cost

Table 4.3-1 provides a summary of the estimated capital cost in current year dollars for the build alternatives in the Initial Set as compared to the No Build Alternative.

**Table 4.3-1
Summary of Capital Costs (in millions)**

Alternative	Total Cost Estimate	Cost per Mile
Alternative 3 Low General Purpose Alternative	\$ 689	\$ 35.3
Alternative 4 Low Truck Alternative	\$ 498	\$ 25.5
Alternative 5 Medium HOV Alternative	\$ 1,094	\$ 58.2
Alternative 6 Medium General Purpose Alternative	\$ 1,168	\$ 67.1
Alternative 7 Medium Truck Alternative	\$ 1,164	\$ 85.3
Alternative 8 High General Purpose Alternative	\$ 1,696	\$ 83.1
Alternative 9 High Truck Alternative	\$ 2,166	\$ 124.5
Alternative 10 High Goods Movement Alternative	\$ 3,066	\$ 137.5
Alternative 11 High HOV Alternative	\$ 2,659	\$ 141.4
Alternative 12 High Rail Alternative	\$ 3,542	\$ 149.4

Source: Parsons Brinckerhoff, Data Analysis Files, May 2002

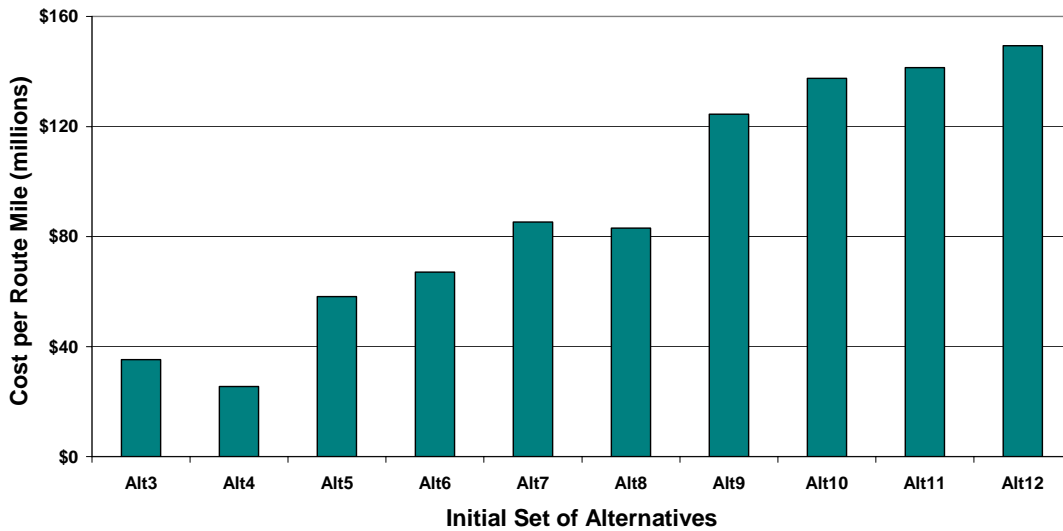
Table 4.3-1 also shows estimated capital costs on a per mile basis. Generally, there is a positive correlation between the number of route miles proposed in each alternative and capital cost. Normalizing the cost data per route mile provides an additional indication of what transportation elements or segments tend to be more costly compared to others.

In the screening analysis conducted for the I-710 Study, capital costs largely represent a major investment in the existing transportation infrastructure. Examples of these investments include arterial roadway widenings, new travel lanes, interchange improvements, truck inspection facilities or added track for the passenger rail line. In addition, the capital costs denote the purchase of physical assets with a life of five years or more – in this case, new bus and rail vehicles. For all of the alternatives, the cost to acquire needed right-of-way was included in the overall estimate. In the screening analysis, efforts were made to account for the major expenses that would illustrate or highlight significant cost differences between the transportation options. Smaller or detailed capital expenses are accounted for in the contingency and “add on” cost categories for each alternative. See Appendix J for a more detailed breakdown of the estimated capital costs for the different alternatives.

The Initial Set of Alternatives represent a range of potential costs without any major gaps. In general terms, the high build alternatives are more costly compared to the medium build alternatives, which are, in turn, more costly than the low build alternatives. The alternatives that are estimated to result in the highest total capital cost are Alternatives 10 and 12, both of which are over \$3 billion.

On a per mile basis, there is a noticeable step up in cost between Alternative 8 (\$83.1 million per mile) and Alternative 9 (\$ 124.5 million per mile). See Figure 4.3-6.

**Figure 4.3-6
Average Cost per Mile (in millions)**



Source: Parsons Brinckerhoff, Data Analysis Files, May 2002

Summary Screening Evaluation

Table 4.3-2 arrays all of the technical screening results on a single page. In some cases quantitative measures were used to rate the alternatives (mobility benefits, right-of-way impacts, and costs) and in other cases a qualitative measure was used to rank the build alternatives. The top three performing alternatives for each measure are highlighted in pink. These screening findings were presented and discussed with the TAC on May 29, 2002.

**Table 4.3-2
Alternatives Screening Evaluation Matrix**

Evaluation Measures	Alternative 1 No Build	Alternative 2 TSM/TDM	Alternative 3 Low GP	Alternative 4 Low Truck	Alternative 5 Medium HOV	Alternative 6 Medium GP	Alternative 7 Medium Truck	Alternative 8 High GP	Alternative 9 High Truck	Alternative 10 High Goods Movement	Alternative 11 High HOV	Alternative 12 High Rail
Mobility												
% Vehicles Shifted from I-710 Mixed Flow Lanes in the AM Peak Period (% PCEs Shifted) <i>compared to No Build Alternative, (+) quantitative measure</i>	N/A	6% (11%)	6% (11%)	6% (11%)	15% (17%)	6% (11%)	6% (11%)	6% (11%)	19% (35%)	37% (36%)	16% (18%)	10% (14%)
% Persons Shifted from I-710 Mixed Flow Lanes in the AM Peak Period <i>compared to No Build Alternative, (+) quantitative measure</i>	N/A	0%	0%	0%	21%	0%	0%	0%	0%	40%	24%	4%
Average V/C Ratio in the AM Peak Period, I-710 SB Mixed Flow Lanes <i>(-) quantitative measure</i>	1.23	1.21	1.17	1.17	1.11	1.01	1.14	0.83	0.76	0.91	1.09	1.15
Minutes Saved, Average Vehicle Travel Time, I-710 SB Mixed Flow Lanes, AM Peak Period <i>compared to No Build Alternative, (+) quantitative measure, in minutes</i>	N/A	6.5	8.6	8.0	11.3	13.1	9.1	17.2	16.2	17.3	11.8	9.3
Reduction in Recurrent Vehicle Hours of Delay, I-710 SB Mixed Flow Lanes, AM Peak Period <i>compared to No Build Alternative, (+) quantitative measure, in thousands of hours, annualized</i>	N/A	990	1,275	1,194	1,747	1,775	1,334	2,272	2,189	2,436	1,824	1,405
Reduction in Non-Recurrent Vehicle Hours of Delay, I-710 SB Mixed Flow Lanes, Daily <i>compared to No Build Alternative, (+) quantitative measure, in thousands of hours, annualized</i>	N/A	12	27	26	34	70	30	77	70	66	35	29
Average V/C Ratio in the AM Peak Period, Screenline of North-South Arterials in the Study Area <i>(-) quantitative measure</i>	0.57	0.57	0.46	0.57	0.57	0.57	0.57	0.57	0.57	0.49	0.57	0.57
Average V/C Ratio in the AM Peak Period, Screenline of East-West Arterials in the Study Area <i>(-) quantitative measure</i>	1.04	1.04	1.04	0.69	1.04	1.04	0.70	1.04	1.04	1.04	1.04	1.04
Safety												
Reduction in Annual Number of Accidents on I-710, All Lanes (% Reduction of Accidents) <i>compared to No Build Alternative, (+) quantitative measure</i>	N/A	388 (10%)	459 (12%)	428 (11%)	450 (12%)	730 (19%)	514 (14%)	1078 (29%)	636 (17%)	717 (19%)	467 (13%)	559 (15%)
Qualitative Safety Assessment (Design Perspective) <i>(+) qualitative measure</i>	0	0	2	4	7	7	6	9	6	9	9	6
Environment												
Total ROW Impact, in Acres <i>(-) quantitative measure</i>	0	0	13.9	89.5	116.5	151.1	338.5	267.5	250.9	333.6	222.8	124.0
Residential ROW Impact, in Acres <i>(-) quantitative measure</i>	0	0	10.6	16.8	25.3	27.5	78.7	61.6	36.3	70.8	45.6	17.7
Commercial/Industrial ROW Impact, in Acres <i>(-) quantitative measure</i>	0	0	2.5	41.1	60.4	75.9	172.7	112.1	78.2	129.8	90.4	25.6
Section 4(f)/Community Resource ROW Impact, in Acres <i>(-) quantitative measure</i>	0	0	0	1.2	4.3	4.8	12.2	10.9	3.7	11.5	5.6	2.6
Water/Los Angeles River ROW Impact, in Acres <i>(-) quantitative measure</i>	0	0	0	1.1	4.3	11.7	21	20.5	49.4	25.4	17.3	16.1
Assessment of Relative Visual Impact <i>(-) qualitative measure</i>	0	0	2	3	4	4	8	5	10	8	9	6
Assessment of Relative Noise Impact <i>(-) qualitative measure</i>	0	0	2	3	6	5	6	6	10	8	9	6
Assessment of Relative Environmental Justice Impact <i>(-) qualitative measure</i>	0	0	1	2	4	5	10	8	6	9	7	3
Assessment of Relative Community Cohesion Impact <i>(-) qualitative measure</i>	0	0	1	2	8	8	8	9	8	10	8	2
Cost												
Total Estimated Cost (\$ millions) <i>compared to No Build Alternative, (-) quantitative measure</i>	N/A	TBD*	\$689.1	\$498.0	\$1,094.4	\$1,168.3	\$1,663.5	\$1,695.8	\$2,166.2	\$3,065.6	\$2,659.0	\$3,541.9
Average Cost per Mile (\$ millions) <i>compared to No Build Alternative, (-) quantitative measure</i>	N/A	N/A	\$35.3	\$25.5	\$58.2	\$67.1	\$85.3	\$83.1	\$124.5	\$137.5	\$141.4	\$149.4
Constructability												
Qualitative Assessment of Ease of Construction <i>(+) qualitative measure</i>	N/A	10	9	7	7	6	1	5	2	4	4	6

* To be determined, but by definition, the cost of the TSM Alternative is significantly less than the other alternatives and included in all of the other alternatives.

(+) = positive impact or effect (the larger the value, the better the alternative)

(-) = negative impact or effect (the smaller the value, the better the alternative)

Best Performance Rating (one of top three) of the Build Alternatives

4.3.3 Community Input on the Initial Set of Alternatives

Public outreach during alternatives screening took place during the months of February, March, April, and May of 2002 and consisted of elected official briefings, agency briefings, community presentations and roundtable discussions. This effort presented opportunities for the study team to engage the local communities in discussions regarding the Initial Alternatives.

No one alternative as it was presented was favored by the majority of participants. Rather, certain elements of the different alternatives were noted as being favorable or unfavorable. Following is a summary of some of the comments heard on the Initial Set of Alternatives and the elements in each. Added information can be found in the *I-710 Study Value Analysis Report*, prepared by Consensus Planning Group, June 2002., and available for reference with the MTA.

Alternative 1 – No Build Alternative

This alternative was viewed to be inadequate in every respect since almost all agreed that something must be done to improve the I-710 Freeway. The current Caltrans repaving project received positive reactions and addresses the poor road conditions today but does nothing to address the congestion believed by many to be caused by large volumes of trucks traveling in and out of the ports. This “do nothing” alternative was considered unacceptable to nearly all participants since it ignores all growth projections, especially the amount of growth that the ports are expecting as a result of their own plans to expand.

Alternative 2 – TSM/TDM Alternative

Like Alternative 1, many felt that Alternative 2 is at best, a short-term improvement that does not address the real problems of the I-710 Freeway. The two elements of Alternative 2 that received the greatest level of support from most community members and elected official offices were the goods movement strategy to modify the hours of port operations and improving aesthetics of the I-710. Comments regarding the modification of port hours and beautifying the Freeway were heard at nearly all of the meetings. Many were not aware that these elements were a part of the TSM/TDM Alternative.

Alternative 3 – Low General Purpose Alternative

As a stand-alone alternative, several respondents indicated that only improving the north/south arterials in the I-710 Study Area does not do enough to address the problems of the I-710 freeway. A few stated, however, that the arterial improvements designated in Alternative 3 need to be made in addition to any alternative that is selected to improve the I-710.

Many even suggested that prior to any improvements being made on the I-710 mainline, these arterials must be improved to address the additional traffic that would result if I-710 is to undergo any construction activities. Many of the cities requested that particular arterials in their communities be included in Alternative 3. Each had recommendations as to which arterials should be improved. The most commonly mentioned arterials included: Atlantic/Bandini, Firestone Boulevard, Washington Boulevard, Slauson Avenue, and Imperial Highway. Some of these streets are currently being repaired or improved but the cities believe

that the current improvements will not address all the problems that will still occur in future years.

Positive comments were received regarding the partial interchange improvements at the I-5/I-710. The right-side ramps were viewed as a major safety improvement for everyone traveling on I-710.

Alternative 4 – Low Truck Alternative

No significant amount of comments were made regarding the addition of collector/distributor lanes but those that did comment, viewed this as a positive improvement. The truck inspection station received the most attention in Alternative 4. The location of the facility as it was presented in Alternative 4 was not favored. Most felt that the inspection site should be located closer to the ports to be effective and prevent trucks from avoiding the facility by using arterial streets or other areas that would impact the communities. The inspection facility should include a weigh station, as well, since most believe that trucks are overloaded, resulting in the destruction of the pavement on the Freeway.

Improving the I-710/I-405 interchange was well received since many had felt that this interchange is very poorly designed and dangerous. The City of Carson voiced some concerns about this improvement, since there are residential communities in this area.

Alternative 5 – Medium HOV Alternative

The majority of individuals commenting on this alternative felt that carpool lanes will not improve the conditions of the I-710 Freeway and adding carpool lanes would be a loss of valuable space and resources. They felt that adding mixed-use lanes would serve this Corridor better.

A small number of elected official offices however, did support HOV lanes and were open to the idea of enforcing these lanes during peak periods only.

Alternative 6 -- Medium General Purpose Alternative

Only positive comments were heard regarding the addition of a Slauson interchange. It was believed that creation of this interchange would take pressures off of arterials such as Bandini and Firestone.

The addition of a mixed-flow lane on I-710 was well received. The majority of individuals felt that it was a positive improvement and had the best chance of actually being implemented.

Alternative 7 – Medium Truck Alternative

The truck-bypass lanes received mixed responses. Those reluctant to fully support this concept had concerns regarding the additional weave and merge situations between cars and trucks and felt that any time a merge is added, the likelihood of accidents increases. They suggested having bypass lanes, but fewer than what is currently proposed. Alternative 7 was supported mainly by trucking and transportation businesses and interests.

Alternative 8 – High General Purpose Alternative

Comments were all generally positive in response to the addition of two mixed-flow lanes. This alternative was viewed as having the greatest potential for improving the service on the I-710 freeway for all users.

Alternative 9 – High Truck Alternative

Those favoring this concept were pleased that it separates cars and trucks and uses less right-of-way than at-grade widening. Many concerns were voiced however, with trucks being on the elevated level and whether the structure would be able to sustain a major earthquake. The potential of trucks falling over concerned many and some felt the noise and pollution levels would increase. Support for this concept was received from both elected officials and community members since most felt that an elevated configuration was preferable to massive land acquisitions. Some felt that the elevated lanes should be opened for mixed-use during non-peak hours.

A few people felt that the amount of money required to build this alternative would preclude this from ever being implemented.

Alternative 10 – High Goods Movement Alternative

Many felt positively about the concept of separating cars and trucks but the width of this alternative alarmed those living and doing business near the I-710 freeway. While the “dual roadway” facility was viewed as unfavorable for the severity of the potential right-of-way impacts, this element was urged to be carried forward as part of the alternatives chosen for further evaluation to continue to refine this concept. However, some respondents warned that community opposition may be received and therefore this alternative would likely not survive as a recommendation for a Locally Preferred Strategy.

The Terminal Island (SR-103) extension to the I-405, and the SR-47 connector to Alameda Street was well received by the majority of participants, but not all respondents. This element allows trucks an option to avoid the I-710 and get directly onto the I-405 or Alameda Street. The addition of a near-dock facility in Alternative 10 also drew favorable responses.

Alternative 11 – High HOV Alternative

Like Alternative 9, the concept of an elevated roadway in the existing median of I-710 was favored over extensive right-of-way impacts. As with Alternative 5, implementation of HOV lanes rather than general purpose or truck lanes was opposed by many. The HOV lanes were not believed to fully address the safety and congestion problems on the freeway. However, many stakeholders indicated that it would be safer to have cars on the elevated structure, with trucks on the bottom.

Alternative 12 – High Rail Alternative

The high speed rail concept of Alternative 12 drew unfavorable responses from many of the participants. While several agreed that alternatives to the automobile should be available, this particular system in this particular area does not directly respond to the problems on the I-710 freeway nor does it address the goods movement aspect of the I-710 Study Area. It was

viewed as too costly to build and not as effective as some of the other alternatives. Most are relatively comfortable with the Blue Line and feel that rather than creating an entirely new rail system, the Blue Line should continue to expand and improve the level and timeliness of its service.

Overarching Comments

Truckers, auto drivers, and community members all agreed that trucks and cars must be separated. Many participants stated that the alternative chosen at the end of the study must meet this criterion in order to truly address the problems of the I-710 Freeway. The comments received during the alternatives screening phase of outreach suggest that the alternatives that are carried forward for further evaluation should be combinations of the different elements presented in the initial set of twelve alternatives. The general consensus was that Alternatives 1 through 7 are merely “band-aid” fixes and the only way to solve the problems of the I-710 is to seriously consider the high-build alternatives.

If a high-build alternative is recommended, several respondents said that the I-710 Study should also consider elements such as toll roads for trucks, which were favored by most stakeholders but opposed by the trucking industry. Trucking interests feel that imposing tolls would mean that they are paying for use of the I-710 facility twice. On the other hand, community members feel that trucks are responsible for the condition of the freeway, as well as other external impacts such as air pollution. But, truckers should not be the only ones who pay a price for using the I-710 facility. Many participants felt that the ports are directly responsible for the volume of trucks on the freeway and that they should work with the local agencies to identify ways to change the way they operate, especially if they plan on expanding. Community members were particularly negative towards the ports, believing that industry is being accommodated at the expense of the local communities. They stated that the amount of traffic, pollution and other negative health impacts in the I-710 Corridor is increasing.

4.4 Technical Advisory Committee Recommendation

The I-710 Technical Advisory Committee deliberated over the technical screening results as well as the summary reports of the public input on the Initial Set of Alternatives. Several of the TAC members also attended public and community meetings that took place in their respective jurisdictions. Most of the debate centered on which three build alternatives should be carried forward for further study, given that both the No Build and the TSM/TDM Alternatives are automatically included in the reduced set of alternatives for consistency with federal planning requirements. The TAC did not limit itself to selecting stand-alone alternatives from the Initial Set of Alternatives. Rather, the discussion was divided into two general phases: (1) selection of a mainline design concept and scope for each alternative; and (2) identification of discrete transportation elements that should be packaged with each alternative.

Mainline Design Concept and Scope

The mainline design concept refers to the type of transportation facility identified, such as a freeway, HOV lanes, or a passenger rail line. The design scope is the design aspects that affect the facility’s magnitude and extent, such as the number of lanes or tracks as well as the facility’s length. The scope also refers to the general location of the facility.

With regard to the design concept and scope, the I-710 attempted to identify three different build alternatives that fulfilled different aspects of purpose and need in the I-710 Corridor. The TAC also sought to select those mainline concepts that would bring the greatest benefit at the lowest cost and with the fewest environmental concerns. To that end, Alternatives 3 and 4 were eliminated fairly early as these alternatives did not bring sufficient mobility and safety benefits as stand-alone alternatives compared to other choices. In other words, Alternatives 3 and 4 did not do enough to fix the problems on I-710.

Alternative 12 was screened out next as the potential ridership and travel benefits did not appear to justify the high cost of this alternative. The TAC felt that this alternative had potential, but perhaps at some future date, well after 2025. Alternative 10 was also screened out, despite its mobility benefits, because the anticipated right-of-way impacts were beyond what the TAC members felt that the communities along I-710 could possibly tolerate.

Further scrutiny was applied to the remaining alternatives: Alternatives 5, 6, 7, 8, 9, and 11. The TAC selected Alternative 9 for further study because this alternative did the most to fully separate cars from heavy duty trucks on I-710 and also because it performed well with regard to safety and other mobility benefits. Alternative 6 was selected next and combined with several transportation elements from Alternative 7 to form a new mainline design concept and scope in an effort to capture the mainline capacity improvements contained in Alternative 6 and many of the truck management features (exclusive truck ramps, truck bypass lanes) in Alternative 7. Alternative 7 was then eliminated as a stand-alone alternative. Since several of the TAC members (city representatives) felt that added general purpose capacity was needed to solve the future congestion problem on I-710 and other TAC members (regional agencies) wanted to continue to evaluate HOV lanes, elements of Alternative 8 (general purpose lanes) and Alternative 11 (elevated HOV lanes) were combined to form a new design concept and scope. Alternative 5 was then eliminated from further consideration as this alternative did not address the truck problems on I-710 as well as other alternatives and also because the carpool component was now included in the newly formed Alternative 8/11.

Table 4.4-1 summarizes the actions taken by the TAC on the Initial Alternatives in order to develop their recommendations on the best mainline concepts for the Final Set of Alternatives.

Table 4.4-1
TAC Recommendations for Mainline Concepts

Initial Alternatives	TAC Recommendation
Alternative 3 Low General Purpose Alternative	Eliminate
Alternative 4 Low Truck Alternative	Eliminate
Alternative 5 Medium HOV Alternative	Eliminate
Alternative 6 Medium General Purpose Alternative	Select
Alternative 7 Medium Truck Alternative	Eliminate
Alternative 8 High General Purpose Alternative	Select / Combine with Alt. 11
Alternative 9 High Truck Alternative	Select
Alternative 10 High Goods Movement Alternative	Eliminate
Alternative 11 High HOV Alternative	Select / Combine with Alt. 8
Alternative 12 High Rail Alternative	Eliminate

Source: Parsons Brinckerhoff, I-710 Technical Advisory Committee Meetings, June 5 & 12, 2002.

Recommended Transportation Elements

During the second step in forming their recommendations, the TAC culled the best transportation elements from the Initial Set of Alternatives for packaging into the Final Set of Alternatives for further study. These transportation elements differ from the mainline design concepts and include items such as truck inspection facilities or interchange modifications or street arterial capacity improvements.

Table 4.4-2 illustrates the actions taken by the TAC for each of these design elements. The TAC elected to eliminate only a few of these discrete transportation elements. In some cases, transportation elements were eliminated because they were judged to be too intrusive to neighboring communities (e.g., truck ramps, direct HOV connectors) as indicated by the ROW impact analysis and environmental screening analysis. In other cases (e.g., near-dock intermodal facility, truck-only ITS improvements), transportation elements were eliminated from further study because the TAC felt that these improvements were already being pursued under other, largely private initiatives.

In effect, the majority of the transportation features in the Initial Set of Alternatives were carried into the Final Set of Alternatives.

Table 4.4-2
TAC Recommendations for Transportation Elements

Transportation Element	From	Action	To
Full Grid of Arterials	Alt. 3	Keep	Alt. 6
North-South Arterials Only	Alt. 10	Keep	Alt. 8/11
East-West Arterials Only	Alt. 4	Keep	Alt. 9
Truck-Only ITS Improvements	Alt. 4	Drop	-
Truck Inspection Facility	Alt. 4	Keep	Alt. 6
Collector Distributor System between Atlantic /Bandini and I-5	Alt. 4	Keep	Alt. 6
Truck Bypass Lanes	Alt. 4	Keep	Alt. 6
Direct Truck Ramps: Washington Blvd., PCH	Alt. 7	Keep	Alt. 6
Direct Truck Ramps: Atlantic Blvd., Bandini Blvd., Florence Ave., Willow St.	Alt. 7	Drop	-
T.I. Freeway Extension to I-405	Alt. 10	Keep	Alt. 6
T.I. Freeway Connector to Alameda St.	Alt. 10	Keep	Alt. 8/11
Truck Staging Areas	Alt. 10	Drop	-
New Near Dock Intermodal Facility	Alt. 10	Drop	-
Truck Land Use Management Program	Alt. 10	Drop	-
I-710 Auxiliary Lane Improvements	Alt. 9	Keep	Alt. 9
Direct HOV Connector at I-405	Alt. 11	Keep	Alt. 8/11
Direct HOV Connectors at I-5, SR-91	Alt. 11	Drop	-
Express Bus Service on I-710	Alts. 5, 11	Keep	Alt. 8/11
Slauson Interchange	Alts. 6, 8	Keep	Alts. 6, 9
Redesign 10 Local Interchanges	Alt. 8	Keep	Alts. 6
Redesign 13 Local Interchanges	Alt. 10	Keep	Alt. 8/11
Partial Redesign of I-5 Interchange	Alt. 4	Keep	Alt. 6
Redesign of I-405, SR-91, I-5 Interchanges	Varies	Keep	Alts. 9, 8/11

Source: Parsons Brinckerhoff, I-710 Technical Advisory Committee Meetings, June 5 & 12, 2002.

Issues for Further Consideration

In their discussion, the TAC members identified several items for further consideration in subsequent phases of the I-710 Major Corridor Study.

- The combined design concepts for some of the alternatives (e.g., Alternative 8/11), as well as all of the desired transportation elements, resulted in three, very robust, and potentially costly build alternatives in the final set. Some TAC members were concerned that there were no fall back options (i.e., alternatives with only a modest amount of new transportation capacity) in the Final Set of Alternatives. In order to respond to this concern, it was determined that the physical aspects of the different transportation elements of these alternatives would be individually analyzed during Alternatives Evaluation to the greatest extent possible. This would provide information to decision-makers so that these design features can easily be eliminated if the right-of-way impacts, environmental impacts, or costs turn out to be higher than the communities along the I-710 Corridor would find acceptable.

- The existing utility corridors alongside I-710 should be used for new travel lanes to the greatest extent feasible, so as to avoid right-of-way impacts to businesses and homes.
- Impacts to the LA River that would result in flow or capacity changes of the newly rebuilt river channel should be avoided.
- Conceptual drawings for the I-710 truck lanes (Alternative 9) should not include long stretches where the truck lanes are elevated over the general purpose lanes.

OPC Approval

On June 27, 2002, the I-710 Oversight Policy Committee reviewed and approved the TAC's recommendations for the Final Set of Alternatives with one point of clarification. Even though Alternative 12 was eliminated as a stand-alone alternative, the OPC did not wish to preclude its future development in the I-710 Corridor. As a result, the description of the HOV element of the High General Purpose / High HOV Alternative was revised to state that they would be designed such that they could be converted to support a future rail line.

4.5 Final Set of Alternatives

As a result of the screening analysis conducted between March and May of 2002 and after extensive review and scrutiny by the TAC throughout the month of June 2002, five alternatives were approved by the OPC for detailed evaluation in the I-710 Major Corridor Study. For clarity and to avoid confusion with the Initial Set of Alternatives, the five remaining alternatives were relabeled "A" through "E" as follows:

Alternative A	No Build Alternative
Alternative B	Transportation Systems Management / Transportation Demand Management (TSM/TDM) Alternative
Alternative C	Medium General Purpose / Medium Truck Alternative
Alternative D	High General Purpose / High HOV Alternative
Alternative E	High Truck Alternative

This section provides an overview of the Final Set of Alternatives that was approved by the OPC in June 2002 for more detailed evaluation. These five alternatives are conceptual in scope and were subjected to further refinements in the I-710 Study analysis (see Section 5.1). The physical and operational characteristics of each alternative are described in the following pages. It is important to note that these alternatives continued to evolve throughout the course of the I-710 Study as more detailed assessments of these alternatives were performed and also to respond to public and community comments and concerns.

The Final Set of Alternatives is structured in a manner similar to the Initial Set of Alternatives, except that they are fewer in number. As a reminder, the No Build Alternative (Alternative A) is included in the other four alternatives as background as it represents future conditions in the I-710 Study Area. The five alternatives were all evaluated assuming a future year context (Year 2025). The TSM/TDM Alternative (Alternative B) was incorporated into the descriptions of the three remaining build alternatives (Alternatives C, D, and E). Maps that highlight the capital improvements associated with the build alternatives (Alternatives C – E) are provided on the following pages. However, the physical elements of the No Build Alternative are deliberately not shown on the maps for Alternatives C, D, and E so as to avoid any confusion between the

proposed build elements associated with each of these alternatives and the transportation improvements that are already funded and committed for the I-710 Study Area.

Alternative A - No Build Alternative

The No Build Alternative represents future travel conditions in the I-710 Study Area if no additional improvements are recommended by the I-710 Study beyond what is already planned to take place. The No Build Alternative consists of those transportation projects that are already planned or committed for the Year 2025, the planning horizon year for the I-710 Study. In general terms, “committed” means that the project has obtained environmental clearance and/or sufficient funding has been programmed for construction or implementation. Consequently, the No Build Alternative is a stand-alone alternative that represents future travel conditions in the I-710 Study Area if no action is taken. It is also the baseline against which candidate transportation alternatives proposed for the I-710 Study are assessed.

The following is a summarized list of some of the major transportation improvements that are planned and committed in the I-710 Study Area. Taken together with the existing transportation infrastructure, these projects form the background for the future transportation network for the I-710 Study Area. In a few cases, some projects are currently in construction or they have recently been completed. These projects are noted with an (*).

Freeway System

- I-710, from Ocean Boulevard to I-10, pavement and median rehabilitation, selected bridge widenings (no additional capacity)
- I-710, at Atlantic Boulevard/Bandini Boulevard, interchange modifications
- I-710, at Firestone Boulevard, interchange modification (NB side)
- I-5, Orange County Line to I-710, add two HOV lanes
- I-605, Orange County Line to South Street, add two HOV lanes*
- I-605, Telegraph Road to I-10, add two HOV lanes*
- I-405, I-110 to I-710, add two HOV lanes*
- SR-60, I-605 to I-215, add two HOV lanes
- SR-47, at Ocean Boulevard, interchange improvement

Roadway System

- Alameda Street/Henry Ford Avenue, SR-47 ramps to SR-91 ramps, widen to six lanes*
- Alamos Avenue, Ocean Boulevard to Pacific Coast Highway, widen from four to six lanes
- Gerald Desmond Bridge, widen from four lanes to five lanes (climbing lane)*
- New Four-Lane Connector Road to Del Amo Boulevard, Avalon Boulevard to Main Street (@ I-405 junction)
- Del Amo Boulevard, Main Street to Vermont Avenue, widen from two to six lanes
- Sepulveda Boulevard, Alameda Street to Carson City Limits, widen from two to four lanes
- Ocean Boulevard/Seaside Avenue, Gerald Desmond Bridge to Vincent Thomas Bridge, widen from four to six lanes*
- Atlantic Boulevard, Olympic to Whittier, widen from four lanes to six lanes
- Phase I (approx. 31) and Phase II (approx. 45) intersection improvements for most “truck-impacted” intersections.

- Signal system upgrades and signal synchronization for several major arterials throughout the I-710 Study Area.

Rail / Transit

- Alameda Corridor, LA/LB Ports to approx. Washington Boulevard, construct double track freight rail expressway, grade separations*
- Pasadena “Gold” Line, Union Station to Sierra Madre Villa, new LRT line*
- Los Angeles Blue Line, downtown Long Beach to Union Station, platform and operational improvements to existing line*
- Eastside Transit Corridor, Union Station to Beverly/Atlantic, new LRT line
- Green Line, miscellaneous capital and operational improvements to existing line
- Bus Service Improvements, miscellaneous operational improvements to existing systems (approx. 20% increase in service levels)

Alternative B – TSM/TDM Alternative

The Transportation Systems Management/Transportation Demand Management (TSM/TDM) Alternative largely consists of operational investments, policies, and actions aimed at improving goods movement, passenger auto and transit travel, and reducing the environmental impacts of transportation facilities and operations in the Study Area. Specific improvements included in the TSM/TDM Alternative are detailed as follows. Added explanation of how some of the goods movement strategies would operate are provided in Appendix K of this report.

Mainlines on I-710

- additional ramp metering
- aesthetics (landscaping and hardscape treatments along I-710)
- continuous high-mast illumination
- improved signage on I-710

Interchanges/Arterials

- I-710 ramp terminus/arterial improvements
 - for example, curb and gutter, including aesthetics improvements
 - mostly in state right-of-way
- implement parking restrictions on major parallel arterials during peak periods

Goods Movement

- empty container management through policies and incentives
- expanded drayage truck emission reduction program
- extended gate hours at the ports
 - move toward 24 hour / 7 days a week operations
 - incentives / disincentives (emphasize policy recommendations, not mandate)
 - include all entities in the supply chain

Transit

- additional Blue/Green Line feeder bus shuttles
- enhanced community service (local circulators)

Intelligent Transportation Systems (ITS)

- expand ITS Corridors
 - expand “depth” of ITS coverage on two identified ITS corridors (I-710/Atlantic; I-105 Corridor)
 - emphasize system connectivity

Alternative C - Medium General Purpose / Medium Truck Alternative

Alternative C is a major capital investment to the I-710 Corridor focused on improving safety and eliminating operational bottlenecks on I-710 for all vehicle types as well as selected improvements to manage the flow of heavy-duty trucks within the corridor. See Figure 4.5-1. Alternative C also emphasizes capacity improvements to the most deficient arterials serving as feeders or alternate routes to I-710. By definition, Alternative C incorporates all of the operational and policy improvements proposed in the TSM/TDM Alternative. In addition, Alternative C includes the following physical elements.

I-710 Mainlines

- add one mixed flow lane in each direction for selected I-710 segments
 - Shoemaker Bridge Complex to I-405 (I-710 becomes 4 lanes in each direction)
 - Imperial Hwy. to Atlantic Blvd. (I-710 becomes 5 lanes in each direction)
- improve mainlines to design standards
 - 12' travel lanes
 - 12' right shoulder
- add a continuous collector-distributor system between Atlantic Blvd. and I-5
- add a truck inspection facility adjacent to NB I-710 between Del Amo Blvd. and Long Beach Blvd.
- add truck bypass facilities at three freeway-to-freeway interchanges: I-405/I-710; SR-91/I-710; I-105/I-710
- add truck ramps to selected interchanges with high truck volumes: WB Pacific Coast Highway and WB Washington Blvd.

I-710 Interchanges

- add a right-side freeway connector ramp at the I-5/I-710^a interchange to be used primarily by trucks and retain the left-side connector to be used primarily by autos (NB I-710 to NB I-5)
- eliminate design deficiencies at the I-405/I-710 freeway-to-freeway interchange
- eliminate design deficiencies at eight local interchanges^b
- add one new interchange (Slauson)

Terminal Island Freeway (SR-47/SR-103)

- extend the Terminal Island Freeway (SR-103) to I-405, by adding an elevated, four-lane facility (two lanes in each direction) that would be used primarily by trucks

Arterials

- arterial capacity enhancements to 10 major arterials^c by adding one lane in each direction
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking; or roadway widening

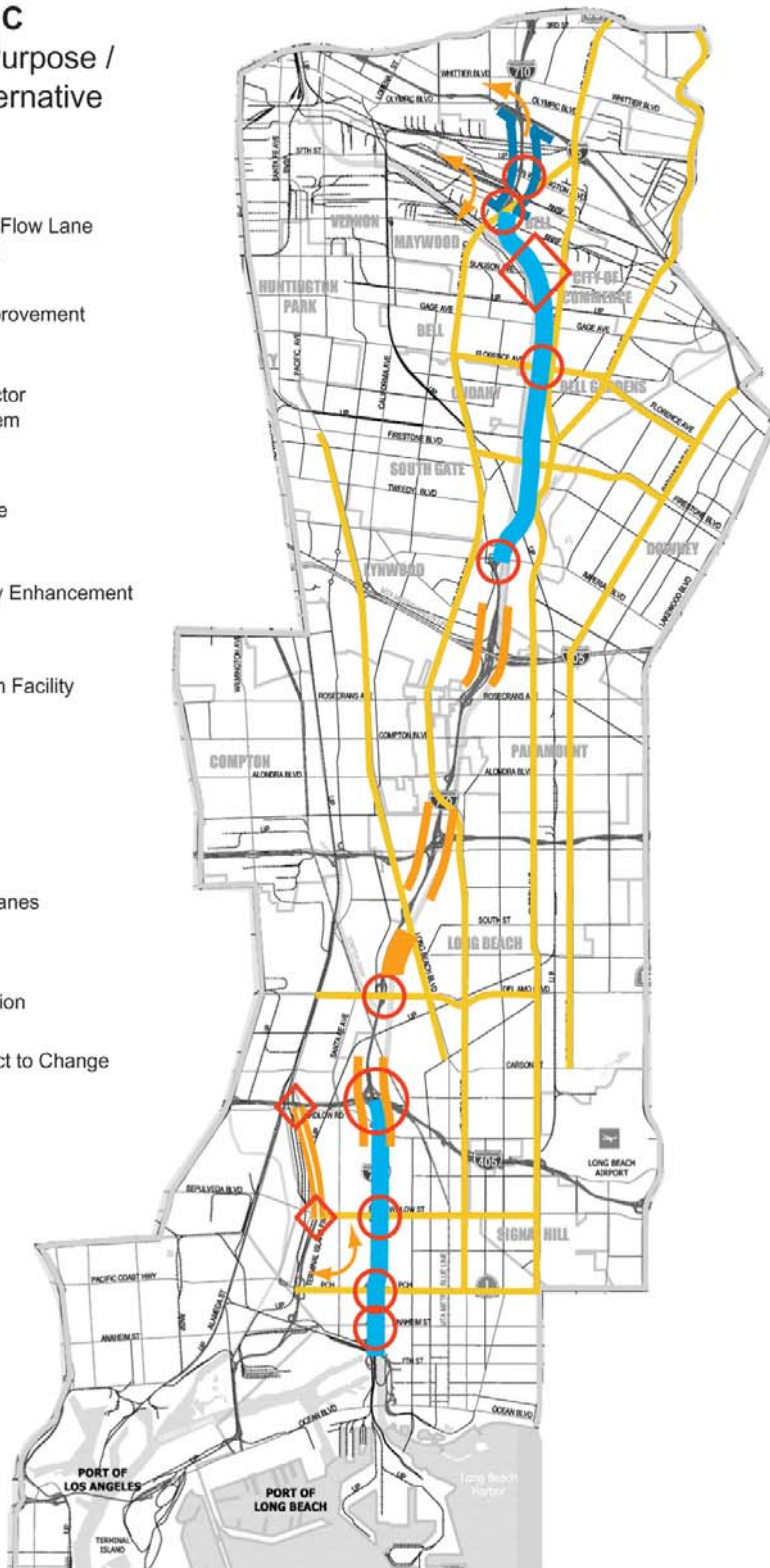
Figure 4.5-1

Alternative C
 Medium General Purpose /
 Medium Truck Alternative

LEGEND

-  Add One Mixed Flow Lane (Each Direction)
-  Interchange Improvement
-  Extended Collector Distributor System
-  New Interchange
-  Arterial Capacity Enhancement
-  Truck Inspection Facility
-  Truck Ramps
-  Truck Bypass Lanes
-  Freeway Extension

Preliminary Concepts, Subject to Change



Source: Final Set of Alternatives, Parsons Brinckerhoff, June 27, 2002.

- provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
- includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

Notes for Alternative C

- a. Requires coordination with I-5 Corridor Improvements
- b. Anaheim; Pacific Coast Highway; Willow; Del Amo; Imperial; Florence; Atlantic/Bandini; Washington
- c. Atlantic Blvd.; Cherry Ave./Garfield Ave.; Eastern Ave.; Long Beach Blvd.; Paramount Blvd.; Pacific Coast Highway; Willow St.; Del Amo Blvd.; Firestone Blvd.; Florence Ave.

Alternative D - High General Purpose / High HOV Alternative

Alternative D is a high level of capital investment in the I-710 Study Area focused on improving safety and increasing roadway capacity to address the high traffic volumes along the full length of the I-710 Corridor for all vehicle types as well as improving the travel time and attractiveness of carpools to increase the person-carrying capacity of the regional transportation system. Alternative D includes all of the proposed TSM/TDM improvements listed in Alternative B. The transportation elements that comprise Alternative D are listed as follows. A map of Alternative D is provided in Figure 4.5-2.

I-710 Mainlines

- add 2 mixed flow lanes in each direction to I-710 from:
 - Shoemaker Bridge Complex to I-405 (I-710 becomes approximately 5 lanes in each direction)
 - Imperial Hwy. to Atlantic Blvd. (I-710 becomes approximately 6 lanes in each direction)
- add 1 mixed flow lane in each direction to the remaining I-710 segments
- add an exclusive HOV facility^a for carpools and buses
 - 4 lanes (2 HOV lanes in each direction) from the Shoemaker Bridge Complex to SR-60
 - generally elevated, however, profile would be adjusted as needed depending upon best fit in I-710 right-of-way
 - alignment generally located in the median of I-710
 - dedicated ingress/egress points to facility for high occupancy vehicles at selected locations (approx. every 3-4 miles)
 - HOV lanes would operate 24 hours/7 days per week and assume a 2+ occupancy requirement
- improve I-710 mainlines to design standards
 - 12' travel lanes
 - 12' right shoulder









I-710 Interchanges

- eliminate design deficiencies at three freeway-to-freeway interchanges: I-405/I-710, SR-91/I-710; I-5/I-710^b
- eliminate design deficiencies at ten local interchanges^c
- include direct HOV connectors at the I-405/I-710 interchange (NB I-405 to NB I-710; SB I-710 to SB I-405)

Figure 4.5-2

Alternative D
High General Purpose /
High HOV Alternative

LEGEND

-  Add Two Mixed Flow Lanes (Each Direction) with HOV Facility
-  Add One Mixed Flow Lane (Each Direction) with HOV Facility
-  Add One Mixed Flow Lane (Each Direction)
-  Arterial Capacity Enhancement
-  Viaduct Connector
-  New Interchange
-  Interchange Improvement
-  Direct HOV Connector

Preliminary Concepts, Subject to Change



Source: Final Set of Alternatives, Parsons Brinckerhoff, June 27, 2002.

Terminal Island Freeway (SR-47/SR-103)

- add four-lane viaduct connector, between SR-47 and Alameda Street

Transit

- add express bus service on the proposed HOV lanes

Arterials

- arterial capacity enhancements to four major arterials^d by adding one lane in each direction to those parallel arterials close to I-710
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking; or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

Notes for Alternative D

- a. The exclusive 4-lane HOV facility would be designed and constructed so as to not preclude its future development as a high speed rail line between Long Beach and downtown Los Angeles.
- b. Requires coordination with I-5 Corridor Improvements
- c. Anaheim; Pacific Coast Highway; Willow; Del Amo; Long Beach Blvd; Rosecrans; Imperial; Florence; Atlantic/Bandini; Washington
- d. Atlantic Blvd., Cherry Ave./Garfield Ave., Eastern Ave., Long Beach Blvd.

Alternative E - High Truck Alternative

Alternative E would entail a high level of capital investment in the I-710 Corridor focused on: improving safety; increasing capacity for growing heavy duty truck demand; improving reliability of travel times; and reducing points of conflict between autos and trucks to the greatest extent possible. See Figure 4.5-3 for a map of Alternative E. As with the other build alternatives, Alternative E includes the TSM/TDM strategies recommended in Alternative B. In addition, Alternative E entails the following proposed transportation improvements:

Mainline Facility

- construct an exclusive truck facility
 - 4 lanes (2 in each direction) between SR-91 and SR-60
 - 6 lanes (3 in each direction) between Ocean and SR-91
- proposed truck facility would be generally elevated, however, the profile would ultimately be determined based on need to minimize grades and best fit to minimize need for additional right-of-way
- provide dedicated ingress/egress points for trucks at selected locations (approximately every 3-4 miles)
- horizontal alignment of truckway could be in the median or adjacent to I-710 in state, LA River, or power line right-of-way depending upon best fit
- consider a tolling option for users of the truck facility
- provide extensive auxiliary lane improvements along existing I-710 travel lanes
- improve existing I-710 travel lanes to design standards
 - 12' travel lanes
 - 12' right shoulder

Figure 4.5-3

Alternative E
High Truck Alternative

LEGEND

-  Exclusive Truck Facility (4 Lanes)
-  Exclusive Truck Facility (6 Lanes)
-  Interchange Improvement
-  Approx. Truck Ingress/Egress Location
-  New Interchange
-  Arterial Capacity Enhancement

Preliminary Concepts, Subject to Change



I-710 Interchanges

- eliminate design deficiencies at I-5/I-710^a; SR-91/I-710; and I-405/I-710
- add one new interchange (Slauson)

Arterials

- arterial capacity enhancements to arterials that lead to I-710 and that carry very high truck volumes by adding one lane in each direction: Ocean Blvd.; Pacific Coast Highway; Florence Ave.; Bandini Blvd.; Washington Blvd.
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking; or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

Notes for Alternative E

- a. Requires coordination with I-5 Corridor Improvements

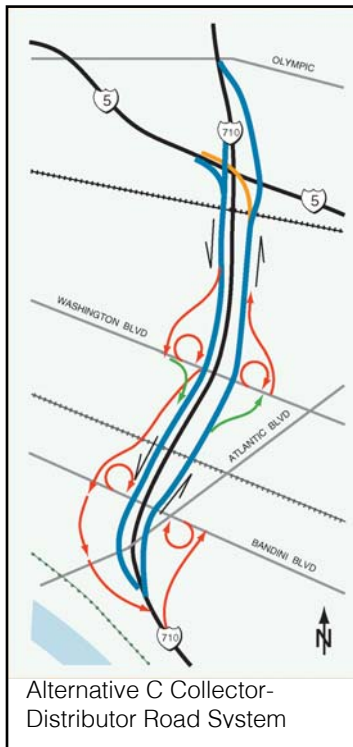
5.0 ALTERNATIVE REFINEMENTS AND EVALUATION

During Alternatives Evaluation, several technical studies were performed on the Final Set of Alternatives. The purpose of these studies was to elicit evaluative information on the alternatives as well as provide a higher level of definition of their respective operational and physical characteristics. These technical studies included: conceptual engineering; travel demand forecasting; right-of-way impact analysis; environmental analysis; and estimation of capital costs. Once the technical studies were completed, this information was used to assess the travel benefits, costs, and impacts of the proposed alternatives. Key trade-offs among the alternatives were also evaluated and discussed, and public input was sought.

5.1 Design Concepts

Following adoption by the Oversight Policy Committee in June 2002, the specifics of the design concepts of each of the build alternatives, C, D, and E of the Final Set evolved. This evolution was a result of the conceptual engineering work undertaken to refine the alternatives for further evaluation and analysis. The conceptual plans developed for the build alternatives in January 2003 are provided in Appendix L of this report under separate cover. While the basic design concept and scope of each of the build alternatives did not change from those concepts approved by the OPC, the objective of the conceptual design process was to further define the specifics of the alternatives within the framework of three background assumptions: (1) meet the intent of the OPC-approved alternative definition; (2) maintain federal and state highway design standards; and (3) minimize right-of-way/land use impacts.

Alternatives A and B did not change significantly during this phase of the I-710 Study.



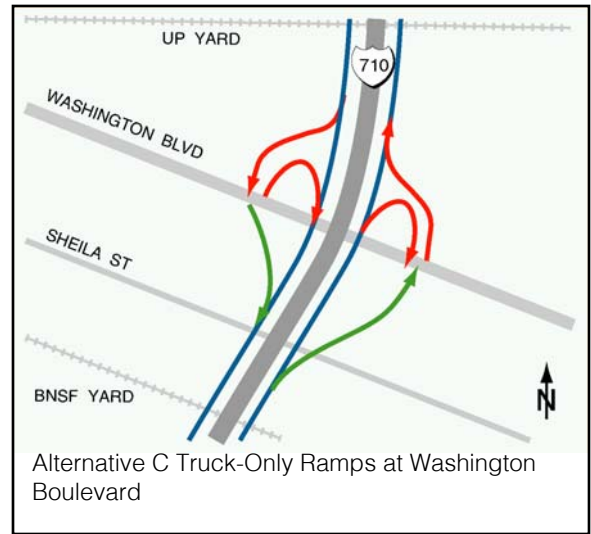
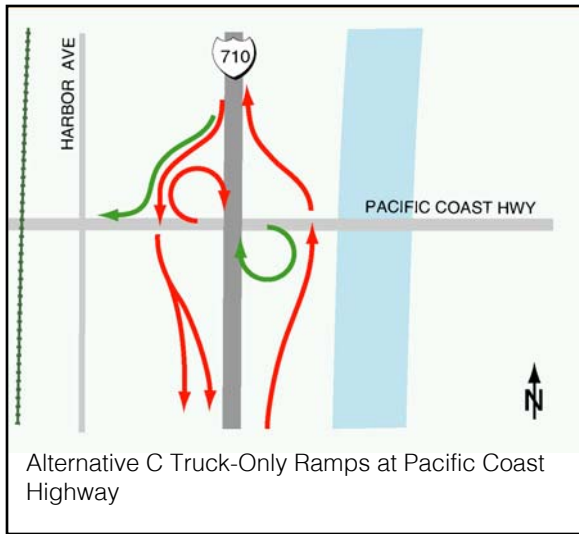
5.1.1. Alternative C—Medium General Purpose/Medium Truck Alternative

Changes in Alternative C included refinements to the design concepts for the following components:

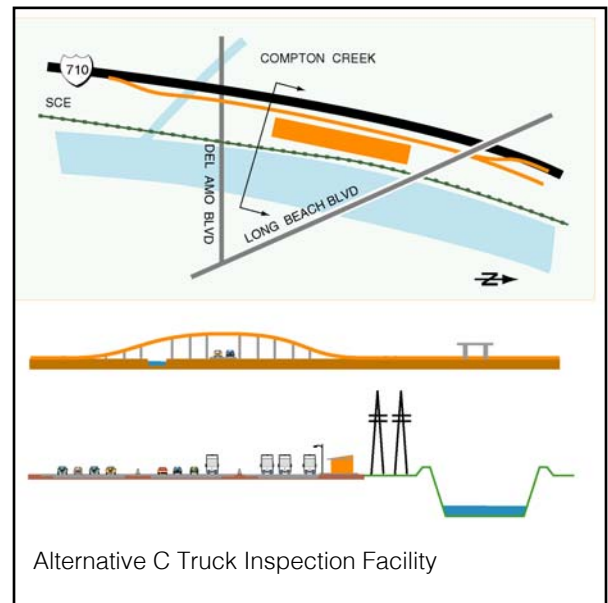
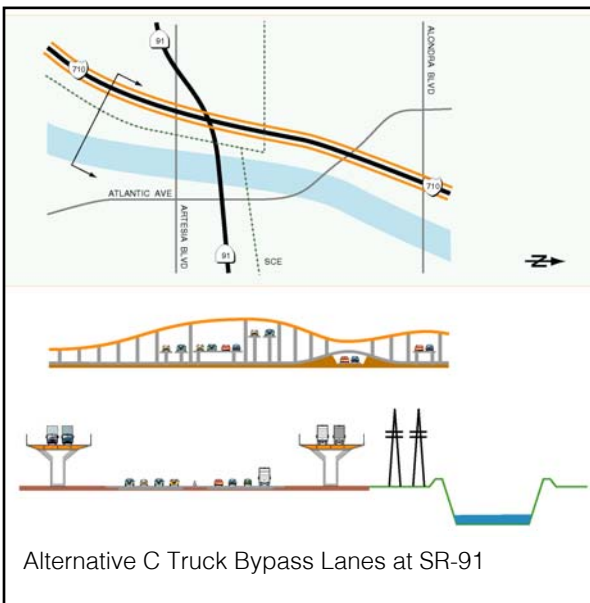
- Collector-Distributor Road
- Truck Bypass Lanes
- Truck Inspection Facility
- Truck-Only Ramps
- Terminal Island Freeway Extension

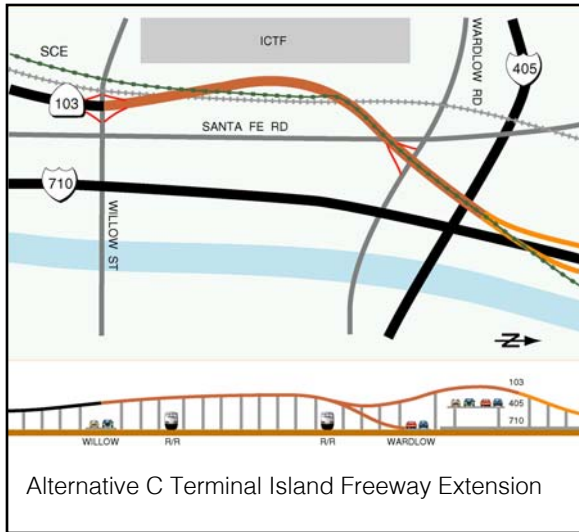
A Collector-Distributor Road system was refined in Alternative C from the Atlantic Boulevard/Bandini Boulevard interchange north through the I-5/I-710 interchange, both northbound and southbound. The collector-distributor road system would separate the entering and exiting traffic from the through movements on I-710, providing a higher level of service for the vehicles traveling through this area. Ramping configurations were developed that address federal and state concerns about weaving, merging, and interchange spacing.

Truck-Only Ramps in Alternative C were proposed at two locations, Pacific Coast Highway (PCH) and Washington Boulevard. The Truck-Only Ramps at PCH evolved from one bi-directional ramp into two separate ramps: from southbound I-710 to westbound PCH, an additional, truck-only lane would be added to the existing ramp. For eastbound PCH to northbound I-710, the existing loop ramp would be converted to a truck-only ramp, while cars will be required to make a left turn to the existing westbound to northbound ramp. At Washington Boulevard, there would be two truck-only ramps: a northbound exit ramp and a southbound entrance ramp to address truck traffic traveling between the rail yards and destinations south of Washington Boulevard.



The Truck Bypass Lanes design concept evolved due to the close proximity of the SR-91/I-710 interchange and the I-105/I-710 interchange. Instead of separate bypass lane facilities, a single bypass facility was developed around both interchanges starting south of SR-91 and terminating north of I-105. The proposed Truck Inspection Facility was also altered somewhat so that it was located on the northbound bypass facility.





The proposed Terminal Island Freeway Extension in Alternative C had changed substantially from the initial concept in response to comments received from both FHWA and City of Long Beach. Rather than connecting the Terminal Island Freeway Extension to I-405 near Alameda Street, approximately one mile west of I-710, as originally conceptualized, the Terminal Island Freeway Extension was re-routed along the Southern California Edison right-of-way to connect with I-710 north of I-405. Access to I-405 would be achieved via local access ramps at Wardlow Road and Santa Fe Road.

Additionally, the design of improvements to the I-710/I-405 interchange would eliminate the ability of northbound I-710 traffic to exit I-405 at Santa Fe Avenue or Alameda Street.

A concept map and description of the revised version of Alternative C is shown in the *I-710 Major Corridor Study Final Set of Alternatives, Revised January 2003*, in Appendix M of this report.

5.1.2. Alternative D—High General Purpose/High HOV Alternative

Changes in Alternative D included refinements to the following elements:

- Number of HOV lanes
- Elevated vs. At-Grade Profile
- Southern Terminus

The prior definition of Alternative D included four HOV lanes the entire length of the project. Through the design concept refinement process, Alternative D was changed to provide two HOV lanes (one in each direction) between PCH and I-405, four HOV lanes (two in each direction) between I-405 and Slauson Avenue, and two HOV lanes (one in each direction) between Slauson Avenue and just north of I-5. The proposed number of HOV lanes was changed because of the difficulty in physically transitioning two HOV lanes per direction at both the north and south ends of the project. While locations with one HOV lane in each direction would be at grade, those with two HOV lanes in each direction would generally be elevated, except for ingress / egress locations to reduce right-of-way impacts. Operationally this would work well in the southern section, from Pacific Coast Highway to I-405, because the HOV connector from I-405 adds an additional lane north of I-405 which corresponds with the two-lane HOV section (each direction) between I-405 and Slauson Avenue. North of Slauson Avenue, there are a number of closely spaced interchanges, including I-5, and there is a perceived need for access to the proposed HOV lanes. Because of all of the access points, the volume of HOVs is anticipated to be less at this location than in the central portion of the Corridor. Therefore, north of Slauson Avenue to approximately Olympic Boulevard, one at-grade HOV lane in each direction is proposed to address the operational needs.

The proposed southern terminus of I-710 improvements in Alternative D was changed such that the improvements would end at Pacific Coast Highway again largely because of the physical and operational difficulty of terminating the HOV lane south of that location, and also because of the complexity of the number of closely spaced interchanges in that segment. The proposed terminus was moved north from the Shoemaker Bridge to avoid the complications of the modifications to access to I-710 required by the closely spaced interchanges at Pico Avenue, 9th Street, Anaheim Street, and Pacific Coast Highway – five in this 2.4-kilometer (1.5-mile) section.

A concept map and description of the revised version of Alternative D is shown in the *I-710 Major Corridor Study Final Set of Alternatives, Revised January 2003*, in Appendix M of this report.

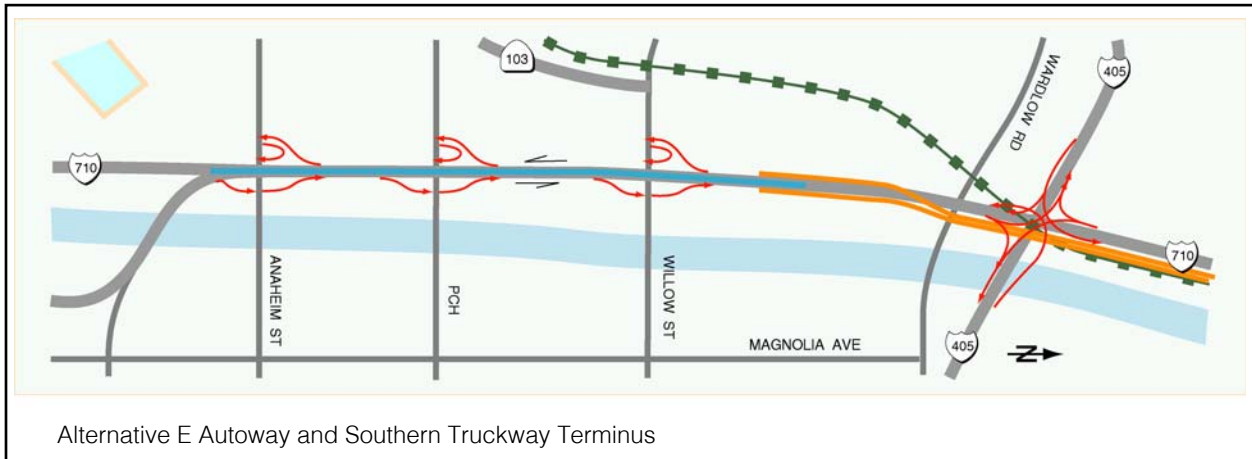
5.1.3. Alternative E—High Truck Alternative

Changes in Alternative E included refinements to the following components:

- Truckway Alignment Relative to the I-710 Mainline
- Truckway/Autoway Configuration at the South End

Previously, the proposed Truckway component of Alternative E had been envisioned as being located primarily elevated in the median of the freeway. In response to public, Caltrans, and CHP comments, the proposed Truckway was relocated so that it would no longer be elevated above the median of the I-710 freeway, but would be located either on one side of the freeway or the other, or split so that there would be lanes on both sides of the freeway, and those lanes would either be elevated or at-grade, depending upon the location. The refined roadway concept is described as follows: Starting at the north end near Whittier Blvd., the truck lanes would split into two lanes on either side of I-710 until the vicinity of Atlantic Blvd., where all four lanes would shift to the east side of I-710 until south of Imperial Blvd. where the lanes would diverge again into two lanes on either side of the freeway and then would converge again into four lanes on the east side of I-710 until south of Wardlow Ave. where they diverge into two lanes on either side for a short distance until the southern terminus of the truckway.

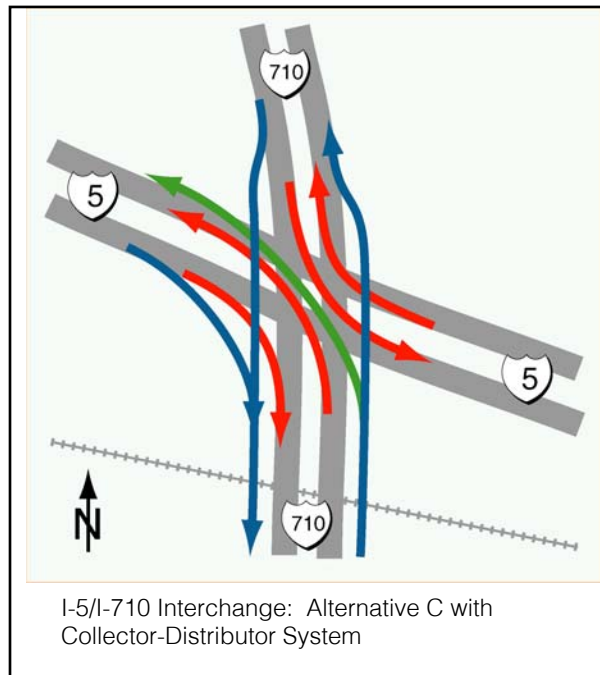
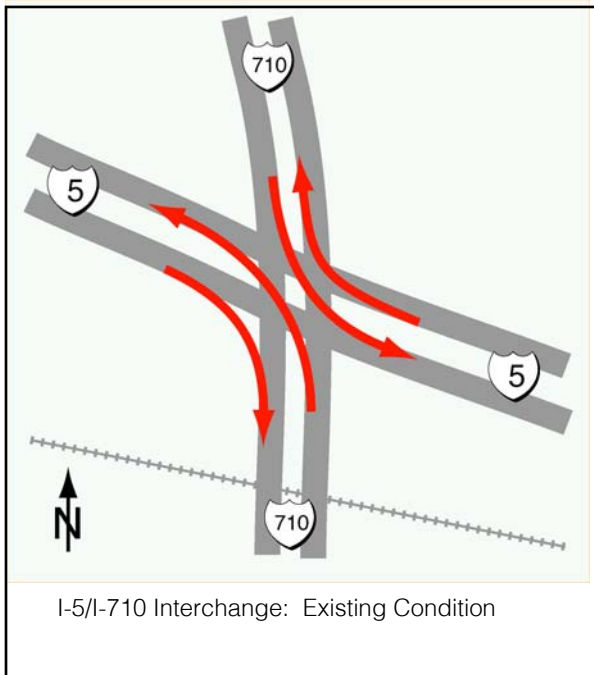
At the south end of the proposed improvement limits, Alternative E had previously been conceived with the Truckway extending as far south as Anaheim Street. To reduce right-of-way impacts and construction related impacts, this concept was modified to include a generally elevated exclusive auto facility, "Autoway", that would run from the Shoemaker Bridge to north of Willow Street. This proposed four-lane facility would carry autos to/from the Long Beach downtown/entertainment area. The proposed Truckway would then begin north of Willow Street and extend north the rest of the length of the Corridor.

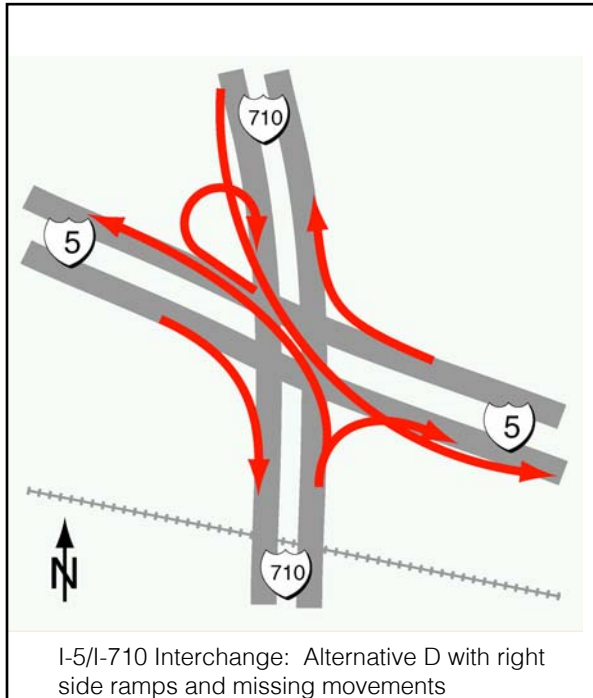


A concept map and description of the revised version of Alternative E is shown in the *I-710 Major Corridor Study Final Set of Alternatives, Revised January 2003*, in Appendix M of this report.

5.1.4. I-710/I-5 Interchange Concepts

The three build alternatives also proposed different concepts for the I-5/I-710 interchange so that a range of options could be analyzed at this sensitive location during this phase of the I-710 Study. Alternative C proposes leaving the existing interchange as it is, and adding a new northbound I-710 to northbound I-5 connector on the right side – all trucks would be prohibited from the existing left side connector and directed to use the new right side connector.





Alternative D proposes replacing the existing I-5/I-710 interchange with all new right-side connectors designed to current design standards, plus the addition of two new connectors – from northbound I-710 to southbound I-5 and from northbound I-5 to southbound I-710. Alternative E also proposes to replace all of the existing connectors, plus incorporate the same two new movements via an elevated viaduct over Atlantic Boulevard. This four-lane viaduct would connect the two freeways, but have no access to or from local streets.

5.2 Transportation System Performance

This section assesses the travel benefits and impacts of the Final Set of Alternatives. The assessment is for an assumed design year of 2025 and is based upon travel demand forecasts developed using the I-710 Major Corridor Study subarea travel forecasting model and the FHWA ITS Deployment Analysis System (IDAS) travel benefit assessment model. The transportation system performance of the alternatives is assessed from two perspectives: (1) the performance of the I-710 freeway for each of the alternatives, and (2) the performance of the transportation system for the entire I-710 Study Area for each of the alternatives. These two perspectives provide differing information as to the distribution of benefits of the proposed alternatives between users of the I-710 and users of the road system throughout the I-710 Study Area.

5.2.1 I-710 Facility Performance

In order to understand the major differences among the final set of five alternatives, Table 5.2-1 illustrates the I-710 mainline configuration of the “through” lanes included in each of the alternatives, not counting lane drops and adds at various locations up and down the freeway associated with the interchanges or with auxiliary lanes.

**Table 5.2-1
I-710 Mainline Lane Configurations**

Segments on I-710		Number of General Purpose Lanes and Special Purpose Lanes (SP, HOV, TR)					
		Existing	Alt A	Alt B	Alt C	Alt D	Alt E
From	To	GP	GP	GP	GP + SP	GP + HOV	GP + TR
SR-60	I-5	8	8	8	8	8 + 2	8
I-5	Washington	10	10	10	10 + 4 ^a	12 + 2	10 + 4
Washington	Atlantic/Bandini	10	10	10	10 + 4 ^a	12 + 2	10 + 4
Atlantic/Bandini	Florence	8	8	8	10	12 + 4	8 + 4
Florence	Firestone	8	8	8	10	12 + 4	8 + 4
Firestone	Imperial	8	8	8	10	12 + 4	8 + 4
Imperial	I-105	8	8	8	8 + 4 ^b	10 + 4	8 + 4
I-105	Rosecrans	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Rosecrans	Alondra	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Alondra	SR-91	8	8	8	8 + 4 ^b	10 + 4	8 + 4
SR-91	Artesia	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Artesia	Long Beach	8	8	8	8 + 4 ^b	10 + 4	8 + 4
Long Beach	Del Amo	8	8	8	8	10 + 4	8 + 4
Del Amo	I-405	8	8	8	8	10 + 4	8 + 4
I-405	Wardlow	6	6	6	8	10 + 2	6 + 4
Wardlow	Willow	6	6	6	8	10 + 2	6 + 4
Willow	Pacific Coast Highway	6	6	6	8	10 + 2	6 + 4 ^c
Pacific Coast Highway	Anaheim	6	6	6	8	10 + 2	6 + 4 ^c
Anaheim	9th	6	6	6	8	6	6 + 4 ^c
9th	Ocean	4	4	4	4	4	4

Source: Parsons Brinckerhoff, Inc. and Cambridge Systematics, Inc., April 2003.

Notes: Mainline lane configurations show the total number of through lanes for both directions of I-710. Auxiliary lanes are not counted. General purpose (GP) lanes are travel lanes that are used by all vehicle types. Special purpose (SP) lanes are lanes devoted to a specific purpose (i.e., collector-distributor lanes, high occupancy vehicle lanes (HOV), truck bypass lanes, truckway (TR), and autoway).

^aCollector-Distributor System, ^bTruck Bypass Lanes, ^cAutoway Lanes

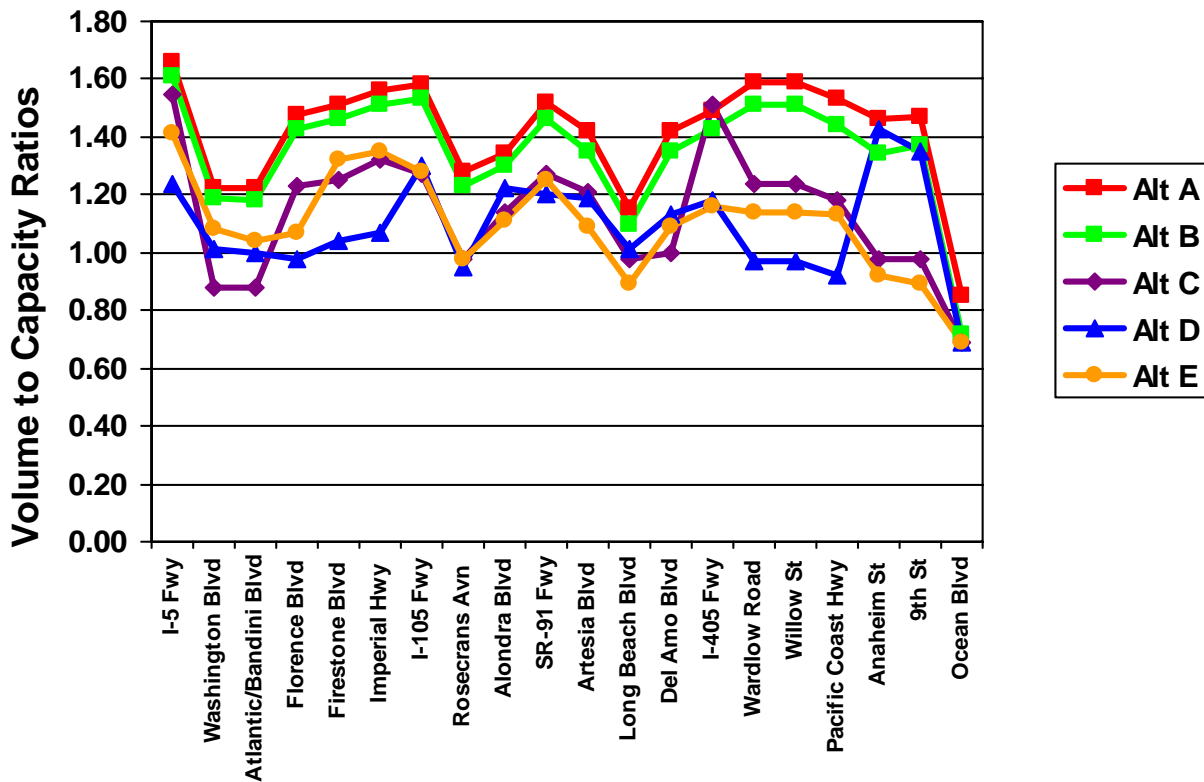
There are several measures of the forecast travel and mobility performance of I-710 facility among the Final Set of Alternatives. Each of these measures provides a slightly different perspective on the performance of I-710 for each of the alternatives. These include:

- Volume/Capacity Ratios
- Average Travel Speeds
- Utilization of New Lanes
- Truck Utilization of Lanes/Truck Diversion

Volume/Capacity Ratios

The first mobility performance measure presented is the forecast Volume/Capacity (V/C) ratios along I-710 for each of the alternatives (Figure 5.2-1). The V/C ratio is an indicator of overall traffic congestion along I-710, with values greater than 1.0 indicating significant traffic congestion on those freeway segments.

Figure 5.2-1
Volume/Capacity Ratios by Link
I-710 Northbound GP Lanes, PM Peak Period, Year 2025



Source: Cambridge Systematics, Inc., April 2003.

V/C was estimated using passenger car equivalency (PCE) factors. These PCE factors account for the higher roadway capacity utilization impacts of large trucks relative to autos based on the size and operational characteristics of these vehicles. Consistent with prior SCAG and Ports traffic forecasting analyses, an average PCE of 2.5 was used in this analysis

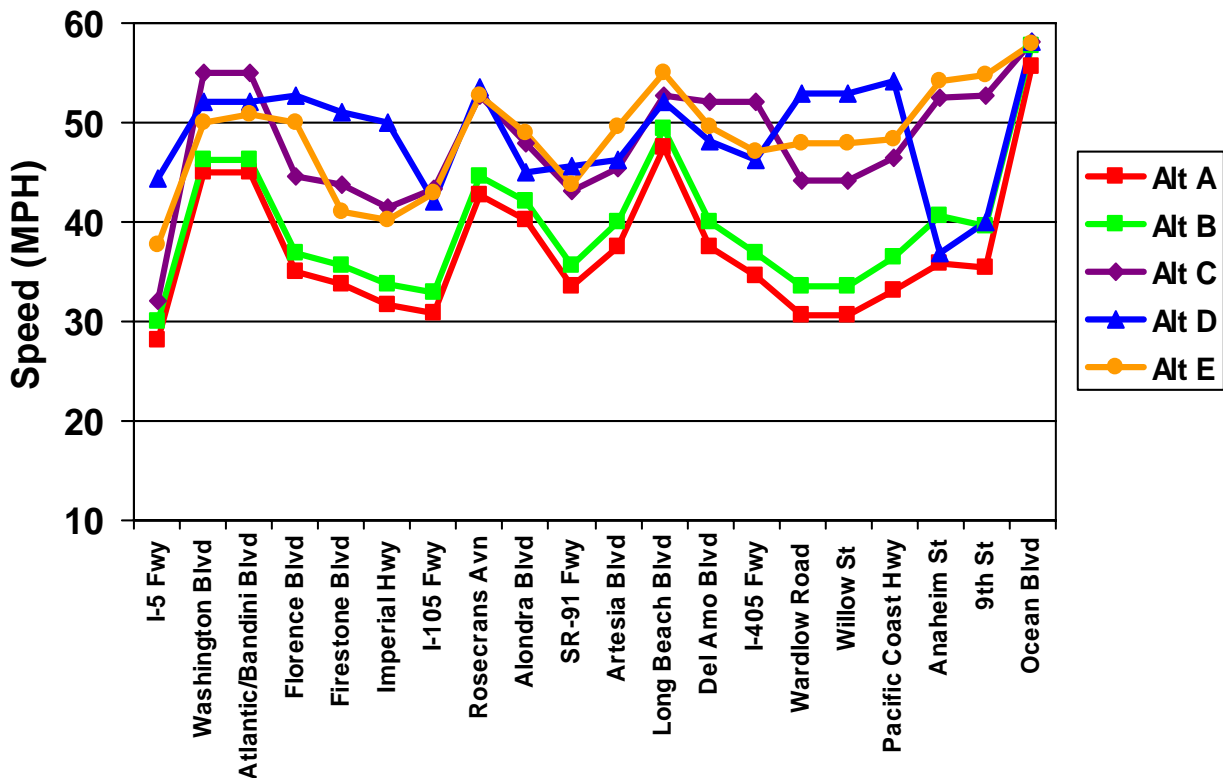
for heavy duty trucks. That is, one heavy duty truck, on average, uses as much roadway capacity as 2.5 autos. Year 2025 forecast V/C ratios are presented that compare each of the alternatives for the northbound direction for each segment of the I-710 between Ocean Blvd. and SR-60 during the PM peak period.

The analysis of V/C first focuses on I-710 mainline general purpose lane characteristics. While the results vary by location along the I-710 mainline (Figure 5.2-1), Alternative D, High General Purpose/High HOV, generally is forecast to have the lowest V/C ratios along I-710 of all the alternatives. This is primarily because it adds the most capacity relative to forecast traffic demand, even though HOV lane utilization is not forecast to be that high. Alternative D adds a total of 6 - 8 lanes to I-710 depending upon the location. Alternative E, High Truck, also is forecast to reduce V/C ratios on the mainline considerably, due to the forecast diversion of trucks from the mainline to the proposed truck-only lanes of this alternative. Because of the higher capacity utilization of large trucks, their forecast diversion to the proposed truck lanes in Alternative E improves the V/C ratio on the I-710 mainline general purpose lanes.

Average Travel Speed

The next I-710 facility performance measure is the Year 2025 projected average travel speed by segment of I-710 (Figure 5.2-2).

**Figure 5.2-2
Estimated Travel Speeds by Link
I-710 Northbound GP Lanes, PM Peak Period, Year 2025**

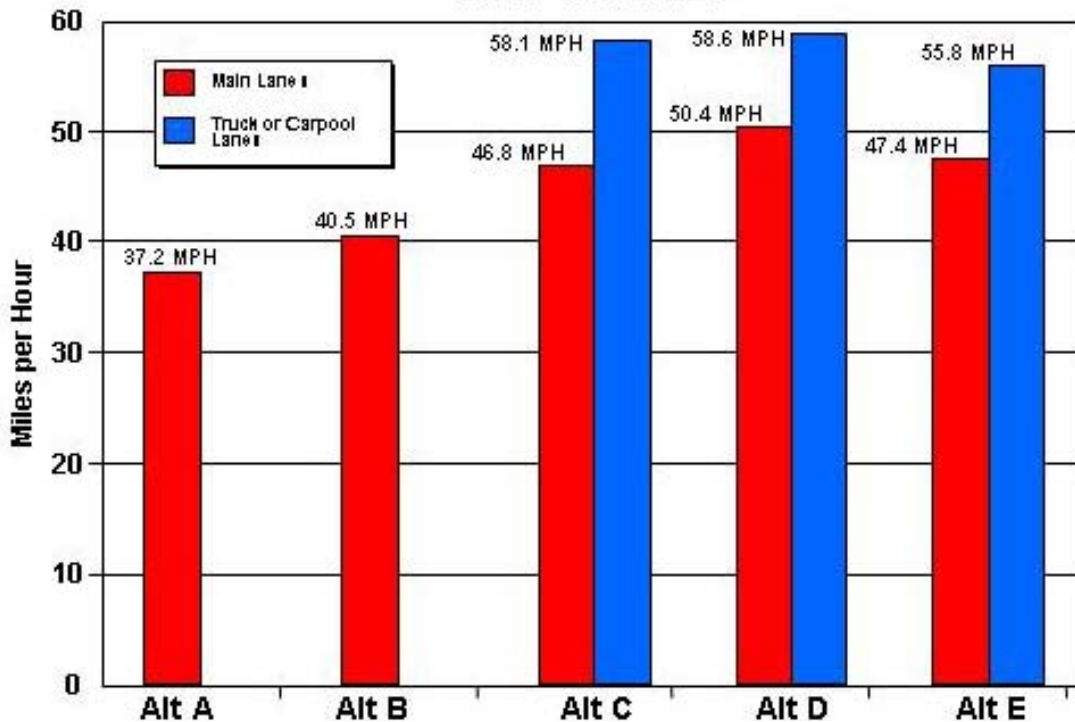


Source: Cambridge Systematics, Inc., April 2003.

This measure results in a similar comparison among the alternatives as that of the V/C ratios, as average travel speeds are a function of V/C. The higher the V/C ratio, the greater the traffic congestion and the lower the average travel speed. I-710 mainline average speeds for the future No Build Alternative (Alternative A) in the PM peak period in the northbound direction are forecast to average between 30 and 45 mph for most of the freeway, with several segments forecast to have average PM peak period traffic speeds below 35 mph on a typical weekday. Alternative D is forecast to produce the greatest improvement in average travel speeds with many segments of the I-710 general purpose lanes forecast to achieve speeds above 50 mph. The forecast average speeds for Alternative E and Alternative C are similar to the performance of those two alternatives with respect to V/C ratios, with most northbound segments of the I-710 general purpose lanes forecast to achieve average speeds of between 40 mph and 50 mph in the PM peak period. It is noted that the improvement of travel times on the I-710 mainline for Alternative E, due to the higher forecast average speeds, will have implications for tolling on the proposed truck lanes in that alternative because trucks may not realize significant enough trip time savings as compared to the I-710 general purpose lanes to make paying tolls very attractive (given the option by trucks to use either the general purpose lanes or the truck lanes, see Section 6.5.2).

Figure 5.2-3 displays the traffic volume weighted average speeds for the entire length of the I-710 mainlines for each of the five alternatives in the PM peak period for 2025. In this figure, a distinction is made between the general purpose travel lanes and the lanes that would be used either exclusively by carpools or by trucks depending upon the alternative.

**Figure 5.2-3
Average Travel Speeds, NB Lanes, PM Peak Period, 2025**



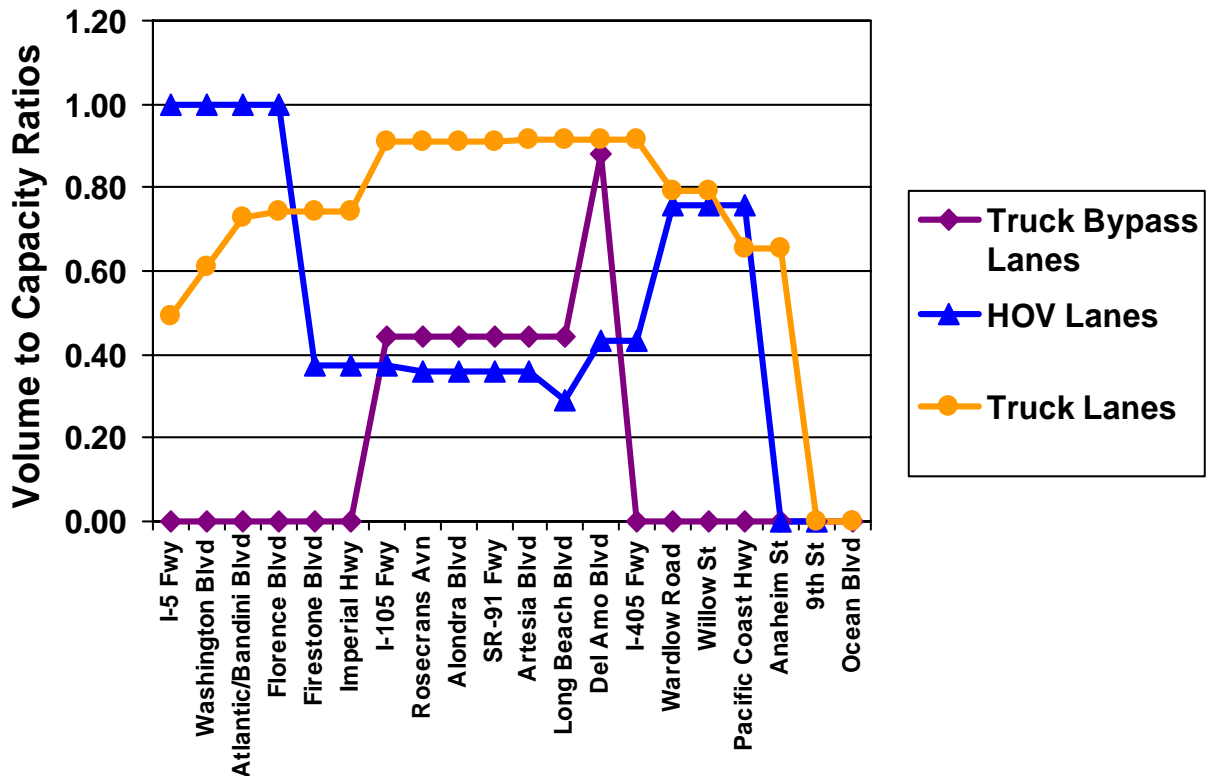
Source: Cambridge Systematics, Inc., April 2003.

Alternatives B, C, D and E are all forecast to improve travel speeds on the I-710 as compared to the future no build condition, Alternative A. Mainline general purpose lanes average PM peak period speeds are forecast to be the highest with Alternative D, followed by E and C respectively. The proposed HOV and truck lanes in the build alternatives are forecast to all have average speeds above 55 mph, providing time savings to their users. The overall forecast improvement in PM peak period average speeds will save time for users of I-710 and contribute to reduced pollutant emissions and fuel consumption compared to the future no build alternative.

Utilization of New Lanes

The next travel demand measure is the projected utilization of the proposed new lane facilities along I-710 that would be added in the build alternatives (truck by-pass lanes in Alternative C, HOV lanes in Alternative D, and truck-only lanes in Alternative E) based on how well the capacity of these lanes is utilized. Volume to capacity ratios are presented northbound for the PM peak period (Figure 5.2-4) and indicates the relative attractiveness of the proposed new lanes which are designed to serve trucks or carpools, depending upon the alternative.

**Figure 5.2-4
Projected V/C Ratios of I-710 Special Purpose Lanes
Northbound Direction, PM Peak Period, Year 2025**



Source: Cambridge Systematics, Inc., April 2003.

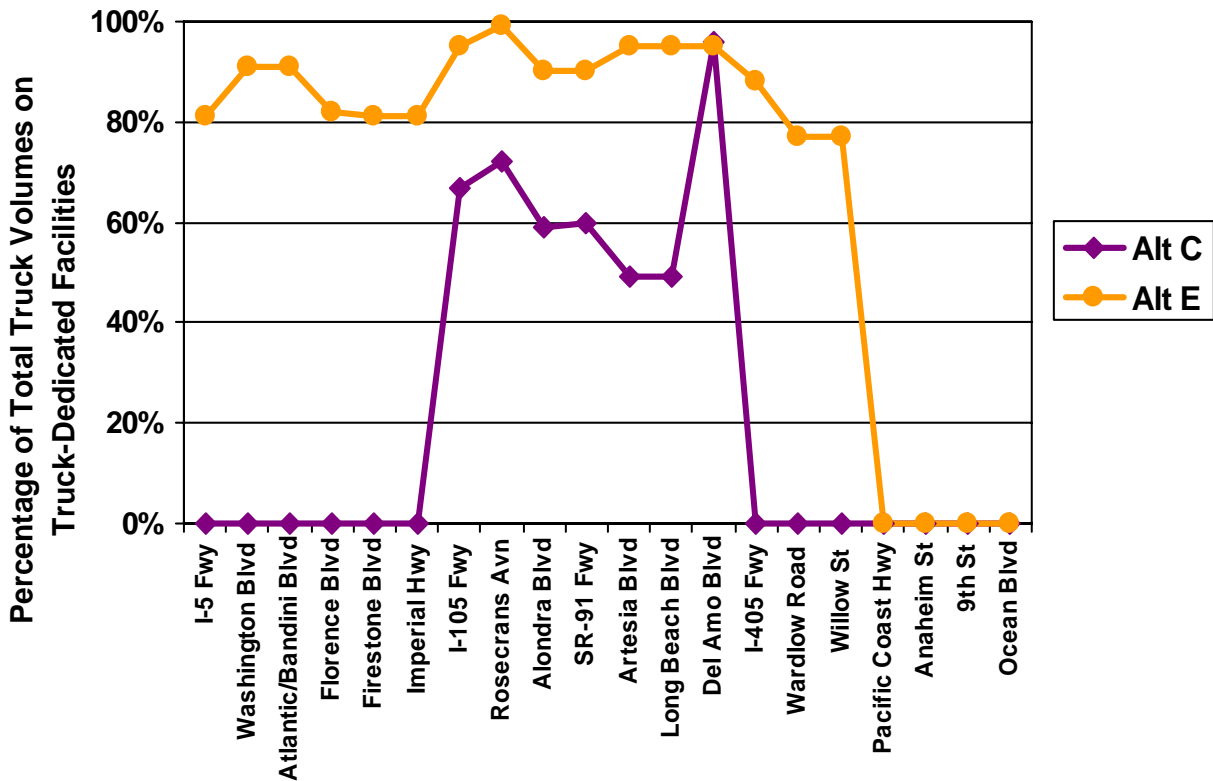
The truck lanes in Alternative E have the highest projected utilization of all of the proposed new I-710 lanes, with V/C ratios above 0.8 along most of their alignment. The proposed truck by-pass lanes in Alternative C also are forecast to have high utilization relative to capacity, with

V/C ratios slightly above 0.6. Alternative C also contains a truck inspection facility in the vicinity of Del Amo Boulevard, which would see high truck use. HOV lane utilization in Alternative D is forecast to be relatively low along the entire length of I-710, with V/C ratios in the middle segment of the proposed HOV lanes only slightly above 0.3. Alternative D's mobility improvements therefore come more from the proposed addition of general purpose traffic lanes as opposed to proposed HOV lane additions.

Truck Utilization of Lanes

The percentage of trucks using the proposed truck by-pass lanes in Alternative C and the proposed truck lanes in Alternative E is another measure of I-710 performance for the build alternatives (Figure 5.2-5). This measure indicates to what degree the alternatives are able to attract truck traffic to the proposed new truck lanes from the general purpose traffic lanes, hence helping to separate trucks and autos.

**Figure 5.2-5
Forecast Truck Utilization of Proposed I-710 Truck Lanes**



Source: Cambridge Systematics, Inc., April 2003.

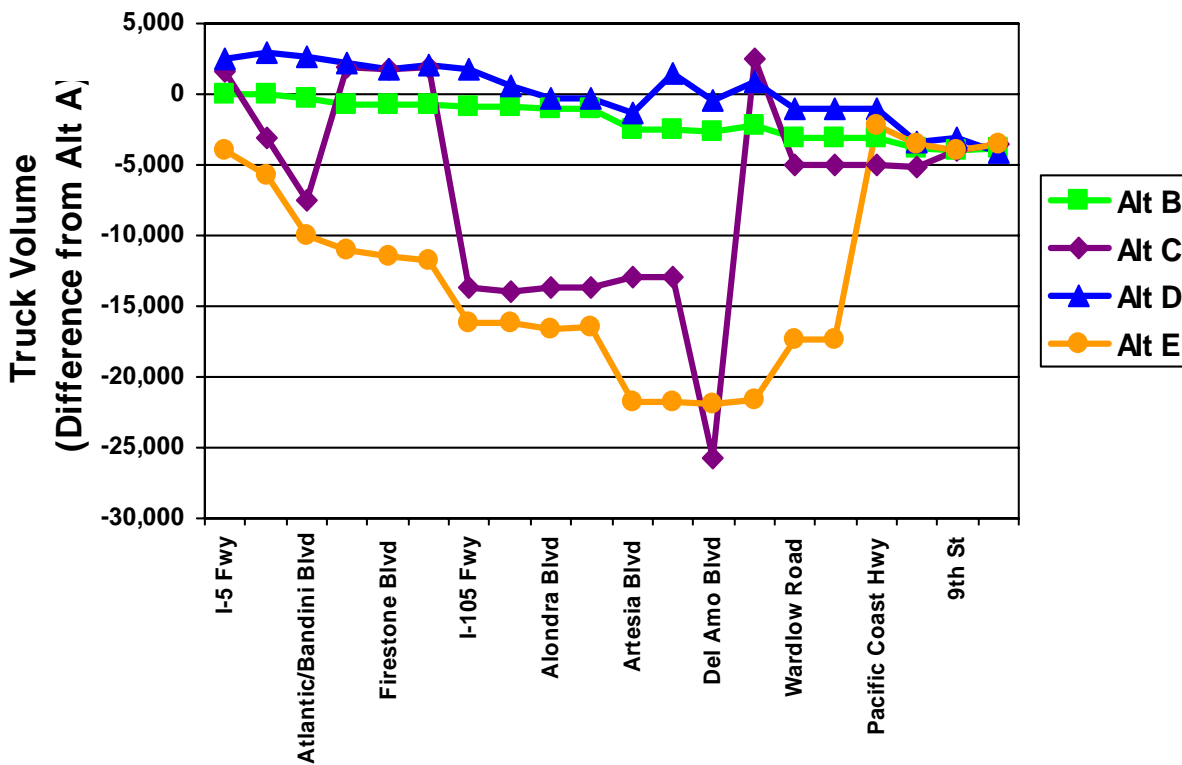
Truck lane utilization rates in these two alternatives are forecast to be very high, generally between 60 and 80 percent. Truck by-pass lane utilization in Alternative C is forecast to be somewhat lower due to the fact that only trucks that would be moving through an I-710 interchange are candidates for using these lanes. Almost all trucks would use the truck inspection facility in Alternative C. It is noted that in some segments truck lane utilization in Alternative E may drop because the proposed truck lanes are forecast to be operating close to a V/C of 1.0, indicating congested conditions. As the volume/capacity ratio approaches 1.0 on

the proposed truck lanes, the projected travel time savings benefits for trucks using the proposed truck lanes relative to the I-710 general purpose lanes would not be that substantial, making them less attractive to use.

Truck Diversion

The final I-710 facility specific measure is the forecast change in truck average daily traffic (ADT) on the I-710 general purpose lanes for each of the alternatives (Figure 5.2-6) as compared to Alternative A (No Build Alternative).

**Figure 5.2-6
Truck Diversion from the I-710 General Purpose Lanes
Northbound Direction, PM Peak Period, Year 2025**



Source: Cambridge Systematics, Inc., April 2003.

The ability of the proposed truck by-pass lanes (Alternative C) and truck lanes (Alternative E) to separate truck and auto traffic are evident in these projections, with significant decreases in forecast truck ADT on the general purpose lanes of I-710 for these two alternatives. The decrease in truck volume due to the truck inspection facility in the vicinity of Del Amo Boulevard in Alternative C is represented by the dip in the illustration. Diversion of trucks from the southern segments of I-710 due to the proposed Terminal Island Freeway improvements is reflected in the projected decrease in truck volumes on I-710 general purpose lanes south of I-405 in Alternatives C and D.

5.2.2 Study Area Transportation System Performance

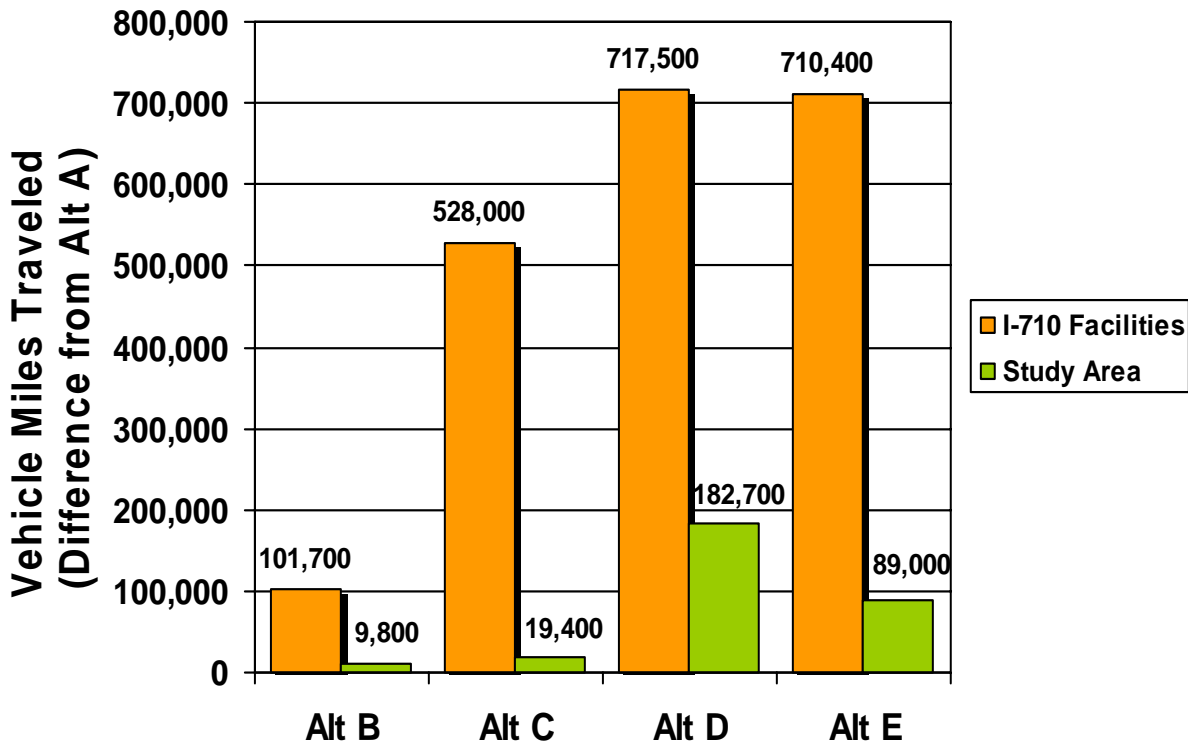
In addition to focusing on the transportation system performance of the I-710 among the Final Set of Alternatives, it is important to assess the performance of the entire roadway system within the I-710 Study Area. The Study Area, as described in Section 1.2, encompasses the roadway system between approximately Alameda Street on the west, Lakewood/Rosemead Boulevard on the east, the Ports of Long Beach and Los Angeles on the south and SR-60 on the north. Proposed physical and operational changes in Alternatives B through E would affect not just traffic and system performance on I-710 itself, but the surrounding parallel and connecting freeways and arterials as well. The measures presented in this section attempt to capture these broader transportation system performance changes among the alternatives. These study area wide system performance measures include:

- Vehicle miles traveled
- Vehicle hours traveled
- Person hours traveled
- Annual traffic accidents
- Travel time reliability

Vehicle Miles Traveled

The first study area-wide performance measure is forecast average weekday daily vehicle miles traveled (VMT) as compared to the No Build Alternative. (Figure 5.2-7).

**Figure 5.2-7
Change in Vehicle Miles Traveled**



Source: Cambridge Systematics, Inc., April 2003.

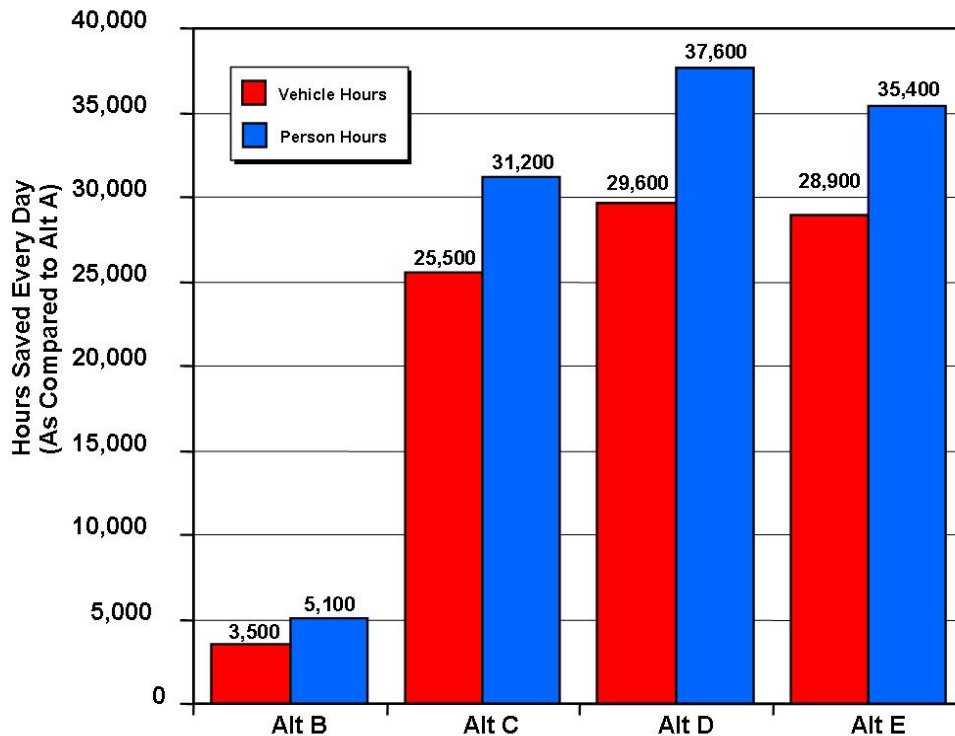
As expected, VMT increases significantly on the I-710 for each of the build alternatives (Alternatives C-E, including HOV lanes, truck by-pass lanes, and truck lanes) as compared to the no build condition. These alternatives add substantial capacity to I-710 and hence are forecast to attract traffic from other congested roadways within or near the Study Area. These forecast changes in VMT on I-710 range from a 2.3 percent increase for Alternative B to a 16.4 percent increase for Alternative D as compared with the future No Build, Alternative A.

The overall increase in VMT is relatively small (to the point of being negligible). While the I-710 improvements attract vehicles that would otherwise be traveling on the arterial streets, the improvements to arterial streets would attract new vehicles to the network in the Study Area. The forecast Study Area VMT increases compared to the future No Build Alternative range from 0.02 of the 1 percent for Alternative B to 0.3 of 1 percent for Alternative D.

Reduction in Hours of Travel

Figure 5.2-8 shows how better speeds on I-710 translates to delay reductions for all travelers throughout the I-710 Study Area, including motorists on major street arterials as well as those vehicles using I-710.

**Figure 5.2-8
Daily Reductions (Vehicle Hours, Person Hours Saved)**



Vehicle hours of travel measures the total travel time spent by all vehicles on the roadway system during a given time period, such as an average weekday. Person hours of travel measures the total travel time spent by the people riding in each of the vehicles on the

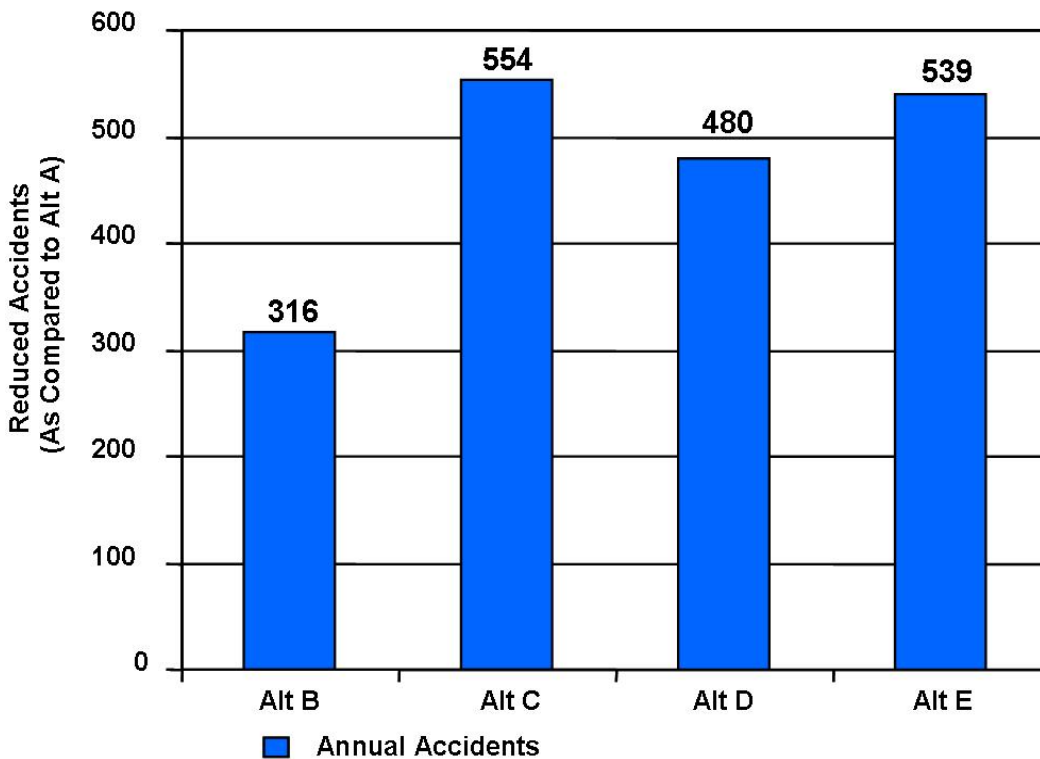
roadway system during a given time period. For example, if a car carrying two people (driver and passenger) spent one hour traveling from home to work in the Study Area, it would compute as one vehicle hour of travel and two person hours of travel.

In 2025, Alternatives D and E are forecast to produce the greatest reductions in overall average weekday travel time (measured both in terms of vehicle hours traveled and person hours traveled) in the Study Area as compared to the No Build alternative. This is because these two alternatives add the most capacity to the transportation system in the I-710 Study Area. Both Alternative D and Alternative E are forecast to save travelers over 35,000 hours of travel time per day in the year 2025 as compared to the No Build, Alternative A.

Accident Reduction

Figure 5.2-9 presents information on the safety benefits of the alternatives compared to Alternative A in terms of estimated accident reductions.

**Figure 5.2-9
Annual Accident Reductions**



Source: Cambridge Systematics, Inc., April 2003.

In general terms, the greater the amount of predicted congestion (volume/capacity ratio), the worse the accident rate gets. In addition, accidents vary by facility type. The more that traffic uses the arterials compared to freeways, the higher the accident rate. Using travel demand forecasts for each of the alternatives, FHWA's ITS Deployment Analysis System (IDAS) model was used to predict the number of accidents that would occur over a one year period, assuming the Year 2025. Figure 5.2-9 shows the number of accidents that would be *reduced* by Alternatives B, C, D, and E, respectively, compared to the no build condition.

Interpretation of the accident data shown in Figure 5.2-9 indicates that the incident management strategies related to the intelligent transportation improvements in Alternative B are forecast to provide significant accident reduction benefits. By definition, these incident management strategies are also included in Alternatives C, D and E. On top of that, the build alternatives are forecast to reduce accidents, in part, by shifting traffic from the arterials to the freeways, where accident rates are lower. It is important to note here that FHWA's IDAS model does not account for certain types of safety benefits – specifically the predicted benefits of separating cars from trucks – since insufficient accident data on exclusive truckways exists that would provide the basis to quantify these estimates. Thus, the potential for accident reductions attributable to Alternative E is likely under-reported in Figure 5.2-9. However, it is logical to assume that separating trucks and autos would provide significant safety benefits for traveling motorists that is not necessarily reflected in Figure 5.2-9.

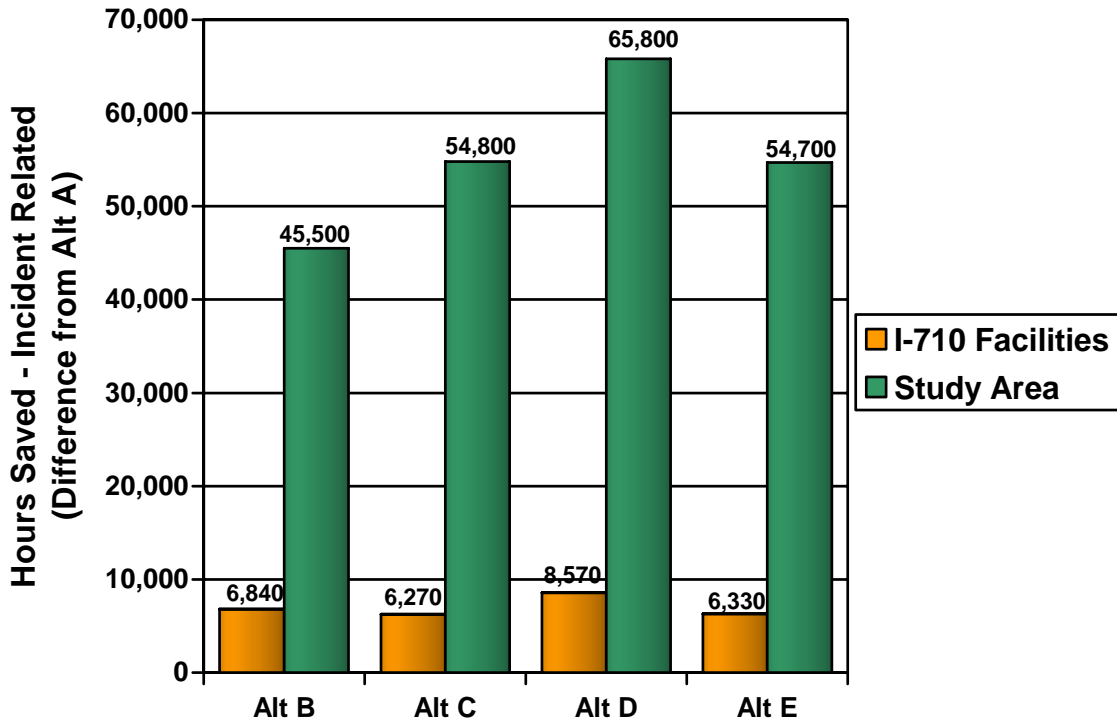
Travel Time Reliability

The final transportation system performance measure presented is the travel time reliability analysis. Travel time reliability is measured as the estimated change in non-recurrent (incident-related) traffic delay, expressed in hours (Figure 5.2-10).

The following conclusions can be drawn from Figure 5.2-10:

- Alternative B is forecast to show significant reliability benefits due to the benefits of incident management in reducing the estimated duration of each incident and its effect on traffic congestion.
- Alternative D has the greatest estimated reliability improvements. This is due to the addition of lanes, which reduces the impact of incidents, and the forecast reduction in overall traffic congestion making it easier to clear incidents more quickly and thereby reducing the duration of traffic congestion caused by the incident.
- The travel time reliability benefits of Alternative E are most likely underestimated because they these estimates do not take into account the accident reductions likely to result from separating trucks and autos. [See preceding discussion of accident reductions.]

Figure 5.2-10
Time Savings due to Reduction in Accidents
Travel Time Reliability



Source: Cambridge Systematics, Inc., April 2003.

5.3 Right-of-Way Impact Analysis

Due to the importance of this criterion, right-of-way impacts were assessed using several different measures to portray the relative differences among the alternatives. For instance, total acres of right-of-way impacts attributable to the different build alternatives was examined as well as impacts on various types of land uses. The purpose was to provide comparative information on the alternatives so that the general public, advisory committees and the Oversight Policy Committee could assess the right-of-way acquisition implications of each of the alternatives, including specific components within each alternative. Right-of-way limits were determined based on the concept engineering plans and state guidelines for right-of-way. The right-of-way limits that were drawn in CADD were imported into geographic information systems (GIS) software and compared to the land uses that were already defined in the GIS database. The land use categories include: Sensitive uses (e.g., parks, schools, green space, cemeteries), Commercial/Industrial, Public/Utility Corridor, Residential, Railroad, and Undevelopable Property. The comparison provided acreages of the various land use types that were located within the proposed right-of-way lines for each of the three build alternatives.

At this stage of project development, it is important to understand that the right-of-way impacts as identified are conceptual. There will be numerous opportunities between the I-710 Major Corridor Study and any future construction for the design concepts to be refined, which, in turn, would affect the right-of-way estimates. The right-of-way impact analysis conducted for the build alternatives assumed full Caltrans design standards for slopes and maintenance. Changes in these and other key assumptions would also affect the right-of-way impact estimates. The detailed results of the right-of-way analysis are presented in Appendix O of this report.

Right-of-way impacts were calculated for those improvements that would entail acquisitions beyond what is already planned and committed for the I-710 Corridor. Since Alternative A, the No Build Alternative, represents the “no action” option, this alternative would not result in any acquisitions beyond what is already planned for implementation by 2025. Alternative B does not include any elements on I-710 that require right-of-way acquisition, so this alternative is not included in the following analysis. Right-of-way estimates for the other three alternatives reflect the right-of-way acquisitions of these alternatives over and above the No Build Alternative.

The right-of-way impacts were compared in various ways to illustrate the differences among the alternatives. A comparison of the total right-of-way impacts showed that Alternative E would impact the most acreage (Figure 5.3-1).

**Figure 5.3-1
Total Right-of-Way Comparison by Alternative**

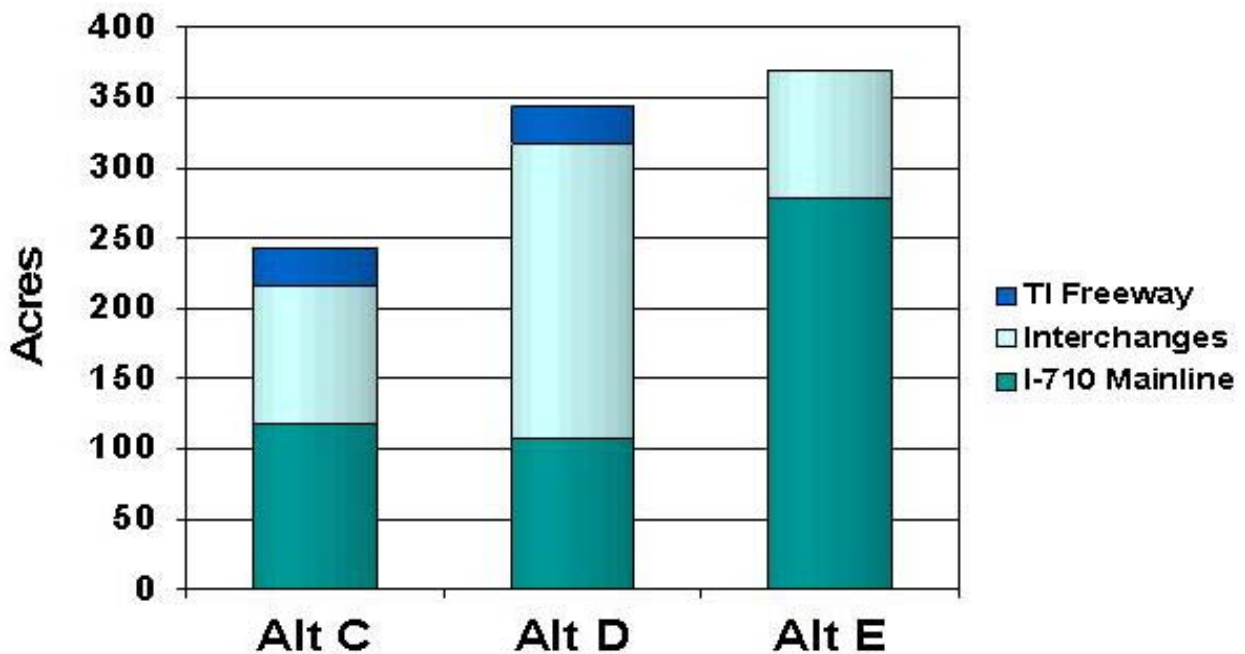
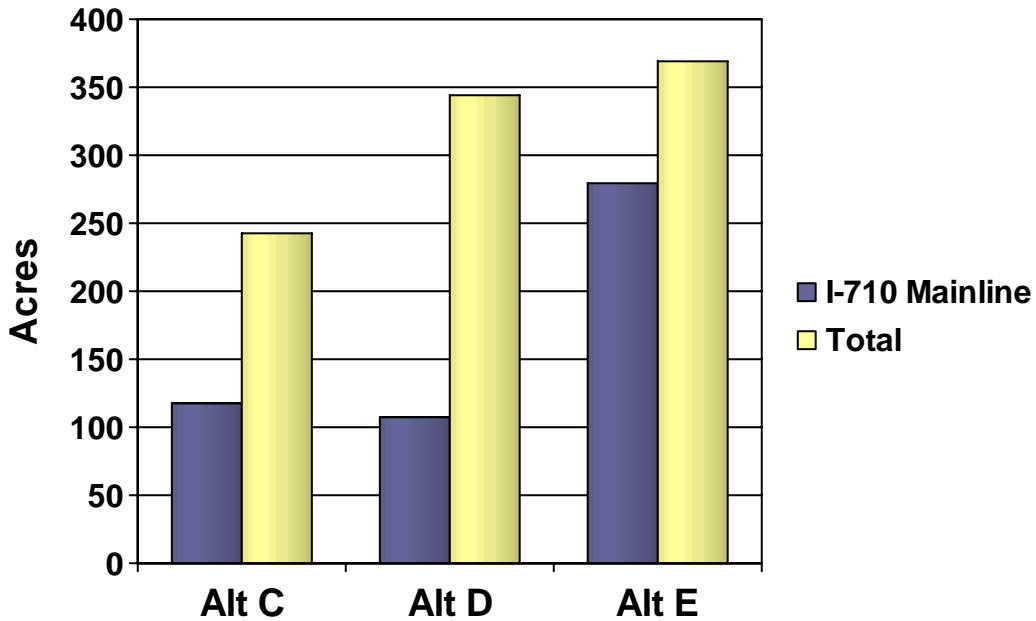


Figure 5.3-2 illustrates that of the three alternatives compared, the Alternative E High Truck design concept would have the greatest right-of-way impact.

The high proportion of right-of-way impacts of the Alternative E, High Truck, mainline design concept result because Alternative E implements a new facility along the entire length of the

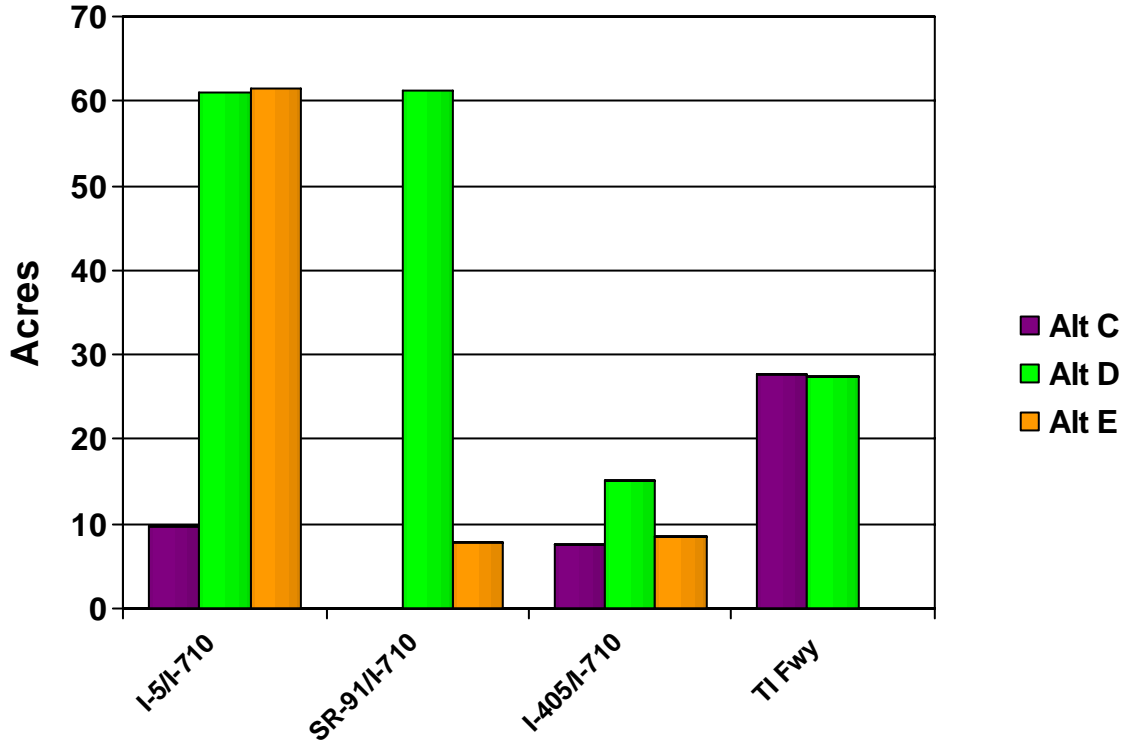
Corridor (the truck lanes from Willow to I-5). Alternative C only implements new facilities at a few specific locations, and Alternative D relies largely on widening the existing I-710, which results in proportionately less right-of-way impact associated with the I-710 mainline improvement element of the alternative. Alternative D includes major proposed improvements to the I-710/SR-91 and I-710/I-5 interchanges, which would have significant right-of-way impacts.

Figure 5.3-2
I-710 Mainline vs. Total Right-of-Way Comparison



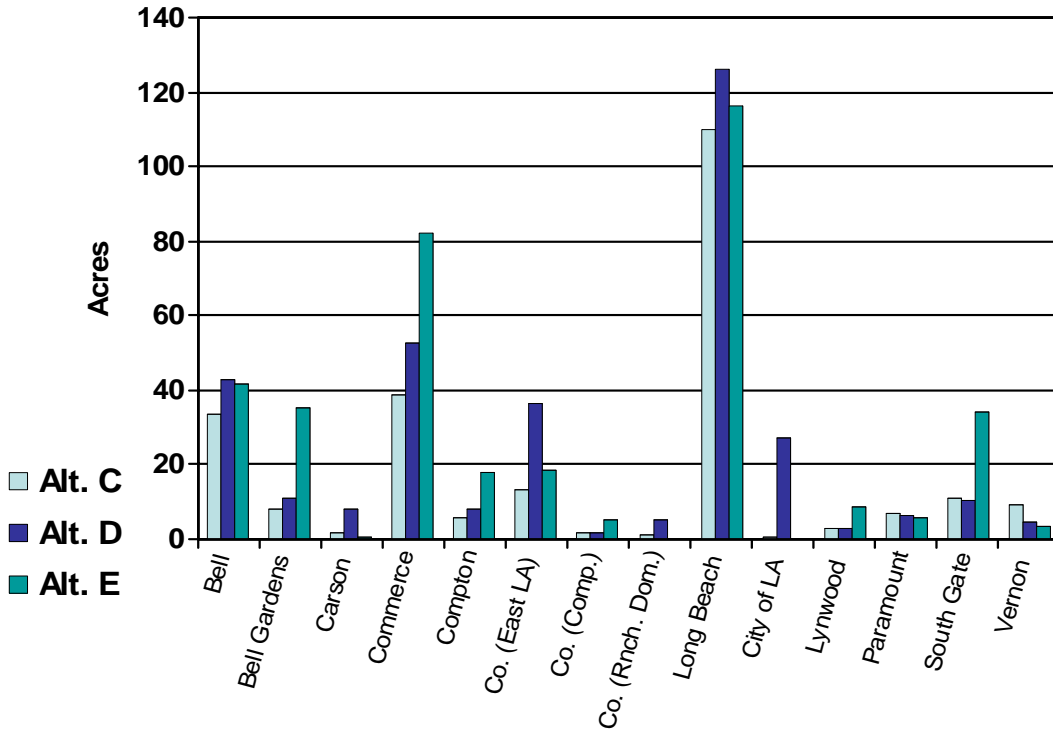
In comparing design options for several of the components among the alternatives, the following is noted: although the improvement design concepts are different, the right-of-way impacts for the I-5/I-710 interchange in Alternatives D and E are very similar (Figure 5.3-3). The improvements at the SR-91/I-710 interchange require more right-of-way for the design concept proposed in Alternative D than in Alternative E. The right-of-way impacts at the I-405/I-710 interchange are similar among all three alternatives with Alternative D again requiring the most. Finally, the two proposal concepts for extension of the Terminal Island Freeway in Alternatives C and D would require approximately the same amount of right-of-way acquisitions.

**Figure 5.3-3
I-710 Right-of-Way Comparison By Component**

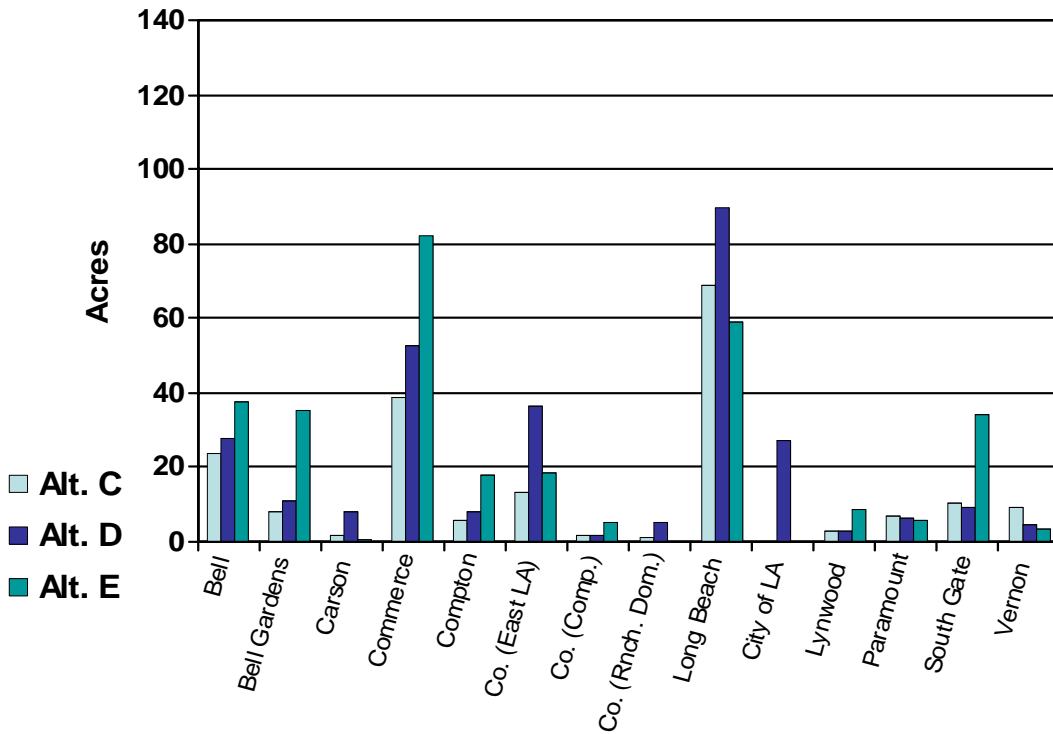


The total right-of-way impact and the right-of-way impact excluding the Public/Utility Corridor category of impacts for each city was assessed (Figure 5.3-4 and Figure 5.3-5). The Public/Utility Corridor category of land use primarily includes the Southern California Edison and Los Angeles Department of Water and Power properties. Excluding this category of estimated acquisitions provides a clearer representation of the potential impacts of the different alternatives to the local communities and businesses. In either case, the number of acres impacted would be highest in Long Beach for Alternatives C and D. Right-of-way impacts would be the highest in Long Beach in Alternative E if the Public/Utility Corridor right-of-way impacts are included and would be the largest in Commerce if the Public/Utility Corridor impacts are excluded.

**Figure 5.3-4
Total Right-of-Way Impacts by City by Alternative**



**Figure 5.3-5
Right-of-Way Impacts by City (Excluding Utility Right-of-Way)**



5.4 Environmental Analysis

An environmental screening analysis was performed for the Final Set of Alternatives to identify potential environmental impacts as well as elicit evaluative information on the alternatives from an environmental perspective. The environmental overview encompassed: acquisitions and right-of-way, aesthetics and visual quality, biological resources, cultural resources, hazardous materials, water resources, noise, parks and recreation, traffic, and air quality. The estimated right-of-way impacts of the alternatives are discussed separately in Section 5.3 of this report.

The environmental analysis considered the physical and operational characteristics associated with the different alternatives in light of existing and future conditions in the I-710 Study Area using conceptual plans dated March 2003. Due to the complexity of the environmental issues and transportation needs within the I-710 Study Area, each alternative contains an extensive mix of transportation elements that are structured to solve various problems in different ways. For example, a key issue for the Study Area is how to address the relatively large number of trucks that use I-710 to travel between the Ports of Long Beach/Los Angeles and the freight rail yards located in the cities of Commerce and Vernon. The alternatives were deliberately structured in a manner such that the effects of various design concepts and actions could be analyzed and understood. It is intended that only the best, most desirable transportation elements would be carried forward for further study at the conclusion of the I-710 Major Corridor Study. Based on the results of the mobility analysis, preliminary environmental evaluation, and public input, these different elements were further modified or dropped altogether to form the Locally Preferred Strategy.

Where possible, the environmental discussions in Section 5.4 are broken down according to the major transportation elements inherent to each alternative in order to highlight the environmental effects attributable to the different elements. This was done to provide decision-makers with some environmental information on the different transportation components so that they could “mix and match” selected transportation improvements from different alternatives to form a Locally Preferred Strategy. In some cases, such as traffic and circulation, it is not possible to isolate the effects of the individual components. However, in these cases, general patterns were noted and described.

The environmental analysis focused on describing major differences among the five alternatives or illustrating where the environmental effects are generally similar. It follows that future studies of the Locally Preferred Strategy will include an in-depth analysis of environmental impacts. These future studies may focus on particular transportation elements or geographic areas within the alternatives examined in the I-710 Major Corridor Study or they may examine the I-710 Corridor as a whole. Regardless, the elements that make up the Locally Preferred Strategy will undergo more detailed environmental analysis consistent with NEPA and CEQA regulations. The environmental overview analysis provided in Section 5.4 of this report was developed in order to provide background information and focus for those future environmental studies and it also identified areas where the conceptual design of the various alternatives would need to be altered to avoid and minimize impacts to sensitive resources such as neighborhoods, public parks, and historic properties.

5.4.1 Aesthetics and Visual Quality

The I-710 freeway is a heavily traveled corridor serving the Port of Long Beach and several major freeways. The I-710 freeway and related interchange connections represent a significant visual element within the I-710 Study Area. Other major visual elements include the Union Pacific and BNSF railroad yards and tracks located just south of I-5 that extend underneath the freeway to the east and west. The Los Angeles River parallels the I-710 freeway throughout most of the project area. In addition, high-power electrical transmission towers can be seen alongside the freeway between I-405 and Atlantic Avenue and also between Imperial Highway and Slauson Avenue. The I-710 Study Area is highly urbanized, consisting mainly of industrial/ manufacturing areas and some scattered residential neighborhoods. Most of these residential areas are screened from view of I-710 by sound walls and vegetation. Landscaping in the area is minimal and consists primarily of non-native plant and tree species, with the exception of some native coastal scrub located closer to the southern part of the I-710 Corridor.

Visual impact is related to the change in the existing visual environment. The first criterion is sensitive land uses. The I-710 Corridor was characterized based on field surveys to determine areas that represented visually sensitive land uses. These uses included residential neighborhoods, parks, and cultural resources. The second criterion is physical change. Engineering plans were reviewed to determine areas where a physical change to the existing visual environment would occur. Change was represented by either the removal or addition of physical elements attributable to the proposed alternative such as the removal of a building or the addition of freeway structures. In addition, elevated structures would have a greater potential for visual impacts compared to new structures that are principally at grade due the sight lines involved.

Alternative A – No Build

Alternative A is a future baseline alternative consisting primarily of operational improvements and reconstruction activities that involve pavement replacement, standard shoulders, and a new median for I-710. By definition, these transportation improvements have already been planned and committed for the Year 2025. No additional impacts associated with visual quality are anticipated to occur under Alternative A beyond what has already been studied and approved.

Alternative B – TSM/TDM Alternative

Alternative B is a low impact alternative consisting of operational investments, policies, and actions targeted at improving goods movement, facilitating passenger auto and transit travel, and reducing existing environmental impacts of transportation facilities and operations in the I-710 Study Area. Most of the improvements associated with this alternative are anticipated to have a beneficial impact on visual quality by providing additional landscaping, hardscape design treatments, improved signage, and aesthetic improvements to curbs and gutters at the interchanges. However, the addition of high-mast illumination at freeway-to-freeway interchanges would have the potential to adversely affect surrounding areas particularly for residential areas located in close proximity to the interchanges. Although the I-710 freeway already incorporates lighting for safety and directional purposes, the addition of high-mast

illumination would represent a significant new light source that could have the potential to adversely affect sensitive areas.

Alternative C – Medium General Purpose / Medium Truck Alternative

The following comparative table (Table 5.4-1) lists the different transportation elements included in Alternative C as well as a summary assessment of the potential for visual impact for each element given the presence of visually sensitive resources and the type and extent of the proposed visual change. Potential visual impacts can be avoided, minimized, or mitigated by one or more of the following actions: dropping the proposed element, changing the conceptual design, or by adding aesthetic features such as landscaping.

**Table 5.4-1
Alternative C - Visual Impact Assessment**

Alt. C - Transportation Element	Visual Impact Assessment	Notes
<i>I-710 Mainline Improvements</i>		
Mainline Widening	Potentially Significant	up to three linear miles of sensitive resources next to the freeway potentially affected
Collector-Distributor Lane System	Potentially Significant	about one and a half linear miles of sensitive resources affected
Truck Inspection Facility	Minor	surrounded by industrial / commercial uses
I-405 Truck Bypass Lanes	Minor	surrounded by industrial / commercial uses
SR-91/I-105 Bypass Lanes	Potentially Significant	for elevated portions of southbound bypass lanes next to neighborhoods (west of I-710)
Pacific Coast Highway Truck Ramps	Minor	surrounded by industrial / commercial uses
Washington Boulevard Truck Ramps	Minor	surrounded by industrial / commercial uses
<i>I-710 Interchanges – Freeway</i>		
I-405/I-710 Interchange	Potentially Significant	elevated flyover ramp element within state ROW adjacent to residents in SW quadrant
I-5/I-710 Right Side Ramp	Potentially Significant	residents next to I-5 NB lanes; see also potential collector-distributor lane impacts
<i>I-710 Interchanges – Local</i>		
Anaheim Street Braid	Minor	surrounded by industrial / commercial uses
Pacific Coast Highway Braid	Potentially Significant	residential uses in NW quadrant of the interchange
Willow Street Interchange	Potentially Significant	residential uses in NW quadrant of the interchange
Del Amo Boulevard Interchange	Minor	surrounded by industrial / commercial uses
Imperial Highway Interchange	Potentially Significant	apartment building complex in NW quadrant of the interchange
Florence Avenue Interchange	Minor	surrounded by industrial / commercial uses
Atlantic/Bandini Interchange	Minor	surrounded by industrial / commercial uses

Table 5.4-1 Continued
Alternative C – Visual Impact Assessment

Alt. C - Transportation Element	Visual Impact Assessment	Notes
Washington Boulevard Interchange	Potentially Significant	residential uses and parks in NE and NW quadrants of this interchange
Slauson Boulevard Interchange	Minor	surrounded by industrial / commercial uses
<i>Terminal Island Freeway Extension</i>	Significant	four miles of elevated structure that would affect residents in adjacent properties and surrounding areas on both sides of the new roadway facility
<i>Arterials</i>	Potentially Significant	74 linear miles of arterial roadways to be improved; visual impacts could occur due to roadway widenings in some locations

Source: Parsons Brinckerhoff, April 2003.

Alternative D – High General Purpose / High HOV Alternative

Table 5.4-2 lists the different transportation elements included in Alternative D and provides a brief summary assessment of the potential for visual impact for each element given the presence of visually sensitive resources and the type and extent of the proposed visual change. Potential visual impacts can be avoided, minimized, or mitigated by one or more of the following actions: dropping the proposed element, changing the conceptual design, or by adding aesthetic features such as landscaping.

Table 5.4-2
Alternative D – Visual Impact Assessment

Alt. D - Transportation Element	Visual Impact Assessment	Notes
<i>I-710 Mainline Improvements</i> Mainline Widening	Potentially Significant	About seven linear miles of sensitive resources potentially affected; extensive stretches of new elevated lanes above existing I-710 travel lanes
<i>I-710 Interchanges – Freeway</i> I-405/I-710 Interchange	Potentially Significant	residents next to I-405 NB lanes west of I-710; also elevated ramp elements within state ROW
I-405/I-710 HOV Connector	Minor	surrounded by industrial / commercial uses
SR-91/I-710 Interchange	Potentially Significant	extensive areas of removal of residential structures, landscaping; elevated ramp elements
I-5/I-710 Interchange	Potentially Significant	extensive areas of removal of residences, parks, landscaping affecting all four quadrants
<i>I-710 Interchanges – Local</i> Willow Street Diamond	Potentially Significant	residential uses in SW and NW quadrant of the interchange
Del Amo Boulevard Diamond	Minor	surrounded by industrial / commercial uses
Long Beach Boulevard	Minor	surrounded by industrial / commercial uses
Imperial Highway Diamond	Potentially Significant	residences in SW quadrant and apartment building complex in NW quadrant

Table 5.4-2 Continued
Alternative D – Visual Impact Assessment

Alt D - Transportation Element	Visual Impact Assessment	Notes
Florence Avenue Diamond	Potentially Significant	residents in NE quadrant of the interchange
Atlantic/Bandini Interchange	Minor	surrounded by industrial / commercial uses
Washington Boulevard Interchange	Potentially Significant	residential uses and parks in NE and NW quadrants of this interchange
<i>Terminal Island Freeway Connector</i>	Minor	surrounded by industrial / commercial uses
<i>Arterials</i>	Potentially Significant	44 linear miles of arterial roadways to be improved; visual impacts could occur due to roadway widenings in some locations

Source: Parsons Brinckerhoff, April 2003.

Alternative E - High Truck Alternative

Table 5.4-3 lists the different transportation elements included in Alternative E and provides a brief summary assessment of the potential for visual impact for each element given the presence of visually sensitive resources and the type and extent of the proposed visual change. Potential visual impacts can be avoided, minimized, or mitigated by one or more of the following actions: dropping the proposed element, changing the conceptual design, or by adding aesthetic features such as landscaping.

Table 5.4-3
Alternative E - Visual Impact Assessment

Alt. E - Transportation Element	Visual Impact Assessment	Notes
<i>I-710 Mainline Improvements</i>		
Exclusive Autoway	Potentially Significant	About 3.5 linear miles of sensitive resources affected; includes new elevated lanes
Exclusive Truck Facility	Potentially Significant	Several linear miles of sensitive resources affected; incl. stretches of new elevated lanes
I-405 Truck Ramps	Minor	surrounded by industrial/commercial uses
SR-91 Truck Ramps	Potentially Significant	residential uses located at NW and SW quadrants of the interchange
Firestone Boulevard Truck Ramps	Minor	surrounded by industrial / commercial uses
Washington Boulevard Truck Ramps	Potentially Significant	residential uses and park located at NE quadrant of the interchange
<i>I-710 Interchanges – Freeway</i>		
I-405/I-710 Interchange	Potentially Significant	new ramp connectors would affect residents in SW quadrant
SR-91/I-710 Interchange	Potentially Significant	residential uses in SW quadrant of interchange; see also SR-91 truck ramps
I-5/I-710 Interchange/ Atlantic Viaduct	Potentially Significant	residential areas near Atlantic Blvd. and SB lanes of I-5; extensive elevated lane sections

Table 5.4-3 Continued
Alternative E - Visual Impact Assessment

Alt. E - Transportation Element	Visual Impact Assessment	Notes
<i>I-710 Interchanges – Local</i> Slauson Boulevard Interchange	Minor	surrounded by industrial / commercial uses
<i>Arterials</i>	Minor	About 17 linear miles of arterial roadways to be improved; however, potentially affected areas are exclusively industrial / commercial with the exception of one segment of Florence Avenue.

Source: Parsons Brinckerhoff, April 2003.

5.4.2 Traffic and Circulation

Travel demand forecasting models were used to predict future traffic volumes on I-710 based on forecasts of future population, housing units, jobs, and cargo. In this case, a subarea travel forecasting model was developed for the overall I-710 Study Area. It is important to look at future travel demand so that proposed transportation improvements are not rendered obsolete by failing to take into account anticipated future growth in traffic. The planning horizon year for the I-710 Study is 2025. Travel demand forecasts were developed for all five alternatives to show how traffic would change in response to the proposed alternatives. Please note that the build alternatives (Alternatives C, D, and E) also include the proposed actions and operational improvements included in Alternative B in their project descriptions. [See Section 4.5 of this report for a detailed description of Alternatives A, B, C, D and E.]

The travel demand forecasts predict how many travelers are likely to use any new transportation facilities tested using the model. Table 5.4-4 shows future traffic volumes on I-710 under all five alternatives, including all vehicle types (autos, trucks, buses, etc.) Since trucks take up more space on the freeway than cars, heavy duty trucks were converted to passenger-car-equivalent units consistent with Highway Capacity Manual procedures. In general, a single heavy duty truck is the equivalent of 2.5 autos. Table 5.4-4 indicates that Alternative B would result in a slight decrease in traffic volumes on I-710, most likely due to the strategies designed to discourage and reduce vehicle trips. On the other hand, the build alternatives (Alternatives C, D, and E) would result in increased traffic volumes on I-710 because the added capacity and operational improvements would result in a better level of service to motorists. Most of these vehicles are switching to I-710 from parallel arterials within the I-710 Study Area closest to I-710 and also from parallel freeways such as I-110 and I-605 as traffic redistributes itself to take advantage of improved travel times on I-710.

Table 5.4-5 shows the changes in estimated truck volumes only. In this case, passenger-car-equivalent units do not apply – a single heavy duty truck is the equivalent of one vehicle in this table. Table 5.4-5 shows a pattern similar to Table 5.4-4, which is not surprising since a good portion of the vehicle stream on I-710 are trucks. Table 5.4-5 also shows that one of the elements proposed in Alternative C (extension of the Terminal Island Freeway) would reduce truck traffic on I-710 south of the I-405 since many trucks would elect to use the Terminal Island Freeway for this one stretch. However, overall truck traffic would increase somewhat on I-710 north of the I-405 compared to the no build condition (Alternative A) as these trucks from the Terminal Island freeway rejoin I-710.

Table 5.4-4
I-710 Average Daily Traffic Volumes (in Passenger Car Equivalent units), Year 2025

Segments on I-710		Alt A	Alt B	B - A	Alt C	C - A	Alt D	D - A	Alt E	E - A
From	To	Volumes	Volumes	% Diff.	Volumes	% Diff.	Volumes	% Diff.	Volumes	% Diff.
SR-60	I-5	280,300	280,900	0.2%	289,900	3.4%	313,400	11.8%	297,900	6.3%
I-5	Washington	280,100	281,300	0.4%	321,700	14.9%	329,000	17.5%	320,400	14.4%
Washington	Atlantic/Bandini	294,300	294,000	-0.1%	325,100	10.5%	342,800	16.5%	338,000	14.8%
Atlantic/Bandini	Florence	298,400	296,100	-0.8%	339,600	13.8%	345,600	15.8%	364,200	22.1%
Florence	Firestone	305,100	302,800	-0.8%	341,600	12.0%	349,300	14.5%	355,800	16.6%
Firestone	Imperial	306,000	303,400	-0.8%	342,000	11.8%	355,100	16.0%	350,400	14.5%
Imperial	I-105	325,700	322,700	-0.9%	344,900	5.9%	363,000	11.5%	366,400	12.5%
I-105	Rosecrans	250,200	247,400	-1.1%	266,500	6.5%	272,700	9.0%	284,400	13.7%
Rosecrans	Alondra	441,500	437,700	-0.9%	468,200	6.0%	451,300	2.2%	486,800	10.3%
Alondra	SR-91	431,900	427,800	-0.9%	458,100	6.1%	434,700	0.6%	479,200	11.0%
SR-91	Artesia	312,300	304,400	-2.5%	339,300	8.6%	371,600	19.0%	358,000	14.6%
Artesia	Long Beach	322,000	314,300	-2.4%	350,200	8.8%	383,100	19.0%	373,200	15.9%
Long Beach	Del Amo	306,500	298,600	-2.6%	331,000	8.0%	352,200	14.9%	350,100	14.2%
Del Amo	I-405	311,100	303,800	-2.3%	342,300	10.0%	356,200	14.5%	358,700	15.3%
I-405	Wardlow	290,000	281,400	-3.0%	281,000	-3.1%	334,500	15.3%	307,000	5.9%
Wardlow	Willow	302,000	293,100	-2.9%	299,400	-0.9%	350,700	16.1%	328,600	8.8%
Willow	Pacific Coast Hwy.	291,400	279,600	-4.0%	279,400	-4.1%	335,800	15.2%	308,100	5.7%
Pacific Coast Hwy.	Anaheim	268,300	254,100	-5.3%	244,200	-9.0%	277,300	3.4%	278,200	3.7%
Anaheim	9th	251,700	237,000	-5.8%	245,500	-2.5%	250,400	-0.5%	200,500	-20.3%
9th	Ocean	166,900	151,300	-9.3%	144,600	-13.4%	154,100	-7.7%	158,300	-5.2%

Source: Cambridge Systematics, Inc. and Kaku Associates, Inc., Electronic Data File, April 2003.

Notes: Average daily traffic volumes are shown for each alternative for the Year 2025 for vehicles using I-710 mainline travel lanes, including general purpose lanes, collector-distributor lanes, high occupancy vehicle lanes, truck bypass lanes, truckway lanes, and autoway lanes.

Percentage difference compares each alternative to the No Build Alternative (Alt. A).

**Table 5.4-5
I-710 Average Daily Heavy Duty Truck Volumes, Year 2025**

Segments on I-710		Alt A Volumes	Alt B Volumes	B - A % Diff.	Alt C Volumes	C - A % Diff.	Alt D Volumes	D - A % Diff.	Alt E Volumes	E - A % Diff.
From	To									
SR-60	I-5	17,400	17,500	0.6%	20,300	16.7%	21,200	21.8%	25,200	44.8%
I-5	Washington	18,800	19,100	1.6%	24,200	28.7%	23,500	25.0%	29,800	58.5%
Washington	Atlantic/Bandini	28,600	28,300	-1.0%	33,300	16.4%	32,500	13.6%	39,900	39.5%
Atlantic/Bandini	Florence	38,400	37,200	-3.1%	42,600	10.9%	41,700	8.6%	48,700	26.8%
Florence	Firestone	39,700	38,400	-3.3%	43,400	9.3%	42,400	6.8%	48,900	23.2%
Firestone	Imperial	39,600	38,300	-3.3%	43,300	9.3%	42,500	7.3%	48,300	22.0%
Imperial	I-105	41,100	39,600	-3.6%	43,900	6.8%	43,500	5.8%	49,700	20.9%
I-105	Rosecrans	38,300	36,800	-3.9%	40,900	6.8%	39,200	2.3%	46,900	22.5%
Rosecrans	Alondra	57,700	55,500	-3.8%	60,200	4.3%	56,700	-1.7%	64,500	11.8%
Alondra	SR-91	57,000	54,900	-3.7%	59,600	4.6%	55,700	-2.3%	64,000	12.3%
SR-91	Artesia	56,800	53,100	-6.5%	60,900	7.2%	59,500	4.8%	61,100	7.6%
Artesia	Long Beach	57,800	54,100	-6.4%	62,100	7.4%	60,700	5.0%	62,600	8.3%
Long Beach	Del Amo	58,000	54,200	-6.6%	61,200	5.5%	59,200	2.1%	62,500	7.8%
Del Amo	I-405	60,300	56,800	-5.8%	66,000	9.5%	62,500	3.6%	65,800	9.1%
I-405	Wardlow	69,000	65,000	-5.8%	54,500	-21.0%	69,800	1.2%	68,500	-0.7%
Wardlow	Willow	71,900	67,700	-5.8%	57,600	-19.9%	73,100	1.7%	71,900	0.0%
Willow	Pacific Coast Hwy.	72,000	67,900	-5.7%	57,700	-19.9%	73,300	1.8%	72,000	0.0%
Pacific Coast Hwy.	Anaheim	68,200	63,400	-7.0%	54,400	-20.2%	65,200	-4.4%	66,300	-2.8%
Anaheim	9th	66,300	61,500	-7.2%	56,100	-15.4%	62,200	-6.2%	62,500	-5.7%
9th	Ocean	59,100	54,800	-7.3%	49,500	-16.2%	53,800	-9.0%	55,700	-5.8%

Source: Cambridge Systematics, Inc. and Kaku Associates, Inc., Electronic Data File, April 2003.

Notes: Average daily truck volumes are shown for each alternative for the Year 2025 for trucks using I-710 mainline travel lanes, including general purpose lanes, collector-distributor lanes, truck bypass lanes, and truckway lanes.

Percentage difference compares each alternative to the No Build Alternative (Alt. A).

Changes in vehicular traffic combined with the proposed operational and capacity improvements included in the various alternatives affect how the travel lanes on I-710 would operate under each of the alternatives in the future year. Several performance measures such as anticipated changes in travel speeds, accident reductions, truck diversion, travel time reliability, and reductions in vehicle hours of delay, are already discussed in Section 5.2 of this report. An important indicator of the traffic impacts to a freeway or roadway facility is level of service as represented by the ratio of traffic volume to the design capacity of the roadway. Under optimal conditions, a freeway lane is capable of carrying about 2300 vehicles per hour (in Passenger Car Equivalent units). When traffic volumes exceed this number per lane (i.e., when volume/capacity is higher than 1.0), then the freeway is considered to be over capacity. In urban areas, Caltrans seeks to achieve a level of service of E or better for a general purpose travel lane, which is the equivalent of a volume / capacity ratio of less than 1.0. However, Caltrans acknowledges that this goal is not always achievable, particularly in highly congested regions such as Los Angeles. In general terms, the lower the volume/capacity ratio, the better the freeway operates for the traveling motorist. Volume /capacity values of 1.0 or higher indicate that the freeway is experiencing significant amounts of congestion.

Tables 5.4-6 and 5.4-7 illustrate the predicted volume/capacity ratios for I-710 for the AM peak period and the midday time period for all five alternatives in the future year. The AM peak period was selected because that is when traffic is generally most concentrated. For I-710, the midday time period was also selected because of the high amounts of truck traffic that typically occur during the middle part of the day. These tables show both directions of the freeway (northbound and southbound). They also show volume / capacity ratios, by segment, for the general purpose lanes as well as HOV lanes in Alternative D and the exclusive truck lanes in Alternative E.

In the AM peak period (Table 5.4-6), I-710 is predicted to be highly congested in the future year if no action is taken (Alternative A). Alternative B improves this situation only slightly, mainly due to the implementation of empty container management policies that would reduce truck trips somewhat. Despite the added traffic volumes that would be attracted to the I-710 freeway, Alternatives C, D, and E would result in marked improvement in the level of operation for the freeway in the AM peak period compared to the no build condition. This is due to the capacity enhancements included these three alternatives. However, with the exception of the HOV lanes (Alternative D) and the truck lanes (Alternative E), I-710 would still experience congested conditions as many segments are predicted to have volume/capacity ratios higher than 1.0 in the future year. Alternative D comes closest to achieving a level of service of E or better (i.e., volume/capacity ratio less than 1.0), followed by Alternative E, and then Alternative C.

In the midday time period (Table 5.4-7), Alternatives A and B would still experience high levels of congestion in the future year. The average volume/capacity ratio is 1.21 for Alternative A and 1.16 for Alternative B. In essence, I-710 would still be congested all day long under these two alternatives. Much of this is attributable to the high number of heavy duty trucks that are predicted to use I-710 as trucks use more lane capacity compared to autos. On average, Alternatives C, D, and E all bring volume to capacity ratios below 1.0. However, a few segments of the general purpose lanes on I-710 would be over capacity under Alternative C.

Both of these tables show that the proposed improvements in Alternatives B, C, D, and E would result in a beneficial impact to traffic on I-710.

Table 5.4-6
I-710 Volume/Capacity Estimates – AM Peak Period, Year 2025

Segments on I-710		Alt A		Alt B		Alt C		Alt D				Alt E			
		GP		GP		GP		GP		HOV		GP		TR / AU ¹	
From	To	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
SR-60	I-5	1.37	1.39	1.33	1.35	1.30	1.31	0.96	1.03	0.83	0.80	1.24	1.15	0.14	0.47
I-5	Washington	1.11	1.06	1.08	1.03	0.74	0.67	0.89	0.86	0.83	0.80	1.05	0.92	0.29	0.57
Washington	Atlantic/Bandini	1.13	1.10	1.09	1.06	0.74	0.67	0.88	0.94	0.83	0.80	0.98	0.94	0.57	0.74
Atlantic/Bandini	Florence	1.43	1.41	1.38	1.36	1.20	1.16	0.89	0.93	0.83	0.80	1.07	0.99	0.59	0.74
Florence	Firestone	1.44	1.43	1.39	1.38	1.19	1.18	0.95	0.97	0.30	0.24	1.23	1.22	0.59	0.74
Firestone	Imperial	1.47	1.43	1.42	1.38	1.17	1.21	0.96	0.99	0.30	0.24	1.24	1.19	0.59	0.74
Imperial	I-105	1.47	1.39	1.42	1.34	1.20	1.08	1.15	1.15	0.30	0.24	1.14	1.06	0.79	0.90
I-105	Rosecrans	1.25	1.11	1.20	1.07	0.95	0.81	0.87	0.83	0.32	0.21	0.86	0.78	0.79	0.90
Rosecrans	Alondra	1.46	1.18	1.41	1.14	1.21	0.98	1.25	1.07	0.32	0.21	1.21	0.93	0.79	0.90
Alondra	SR-91	1.62	1.32	1.56	1.27	1.35	1.09	1.19	1.04	0.32	0.21	1.36	1.04	0.79	0.90
SR-91	Artesia	1.41	1.33	1.34	1.26	1.11	1.06	1.16	0.66	0.32	0.21	1.07	0.93	0.95	0.93
Artesia	Long Beach	1.17	1.07	1.11	1.02	0.93	0.86	0.92	0.96	0.62	0.16	0.91	0.76	0.99	0.93
Long Beach	Del Amo	1.36	1.34	1.30	1.26	1.38	0.84	1.00	1.03	0.62	0.24	1.04	0.92	0.99	0.93
Del Amo	I-405	1.30	1.38	1.24	1.32	1.36	1.35	0.95	1.09	0.62	0.24	1.01	0.97	0.99	0.93
I-405	Wardlow	1.68	1.52	1.63	1.44	1.35	1.14	1.67	0.88	0.62	0.65	1.20	1.01	0.93	0.69
Wardlow	Willow	1.76	1.52	1.69	1.44	1.13	1.14	1.08	0.88	0.44	0.65	1.34	1.01	0.93	0.69
Willow	Pacific Coast Hwy.	1.66	1.41	1.60	1.30	1.03	1.03	1.03	0.82	0.44	0.65	1.26	0.98	0.86	0.49
Pacific Coast Hwy.	Anaheim	1.59	1.32	1.55	1.20	0.99	0.88	1.60	1.25	-	-	1.21	0.85	0.86	0.49
Anaheim	9 th	1.45	1.32	1.41	1.20	0.99	0.88	1.33	1.20	-	-	1.09	0.85	-	-
9 th	Ocean	1.00	0.85	0.95	0.71	0.73	0.67	0.92	0.66	-	-	0.99	0.66	-	-
Weighted Average (per VMT)²		1.42	1.34	1.37	1.28	1.15	1.07	1.04	0.96	0.55	0.49	1.14	1.00	0.81	0.73

Source: Cambridge Systematics, Inc., Electronic Data File, April 2003.

Notes: Volume/Capacity (VC) estimates are shown for the 3-hour AM peak period (6 – 9 AM) for the Year 2025. The VC calculations reflect PCE volumes on I-710 travel lanes. VC calculations for the truck bypass lanes and collector-distributor roadway elements (Alt. C) are not shown.

- For this alternative, the special purpose travel lanes operate as an autoway (AU) between 9th Street and Willow Street and operate as a truckway (TR) between Willow Street and I-5.
- The weighted average VC calculation is an aggregate measure for the entire length of I-710 in each direction normalized based upon the vehicle miles traveled (VMT) for these segments.

Table 5.4-7
I-710 Volume/Capacity Estimates – Midday Time Period, Year 2025

Segments on I-710		Alt A		Alt B		Alt C		Alt D				Alt E			
		GP		GP		GP		GP		HOV		GP		TR / AU ¹	
From	To	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
SR-60	I-5	0.94	1.26	0.91	1.23	0.86	1.17	0.62	0.88	0.47	0.66	0.82	1.09	0.10	0.20
I-5	Washington	0.79	0.85	0.78	0.83	0.49	0.61	0.59	0.62	0.47	0.66	0.69	0.72	0.26	0.31
Washington	Atlantic/Bandini	0.85	0.89	0.83	0.86	0.49	0.61	0.63	0.66	0.47	0.66	0.66	0.69	0.48	0.49
Atlantic/Bandini	Florence	1.13	1.15	1.09	1.10	0.93	0.89	0.66	0.66	0.47	0.66	0.77	0.76	0.50	0.50
Florence	Firestone	1.14	1.17	1.10	1.12	0.91	0.94	0.68	0.71	0.20	0.20	0.92	0.97	0.50	0.50
Firestone	Imperial	1.16	1.18	1.11	1.14	0.88	0.97	0.69	0.74	0.20	0.20	0.91	0.94	0.50	0.50
Imperial	I-105	1.16	1.19	1.11	1.14	0.85	0.79	0.85	0.88	0.20	0.20	0.79	0.86	0.73	0.67
I-105	Rosecrans	0.97	0.97	0.93	0.93	0.64	0.60	0.66	0.68	0.19	0.17	0.58	0.64	0.73	0.67
Rosecrans	Alondra	1.24	1.07	1.20	1.02	1.00	0.81	1.05	0.93	0.19	0.17	0.98	0.83	0.73	0.67
Alondra	SR-91	1.41	1.20	1.36	1.14	1.12	0.91	1.00	0.90	0.19	0.17	1.10	0.93	0.73	0.67
SR-91	Artesia	1.22	1.23	1.16	1.15	0.91	0.92	0.95	0.54	0.19	0.17	0.91	0.84	0.73	0.86
Artesia	Long Beach	1.03	1.00	0.98	0.93	0.78	0.75	0.77	0.81	0.37	0.13	0.78	0.69	0.77	0.86
Long Beach	Del Amo	1.16	1.23	1.11	1.14	1.16	0.73	0.83	0.89	0.37	0.19	0.84	0.82	0.77	0.86
Del Amo	I-405	1.13	1.29	1.08	1.21	1.18	1.26	0.80	0.95	0.37	0.19	0.84	0.87	0.77	0.86
I-405	Wardlow	1.51	1.57	1.45	1.46	1.25	1.10	1.45	0.93	0.38	0.28	0.98	1.01	0.80	0.63
Wardlow	Willow	1.63	1.57	1.57	1.46	1.06	1.10	0.97	0.93	0.31	0.28	1.21	1.01	0.80	0.63
Willow	Pacific Coast Hwy.	1.55	1.56	1.49	1.41	0.98	1.07	0.93	0.89	0.31	0.28	1.23	1.10	0.57	0.39
Pacific Coast Hwy.	Anaheim	1.49	1.40	1.43	1.23	0.94	0.84	1.47	1.26	-	-	1.19	0.87	0.57	0.39
Anaheim	9 th	1.36	1.40	1.30	1.22	0.94	0.86	1.26	1.24	-	-	1.05	0.86	-	-
9 th	Ocean	0.97	0.87	0.97	0.66	0.84	0.61	0.91	0.60	-	-	0.94	0.61	-	-
Weighted Average (per VMT)²		1.21	1.23	1.16	1.16	0.96	0.94	0.86	0.83	0.33	0.34	0.92	0.87	0.63	0.59

Source: Cambridge Systematics, Inc., Electronic Data File, April 2003.

Notes: Volume/Capacity (VC) estimates are shown for the 6-hour midday time period (9 AM – 3 PM) for the Year 2025. The VC calculations reflect PCE volumes on I-710 travel lanes. VC calculations for the truck bypass lanes and collector-distributor roadway elements (Alt. C) are not shown.

1. For this alternative, the special purpose travel lanes operate as an autoway (AU) between 9th Street and Willow Street and operate as a truckway (TR) between Willow Street and I-5.
2. The weighted average VC calculation is an aggregate measure for the entire length of I-710 in each direction normalized based upon the vehicle miles traveled (VMT) for these segments.

Local Circulation

With regard to potential traffic and circulation impacts, local circulation is another important issue. Alternative A would have no impacts to local access or circulation as these future transportation improvements and projects have already been studied and approved. Alternative B is largely made up of operational improvements to the transportation system in the I-710 Study Area as well travel demand management programs and strategies. None of the physical improvements included in Alternative B are predicted to result in an adverse impact to the local circulation system in the I-710 Corridor.

Alternatives C, D, and E all would involve the reconstruction of I-710 in some capacity, due to added travel lanes, new ramps, and the reconfiguration of existing interchanges. In some locations, the proposed transportation improvements would necessitate the elimination or closure of general purpose on- and off-ramps where vehicles currently access the freeway system from the local roadway network. This would adversely affect some motorists as they would need to take a more circuitous route to access the freeway near these locations.

Under Alternative C, freeway access would be eliminated at five ramp locations:

- exit from I-710/southbound (SB) I-405 connector to North Pacific Place (1 ramp)
- entrance/exit I-710 at Olympic Blvd./Eastern Ave. NB and SB (4 ramps)

Under Alternative D, freeway access would be eliminated at eight ramp locations:

- exit from I-710/SB I-405 connector to North Pacific Place (1 ramp)
- entrance/exit SR-91 at Atlantic Blvd. (2 ramps)
- exit from NB I-5 to Telegraph Rd. (1 ramp)
- entrance/exit I-710 at Olympic Blvd./Eastern Ave. NB and SB (4 ramps)

Under Alternative E, freeway access would be eliminated at 16 ramp locations:

- exit from I-710/SB I-405 connector to North Pacific Place (1 ramp)
- entrance/exit I-405 at Santa Fe Rd. (2 ramps)
- entrance/exit SR-91 at Long Beach Blvd. (2 ramps)
- entrance/exit SR-91 at Atlantic Blvd. (2 ramps)
- entrance/exit I-710 at Martin Luther King Jr. Blvd. SB (2 ramps)
- entrance/exit I-5 at Downey Rd. (2 ramps)
- exit from NB I-5 to Telegraph Rd. (1 ramp)
- entrance/exit I-710 at Olympic Blvd./Eastern Ave. NB and SB (4 ramps)

In addition, Alternatives C, D, and E include improvements to major arterials within the I-710 Study Area. One feature of these arterial improvements would be the implementation of access management strategies such as the construction of raised medians and the elimination or consolidation of driveways and smaller streets to improve traffic flow. Whereas these access management strategies would improve circulation on the arterials themselves, access for some local businesses and/or local residents would be modified. Any changes that would result in loss of access to these properties would need to be mitigated.

Lastly, in order to implement the proposed transportation improvements in Alternatives C, D, and E, an extensive amount of construction would need to occur, particularly on I-710. This will require lane and ramp closures while this construction takes place. It is likely that construction

would occur over several years depending on how the overall project is phased. Whereas every effort will be taken to maintain traffic and circulation during construction, these construction activities will negatively affect circulation in the short term. [Note: In light of this issue, members of the I-710 Technical Advisory Committee have recommended that any arterial improvements in the I-710 Study Area be implemented first so that these arterials can better accommodate the added traffic that would likely be diverted as a result of construction activities on I-710.]

Parking

None of the five alternatives include elements that would directly reduce or significantly affect parking in the I-710 Study Area. The only potential exception is the peak hour parking restrictions for major parallel arterials currently included in Alternative B, which would prohibit on-street parking for these arterials during the AM and PM peak periods. Alternatives C, D, and E all include arterial street improvements that may result in the elimination of on-street parking for some sections, however, the I-710 Technical Advisory Committee has included the provision of off-street parking in the description of Alternatives C, D, and E to compensate any parking losses. Therefore, no parking impacts are predicted for these alternatives.

5.4.3 Air Quality

Air quality and its potential impact on public health was the leading environmental issue for the I-710 Major Corridor Study. In March 2000, the South Coast Air Quality Management District (SCAQMD) completed a study that measured and estimated the effect of 29 toxic compounds within the Greater Los Angeles Area. Entitled MATES-II, which stands for Multiple Air Toxics Exposure Study, this study pinpointed some of the leading air pollutants that contribute to carcinogenic risk for people that live and work in the I-710 Study Area. In this case, 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 period of 70 years. A key conclusion of the MATES II Study is that mobile emissions sources, specifically diesel particulates, are the primary contributor to carcinogenic risk in the South Coast Air Basin.

Diesel Particulate Matter – Health Effects

Diesel exhaust is produced when an engine burns diesel fuel and is commonly found throughout the environment. It is emitted from a broad range of diesel engines: on road diesel engines of trucks, buses and cars and off road diesel engines that include locomotives, marine vessels and heavy duty equipment. Diesel exhaust is a complex mixture of thousands of gases and fine particles (commonly known as soot) that contains more than 40 toxic air contaminants. These include many known or suspected cancer-causing substances, such as benzene, arsenic, formaldehyde, and nickel. The sizes of diesel particulate matter (DPM) that are of greatest health concern are those that are in the categories of fine and ultra fine particles. The composition of these particles may be composed of elemental carbon with absorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements.

Diesel exhaust particles and gases are suspended in the air, so exposure occurs whenever a person breathes air that contains these substances. The fine and ultra fine particles are respirable, which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to diesel exhaust matter comes from

both on road and off road engine exhaust that is either directly emitted from the engines or aged through lingering in the atmosphere. This is of concern because the I-710 Corridor is a major route that is heavily utilized by heavy-duty diesel truck traffic.

Whereas information on human exposure to diesel particulate matter is still evolving, there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. In 1998, the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) completed a comprehensive health assessment of diesel exhaust. OEHHA developed a cancer potency factor using diesel particulate matter as a surrogate measure for diesel exhaust exposure. This assessment formed the basis for a decision by the California Air Resources Board (ARB) to formally identify particles in diesel exhaust as a toxic air contaminant (TAC) that may pose a threat to human health. Effects of diesel particulates on lung functions¹, asthma, and other respiratory conditions², were presented by experts from the University of Southern California (USC) during meetings of the Technical Advisory Committee (TAC) and the Oversight Policy Committee (OPC).

Diesel Particulate Matter Estimates

To estimate the relative health effects of the five alternatives, a screening level mobile source air quality dispersion analysis was conducted. The purpose of this analysis was to understand the implications of different actions based on their estimated effect on DPM levels to help identify which elements of the alternatives should be carried forward into the environmental phase for further study. The screening level mobile source air quality dispersion analysis was conducted at a level of environmental detail on par with the general design concepts of the proposed alternatives that were developed for the I-710 Major Corridor Study.

Mobile Source Dispersion Model

Mobile source dispersion models are the basic analytical tools used in air quality analyses to estimate pollutant concentrations expected under given conditions of traffic, roadway geometry, and meteorology.

CAL3QHC is a line-source dispersion model that predicts pollutant concentrations near congested intersections and heavily traveled roadways. Input parameters include emission rates of free flow and idling vehicles, roadway geometries, site characteristics, background pollutant concentrations, signal timing, and meteorological conditions. CAL3QHC predicts inert pollutant concentrations, averaged over a one-hour period, near roadways using stable meteorological conditions and peak-hour traffic flow. Pollutant concentrations for longer averaging times (e.g., 8-hours, 24-hour, and annual) are then estimated by multiplying the estimated 1-hour values by reasonably conservative persistence factors.

¹ Ms. Andrea Hricko, Associate Professor of Preventive Medicine, University of Southern California; June 25, 2003 OPC Meeting. (See Meeting Minutes in Appendix B)

² Dr. John Peters, Co-Director, Children's Environmental Health Center, Keck School of Medicine of USC; April 9, 2003 TAC Meeting. (See Meeting Minutes in Appendix C).

CAL3QHCR is a refinement to CAL3QHC in that it uses actual meteorological data. CAL3QHCR was used as the dispersion model for this analysis because of the following reasons:

- High traffic volumes and close proximity to sensitive land uses required more accurate pollutant estimates;
- Forecast traffic conditions for multiple traffic periods (i.e., AM peak, midday, PM peak, and nighttime) could be incorporated; and
- Health-risk assessments are based on estimated annual average pollutant concentrations and CAL3QHCR can be utilized to directly estimate annual values.

Each freeway segment was considered in the modeling analysis to be an infinite line source. DPM concentrations at fixed distances from the center of the existing roadway were estimated for each design concept. The absolute coordinates from a fixed point, the roadway centerline, were used in order to take into account the different roadway widths of the different I-710 alternatives for purposes of directly comparing their estimated emissions levels to sensitive receptors located adjacent to the freeway.

Pollutant Emission Rates

Vehicular emissions were estimated for the 2025 analysis year using ARB's vehicular emission factor algorithm, EMFAC2002 v2.2. This model is recommended for use by ARB and guidance is given for its use in Caltrans's *The Use of EMFAC 2002 to replace CT-EMFAC A Users Guide*, dated February 27, 2003. Emission factors were calculated for the South Coast Air Basin using an annual average season. Air basin specific default vehicle registration data, inspection and maintenance program parameters and mileage distribution parameters were used to calculate DPM emission factors. Future year truck volumes for each lane of the various I-710 segments were allocated based on traffic volumes and speeds developed by Cambridge Systematics, Inc. over a 24-hour timeframe according to four time periods.

Since the focus of this analysis is the potential health risks associated with diesel emissions, only tailpipe emissions, and not re-entrained dust from vehicle tires (or break or engine wear), were considered. Emission rates were calculated separately for each lane of I-710 traffic.

Two variables -- analysis year and vehicular (truck) speeds -- notably affected the estimated pollutant concentrations for this analysis, as follows:

- DPM emission factors are forecast to decrease in future years (as compared to existing values) due to increasingly stringent emission controls and the replacement of older, higher polluting, vehicles with newer, less polluting, ones.
- DPM emission factors decrease with increased vehicular speeds. This is based on ARB's belief that the DPM emission trend closely resembles that of hydrocarbons. The fact that the I-710 Build alternatives all result in increased vehicular speeds, as compared to the future No Build scenario, is a major reason why estimated concentrations are lower with the Build alternatives. [Note: these results are closely tied with EMFAC2002 v2.2 (most recent version of this model currently available in April 2003). It is presumed that future environmental studies and DPM emissions analyses will incorporate ARB's future updates to the EMFAC model when these occur.]

Traffic Data

The amount of traffic, particularly heavy duty trucks, is projected to more than double on I-710 by the Year 2025. Future year truck volumes for each lane of the various I-710 segments were allocated based on traffic volumes and speeds developed by Cambridge Systematics, Inc. over a 24-hour timeframe according to four time periods. The 24-hour timeframe was divided into AM (6 AM-9 AM), midday (9 AM-3 PM), PM (3 PM-7 PM) and nighttime (7 PM-6 AM) time periods. Heavy duty truck volumes tend to be highest during the midday time period, which is why all four time periods were utilized in the analysis rather than relying exclusively on the AM and PM peak periods. [Note: average daily heavy duty truck volume data for the five alternatives is presented in Section 5.4.2 of this report.]

Analysis Sites

The screening analysis estimated DPM concentrations at selected distances from the I-710 freeway corridor for the different alternatives near two representative roadway segments of I-710 – (1) between I-405 and Willow Street, and (2) between Rosecrans Avenue and Alondra Boulevard. These two sites were selected because residences are located very close to the existing I-710 travel lanes, heavy duty truck volumes are high, and because these locations capture differences in the physical attributes of the proposed alternatives. Future truck volumes for each lane of the various freeway segments were considered under AM peak, midday, PM peak, and nighttime traffic conditions.

Critical distances were estimated at the two analysis sites for the different alternatives given the truck volumes forecast on each lane of travel of each design concept. See Sections 4.5 and 5.1 of this report for a detailed description of the five alternatives. Since the vertical and horizontal configuration of each alternative varies along the full 20-mile length of the I-710 Corridor, typical sections were utilized in the screening level analysis to represent the physical characteristics of the roadway near the two analysis sites. At one of the sites, the truck lanes in Alternative E are transitioning from an at-grade configuration (E1) to an elevated configuration (E2) and thus both options were examined to bracket the results.

Analysis Results

Figures 5.4-1 and 5.4-2 show the diesel particulate analysis results for the two sites.

Figure 5.4-1
I-710 Concentrations of Diesel Particulate Matter
(between Willow St. and I-405)

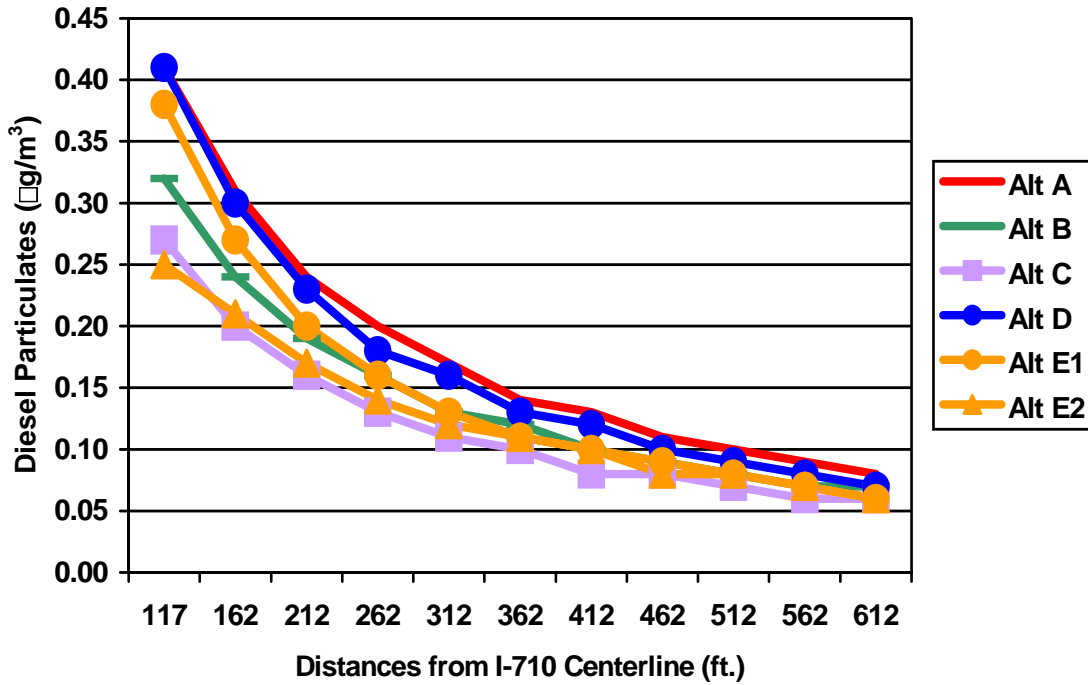
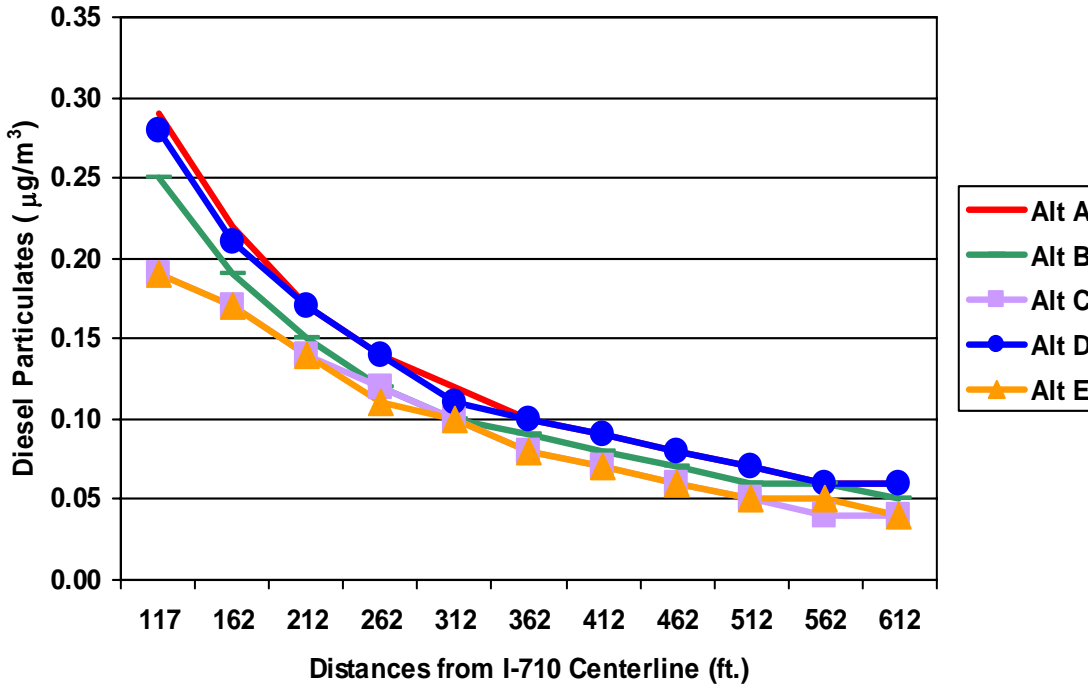


Figure 5.4-2
I-710 Concentrations of Diesel Particulate Matter
(between Rosecrans and Alondra)



Viewing Figures 5.4-1 and 5.4-2 together leads to the following conclusions:

- Concentrations of diesel particulate matter are higher for those who live closest to the freeway. Concentrations drop the further one gets from the freeway.
- Among the build alternatives (Alternatives C, D, and E), diesel particulate matter concentrations increase when ground-level truck-only lanes are located to the outside of the I-710 freeway (i.e., lanes closest to sensitive land uses).
- Diesel particulate matter concentrations with the elevated truck-only lanes (Alternative E2) are lower compared to the ground-level truck-only lanes (Alternative E1), particularly at distances closest to the freeway.
- Alternative B results in a decrease of diesel particulate matter concentrations compared to the No Build Alternative (Alternative A), due to reduced truck volumes and improved vehicle speeds.
- Diesel particulate matter concentrations are lower under the future build alternatives (Alternatives C, D, and E) compared to Alternative A due to lower emission rates associated with higher vehicle speeds.
- Alternatives C and E2 exhibit the lowest diesel particulate matter concentrations of the build alternatives. [Note: Between Rosecrans and Alondra the configuration of the truck bypass lanes in Alternative C is similar to the elevated truck-only lanes in Alternative E. The truck bypass lanes contained in Alternative C results in lower diesel particulate matter concentrations as trucks are able to maintain better speeds since they are routed around pockets of congestion. In addition, in Alternative C, some trucks are drawn to the Terminal Island Freeway Extension component and away from I-710.

Additional information on the diesel particulate matter screening analysis can be found in a technical report prepared for the I-710 Major Corridor Study, entitled *A Comparison of Alternatives with Respect to Localized Diesel Particulate Matter Concentrations*, May 2003, which is provided in Appendix N of this report. It is important to note that more detailed analysis on health and air quality will be performed on the Locally Preferred Strategy that results from the I-710 Major Corridor Study in follow-on environmental studies as part of the environmental documentation phase of the project.

Other Criteria Pollutants

Whereas most of the focus on air quality for the I-710 Major Corridor Study was on diesel particulate matter as a toxic air contaminant in order to respond to public concerns related to public health, other air pollutants from mobile sources were examined as well. Using travel demand forecast data developed for the five alternatives, the ITS Deployment Analysis System (IDAS) model was employed to estimate changes in emissions levels for four criteria pollutants: reactive organic gases (ROG); carbon monoxide (CO); nitrogen oxide (NOx); and particulate matter 10 microns or less in size (PM10). These pollutants are monitored by SCAG on a regional level to ensure that future changes to the transportation system will not result in increases in air pollutants beyond federal and state thresholds established for air quality. The

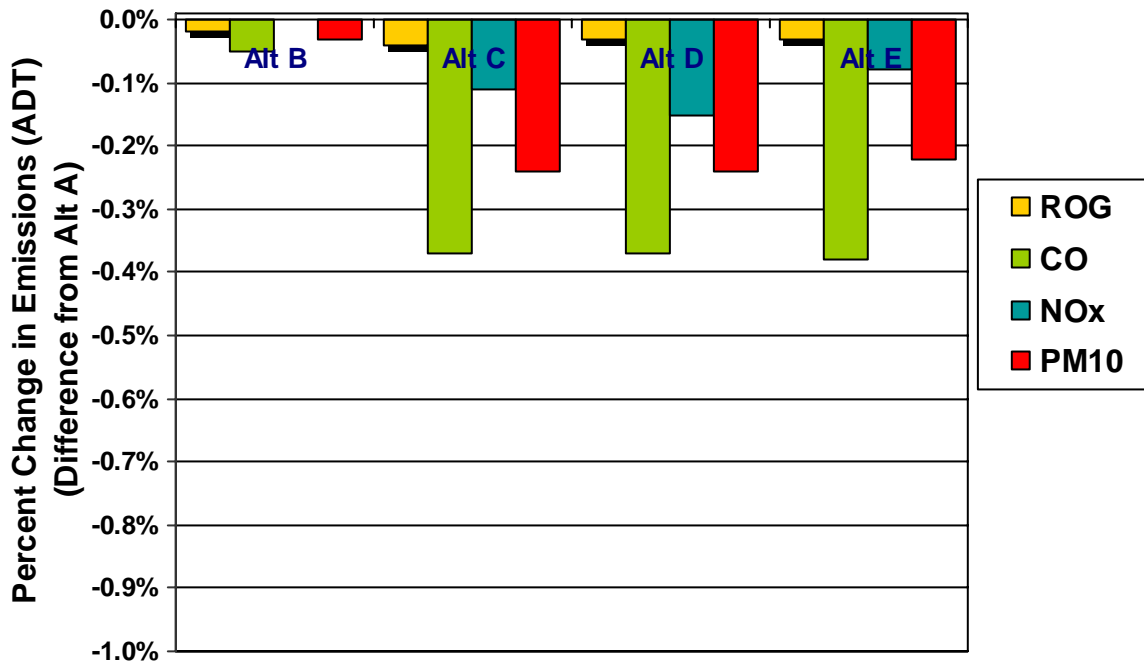
I-710 Study Area is part of the South Coast Air Basin, which is currently in non-attainment status for both ozone and PM10. ROG contributes to the formation of ozone in the atmosphere.

The results of the emissions analysis for the four criteria pollutants for the Year 2025 are presented in Figures 5.4-3 and 5.4-4.

Figure 5.4-3 looks at air quality from a regional perspective as air quality conformity analysis conducted by SCAG is performed for the entire six-county region. Emissions levels were generated for Alternatives B, C, D, and E and then compared to the No Build Alternative (Alternative A) in order to estimate whether or not the actions proposed in these alternatives would result in a positive or a negative change in regional air quality. In this case a decrease in air pollutant levels would be considered a positive effect and an increase in air pollutant levels would be a negative effect. The regional-level evaluation includes both running and cold-start vehicle emissions.

Figure 5.4-3 shows that Alternatives B, C, D, and E would result in a very slight decrease in emissions levels for the overall SCAG region for all four pollutants. This slight reduction in regional emissions is likely attributable to improved performance of the overall freeway network, particularly vehicle speeds, as traffic redistributes itself to take advantage of an improved I-710. On a percentage basis, the change is barely perceivable (less than half of one percent).

Figure 5.4-3
Estimated Percentage Change in Regional Emissions



**Figure 5.4-4
Estimated Percentage Change in I-710 Study Area Emissions**

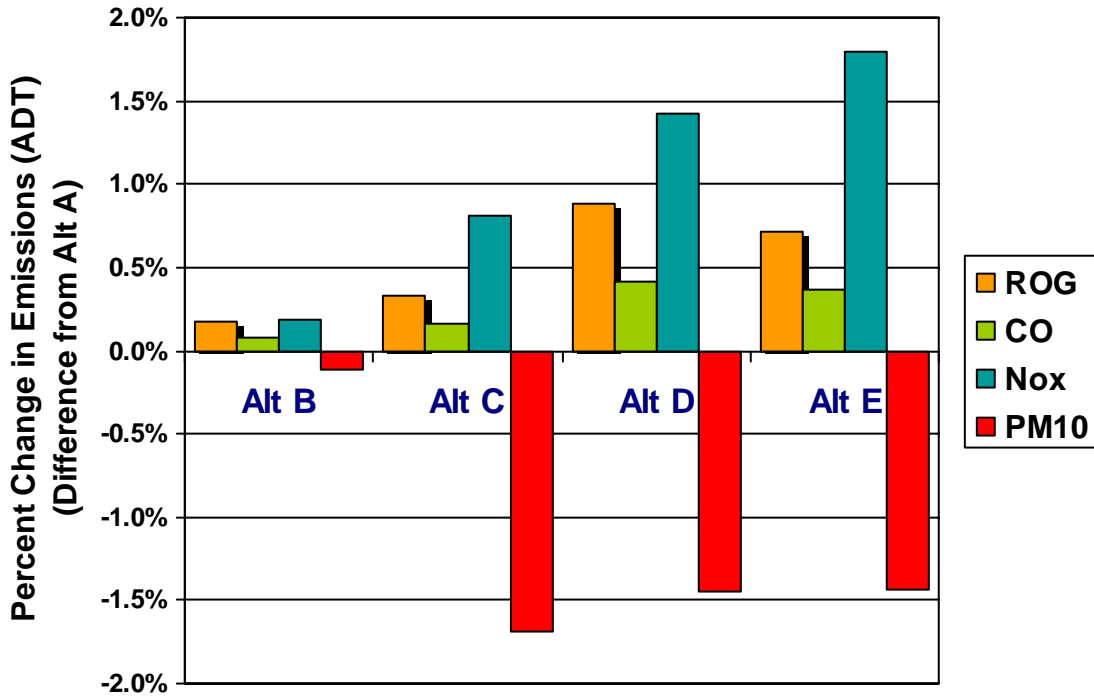


Figure 5.4-4 provides a more focused look at just the I-710 Study Area, including roadways and freeways. In this case, the percentage changes in emissions levels are more discernable. Figure 5.4-4 also shows that vehicle emissions are expected to increase for ROG, CO, and NOx within the I-710 Study Area for Alternatives B, C, D, and E compared to the No Build Alternative (Alternative A). This change is like due to projected increases in vehicle miles traveled (VMT). To some extent additional vehicles are attracted to the freeway and roadway network within the I-710 Study Area. However, because travel conditions within Los Angeles County are so congested, motorists will typically trade longer distances for better travel times, which is a factor that also drives up VMT in the I-710 Study Area. On the other hand, PM10 levels are expected to improve (i.e., decrease) for Alternatives B, C, D, and E compared to Alternative A. This result is tied to improved travel speeds within the I-710 Study Area.

5.4.4 Agriculture

Although no state or federal law explicitly prohibits the conversion of farmlands to other nonagricultural uses, there are established policies and programs to maintain farmland for agricultural use.

The I-710 Study Area contains areas beneath the electrical utility corridors that are currently leased and used for agricultural purposes. Alternative E and, to some extent, Alternative C encroach into these areas. However, these Southern California Edison properties are not designated as Prime Farmlands, Unique Farmlands, Farmlands of Statewide Importance, or

Farmland of Local Importance. For this reason, none of the proposed alternatives are expected to result in an adverse impact to agricultural lands.

5.4.5 Biological Resources

The I-710 Corridor lies in an urbanized setting, with few biological communities. The cities in the I-710 Study Area are mostly built-out, with the exception of scattered vacant and open space parcels. A GIS records search of the California Natural Diversity Data Base was conducted to help identify the existing biological resources in the Study Area. The biological resources in the Study Area consist mainly of a variety of plant and animal habitats found in undeveloped areas or in open space within urban developments. The urbanized areas support mainly man-introduced species and landscaping materials. The City of Long Beach, however, still presents a variety of habitats, although many of these have been severely impacted by urbanization.

In addition, five cities in the I-710 Study Area have occurrences of sensitive, rare, or endangered species. These cities are: Carson, Los Angeles, Long Beach, Lakewood, and Downey. The status of these species are shown in Table 5.4-8.

A project would have a significant effect on the environment if it would:

- Substantially affect a rare or endangered species of animal or plant, or the habitat of the species;
- Substantially affect a federally protected wetland;
- Interfere substantially with the movement of any resident or migratory fish or wildlife species; or
- Conflict with any local policies or ordinances protecting biological resources, or an adopted Habitat Conservation Plan or other approved protection plan.

**Table 5.4-8
Sensitive Species Federal and State Ranking**

Scientific Name	Common Name	Federal Status	California Status
<i>Cordylanthus maritimus</i>	Salt Marsh Bird's-Beak	Endangered	Endangered
<i>Perognathus longimembris pacificus</i>	Pacific Pocket Mouse	Endangered	None
<i>Orcuttia californica</i>	California Orcutt Grass	Endangered	Endangered
<i>Sterna Antillarum Browni</i>	California Least Tern	Endangered	Endangered
<i>Passerculus sandwichensis beldingi</i>	Belding's Savannah Sparrow	None	Endangered

Source: California Natural Diversity Data Base, 2002

Each alternative was examined as a whole to assess its potential effect upon biological resources in the I-710 Study Area. See Section 5.4.9; Hydrology, Water Quality, and Floodplains; for a description of potential impacts to wetlands areas.

Alternative A – No Build

Alternative A is a future baseline alternative consisting primarily of operational improvements and reconstruction activities that involve pavement replacement, standard shoulders, and a new median for I-710. By definition, these transportation improvements have already been planned and committed for the Year 2025. No additional impacts associated with biological resources are anticipated to occur under Alternative A beyond what has already been studied and approved.

Alternative B – TSM/TDM Alternative

There are no major construction elements proposed under Alternative B; therefore, no biological impacts are anticipated.

Alternative C – Medium General Purpose / Medium Truck Alternative

Some of the arterial roadway elements listed as part of Alternative C could potentially affect biological resources. Roadway improvements for Alternative C involve arterial capacity enhancements to ten major arterials by adding one new travel lane in each direction, either through restriping or through roadway widening. If selected, the description of the proposed arterial roadways will be further refined in subsequent studies. Of these arterials, Paramount Boulevard (from Carson Avenue to I-5), Firestone Boulevard (from Atlantic Boulevard to Paramount Boulevard), and Florence Avenue (From Atlantic Boulevard to Paramount Boulevard) may directly affect the California Orcutt Grass in Downey, depending upon the specific nature of the proposed roadway improvements. This species is listed as endangered on both the Federal and the California List. In addition, the improvements on the Pacific Coast Highway (from SR-103 to Cherry Avenue) would be 500 meters distant from the salt marsh bird's-beak habitat in the City of Long Beach. And, the arterial roadway element of Willow Street (From SR-103 to Cherry Avenue) is located about 160 meters from the habitat of the pacific pocket mouse in the City of Carson and in the southern reaches of the City of Los Angeles.

Alternative D - High General Purpose / High HOV Alternative

The Terminal Island Freeway Truck Expressway Connector component of Alternative D could potentially have a direct, significant impact on the pacific pocket mouse, in the Cities of Los Angeles and Carson, and on the salt marsh bird's-beak in Long Beach. The pacific pocket mouse is classified as endangered species on the Federal List, and the salt marsh bird's-beak is classified as endangered species on both Federal and State listings.

None of the proposed arterial roadway elements included in Alternative D are situated in proximity of any of the listed biological sensitive species or designated natural communities. Therefore, no biological impacts associated with the Alternative D roadway arterials are expected to occur.

Alternative E - High Truck Alternative

Some of the arterial roadway elements listed as part of Alternative E could potentially affect biological resources. Roadway improvements for Alternative E involve arterial capacity enhancements to five major east-west arterials by adding one new travel lane in each direction,

either through restriping or through roadway widening. If selected, the description of the proposed arterial roadways will be further refined in subsequent studies. Of these arterials, Ocean Boulevard (from SR-47 to I-710) may directly affect the salt marsh bird's-beak plant habitat in the City of Long Beach and southern portions of the City of Los Angeles, a species classified as endangered on both the Federal and State listings. In addition, improvements to the Pacific Coast Highway (from SR-103) would be located at a distance of 160 meters from the pacific pocket mouse's habitat located in the City of Carson and southern part of the City of Los Angeles.

5.4.6 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) requires that the effects of federally funded projects on cultural resources be carefully considered. These procedures apply to all federally assisted actions that may affect properties included in or eligible for inclusion in the National Register of Historic Places (NRHP).

Cultural resources would be impacted if the property is acquired by the project. A project would have a significant effect on the environment if it would:

- Cause a substantial adverse change in the significance of historical or archaeological resources;
- Disturb any human remains; or
- Directly or indirectly destroy a unique paleontological resource or site.

A preliminary cultural resources survey was performed for the I-710 Study Area. The survey included the areas where undertaking the proposed improvements may have effects on historic properties. With the Study Area nearly built out, the discovery of new archeological or paleontological resources is unlikely. There is no record of known sites within the proposed project area or in immediate surrounding areas. In addition, there are no known cultural resources or Native American sites that have been found within the I-710 Study Area to date.

Alternatives A and B would have no additional impacts other than those already planned and approved. There are no cultural impacts associated with I-710 mainline improvements for any of the alternatives. There are, however, potential impacts associated with the arterial components of the build alternatives. The arterial improvements listed in Alternative C would have the greatest potential impact on cultural resources. The Alternative C arterials would potentially affect two sites listed on the National Register of Historic Places and five structures of local importance. Alternative D's arterial improvements would affect the Lynwood Pacific Electric Railway Depot, which is listed on the NRHP, and six structures listed in the general plans of the City of Commerce. Alternative E's arterial improvements would have the least impact on cultural resources, since it may affect only one cultural site of local importance in the City of Commerce.

Table 5.4-9 lists the potential impacts to cultural resources for each of the build alternatives and also identifies the transportation elements associated with the identified impacts based on a review of the NRHP, California Historical Landmarks, and the general plans of the local jurisdictions. Since all of the potential impacts identified in Table 5.4-9 are related to the arterial improvements (which at this early planning stage are only generally defined), additional definition and refinements of the proposed arterial improvements are required to determine the

significance of the potential impact or if impacts to sensitive cultural resources can be avoided altogether.

**Table 5.4-9
Potential Impacts to Cultural Resources**

Alternative/Element	Location	Cultural Resource
Alternative A	none	none
Alternative B	none	none
Alternative C - Arterial Atlantic Boulevard	City of Commerce City of Cudahy City of Cudahy City of Cudahy	Pillsbury Mill (Local) Robbie's Hobby Center (Local) Graham's Auto Electric (Local) Scott Gasket (Local)
Alternative C - Arterial Cherry Ave./Garfield Ave.	City of Commerce City of Bell Gardens	Pillsbury Mill (Local) Clara Street Water Company (Local)
Alternative C - Arterial Long Beach Boulevard	City of Lynwood	Lynwood Pacific Electric Highway Depot (NRHP – Bldg. No. 74000524)
Alternative C - Arterial Florence Avenue	City of Downey	Casa de Parley Johnson (NRHP – Bldg. No. 86000449)
Alternative D - Arterial Atlantic Boulevard	City of Commerce City of Cudahy City of Cudahy City of Cudahy	Pillsbury Mill (Local) Robbie's Hobby Center (Local) Graham's Auto Electric (Local) Scott Gasket (Local)
Alternative D - Arterial Garfield Avenue	City of Commerce City of Commerce	Vail Field (Local) Mount Carmel (Local)
Alternative D - Arterial Eastern Avenue	City of Commerce	Pillsbury Mill (Local)
Alternative D - Arterial Long Beach Boulevard	City of Lynwood	Lynwood Pacific Electric Highway Depot (NRHP – Bldg. No. 74000524)
Alternative E – Arterial Bandini Boulevard	City of Commerce	Sleepy Lagoon Murder site (Local)

Source: Parsons Brinckerhoff, April 2003

Notes: (Local) refers to Local Cultural Resource.

Note: The Pacific Electric Bridge (north of Firestone), a bridge located south of Del Amo Boulevard, and a bridge south of Florence Avenue may be classified as historic bridges. In order to determine whether these bridges are classified as historical, a certified architectural historian must be consulted in subsequent study phases. The proposed project may have potentially significant impact on these sites. In addition, in order to determine whether the sites are impacted, a certified architectural historian must be consulted in subsequent study phases.

5.4.7 Geology, Seismicity, and Soils

The potential impact of geology, seismicity, and soils were reviewed for the area in general and for the alternatives as a whole. Seismic hazards are generally classified in two categories: (1) primary seismic hazards (surface fault rupture and ground shaking) and (2) secondary seismic hazards (liquefaction and other types of seismically induced ground failure, along with seismically induced landslides).

Principal state guidance relating to geologic hazards is contained in the Alquist-Priolo Act and in the Seismic Hazards Mapping Act of 1990. The Alquist-Priolo Act prohibits the location of most types of structures for human occupancy across active traces of faults in earthquake fault zones and regulates construction in the corridors along active faults. Several major faults are present within 50 miles of the I-710 Study Area. In addition, numerous smaller faults are located throughout the Los Angeles Basin. Some of the major and smaller faults directly underlie, or are in very close proximity to, the I-710 Corridor. Faults potentially affecting the project area include:

- Newport-Inglewood Fault Zone (crosses through the project area)
- Raymond Fault (8 miles north)
- San Andreas Fault Zone (2 miles southwest)
- Coyote Pass Fault (3 miles northeast)
- Charnock Fault (6 miles west)
- Elysian Park Structure (5 miles to the north-northeast)
- Santa Monica-Hollywood Fault (7 miles north-northwest)
- Norwalk Fault (8 miles east)
- Overland fault (9 miles west)

In addition, the majority of the I-710 Study Area is directly underlain by Holocene age alluvial deposits of the Downey Plain and Dominguez Gap. The alluvial deposits are composed of poorly consolidated sand, silt, clay, and gravel. [Note: for a discussion of groundwater issues and conditions related to the I-710 Corridor, please refer to Section 5.4.9, Hydrology, Water Quality, and Floodplains, of this report.] Liquefaction potential, which is associated with earthquakes, has been found to be greatest where the groundwater level is shallow and loose fine sands occur within a depth of 50 feet or less. A major proportion of the I-710 Study Area, including all of I-710 from the Ports to approximately Washington Boulevard, falls within the liquefaction hazard zone as delineated by the California Geological Survey (1999).

All of the build alternatives include transportation elements that would involve the construction of structures such as bridges, viaducts, and ramp connectors. Examples of these transportation elements include: elevated sections of the truck bypass lanes and the Terminal Island Freeway extension in Alternative C; the elevated HOV lanes in Alternative D; and the autoway, sections of the truckway, and the Atlantic Boulevard viaduct in Alternative E. All of the new structures included in these alternatives would need to adhere to current California construction and design standards with regard to seismicity. In addition, none of the build alternatives, as currently proposed, involve tunneling, trenches, or appreciable amounts of excavation. Therefore, there are no appreciable differences among the three build alternatives related to geology, soils, or seismicity.

All of the build alternatives would pass through the Dominguez and Wilmington oil fields. There is no documented ground subsidence associated with the Dominguez oil field. In addition, the

corridor is located on relatively flat ground with no slope stability problems and no potential for lurching (movement at right angles to a steep slope during ground shaking).

Surface fault rupture, ground shaking, and seismically induced ground failure all can result in substantial damage to structures. A detailed assessment, as well as mitigation for potential impacts related to geologic and soils conditions, must be developed on a site-specific basis, based on the results of more detailed (design-level engineering), geologic, and geotechnical studies. The design needed to withstand a certain magnitude of earthquake would be determined during subsequent stages of design and development of the proposed facilities.

A thorough assessment of the existing hazard combined with appropriate design and construction can reduce the potential for damage substantially, including potential risks to public safety. For example, the potential for collapse or toppling of superstructures such as bridges or retaining structures due to strong ground motion can be mitigated by designing structures to withstand the estimated ground motions. Designs typically include additional redundancy and ductility in the structure. The potential for structural damage and resulting traffic hazard as a result of liquefaction can be mitigated through site-specific methods such as ground modification methods (soil densification) to prevent liquefaction, or structural design (e.g., deep foundations) to accommodate/resist liquefiable zones.

5.4.8 Hazardous Materials

For each of the alternatives, properties designated as hazardous materials/waste sites were identified and categorized. These properties are located either partially or fully within the proposed footprint of each of the alternatives and outside of the state right-of-way currently owned by Caltrans.

The source of these hazardous materials/waste sites is the Fidelity National Information Solutions database (Fidelity), formerly Vista Environmental Information Solutions, Inc., dated February 2002. The following categories were used to identify potential hazardous materials/waste sites within the vicinity of the proposed alternatives:

- Above Storage Tanks (AST)
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites
- Emergency Response Notification System (ERNS)
- Leaking Underground Storage Tank (LUST) sites
- No Further Remedial Action Planned (NFRAP)
- Federal National Priorities List (NPL)/Superfund
- Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal (TSD) facilities
- RCRA Corrective Action Sites (CORRACTS)
- RCRA Violators (VIOL)
- Spills-State
- State CERCLA or State Superfund (SCL)
- State Priority List (SPL)
- State of California Solid Waste Landfills (SWLFs)
- Toxic Chemical Release Inventory System (TRIS)
- Underground Storage Tank (UST) sites

Alternative A does not propose any property acquisitions beyond what has already been funded and committed for the future year (2025). Alternative B has no new property acquisitions as these improvements would occur within existing state right-of-way. Therefore no hazardous materials impacts are predicted to result from either Alternative A or B.

On the other hand, each of the build alternatives could potentially result in hazardous materials impacts as these alternatives either traverse or are located adjacent to sites that have the potential to contain hazardous materials. Tables 5.4-10, 5.4-11, and 5.4-12 list the estimated number of sites that would be impacted by each transportation element, for Alternatives C, D, and E, respectively, in order to illustrate the differences among these alternatives.

**Table 5.4-10
Alternative C - Estimated No. Hazardous Materials Sites Impacted**

Alt. C - Transportation Element	Estimated Number of Potential Hazardous Materials Sites Impacted
<i>I-710 Mainline Improvements</i>	
Mainline Widening	331
Collector-Distributor Lane System	62
Truck Inspection Facility	19
I-405 Truck Bypass Lanes	11
SR-91/I-105 Bypass Lanes	93
Pacific Coast Highway Truck Ramps	65
Washington Boulevard Truck Ramps	27
<i>I-710 Interchanges – Freeway</i>	
I-405/I-710 Interchange	11
I-5/I-710 Right Side Ramp	37
<i>I-710 Interchanges – Local</i>	
Anaheim Street Braid	87
Pacific Coast Highway Braid	83
Willow Street Interchange	9
Del Amo Boulevard Interchange	10
Imperial Highway Interchange	8
Florence Avenue Interchange	15
Atlantic/Bandini Interchange	30
Washington Boulevard Interchange	31

Source: Fidelity National Information Systems Database (2002), Parsons Brinckerhoff, April 2003.

Table 5.4-10
Alternative C - Estimated No. Hazardous Materials Sites Impacted -
Continued

Alt. C - Transportation Element	Estimated Number of Potential Hazardous Materials Sites Impacted
Slauson Boulevard Interchange	32
<i>Terminal Island Freeway Extension</i>	16
<i>Arterials</i>	1,407

Table 5.4-11
Alternative D - Estimated No. Hazardous Materials Sites Impacted

Alt. D - Transportation Element	Estimated Number of Potential Hazardous Materials Sites Impacted
<i>I-710 Mainline Improvements</i>	
Mainline Widening	254
<i>I-710 Interchanges - Freeway</i>	
I-405/I-710 Interchange	20
I-405/I-710 HOV Connector	5
SR-91/I-710 Interchange	23
I-5/I-710 Interchange	64
<i>I-710 Interchanges - Local</i>	
Willow Street Diamond	9
Del Amo Boulevard Diamond	21
Long Beach Boulevard	21
Imperial Highway Diamond	18
Florence Avenue Diamond	4
Atlantic/Bandini Interchange	37
Washington Boulevard Interchange	33
<i>Terminal Island Freeway Connector</i>	56
<i>Arterials</i>	960

Source: Fidelity National Information Systems Database (2002), Parson Brinckerhoff, April 2003.

Table 5.4-12
Alternative E - Estimated No. Hazardous Materials Sites Impacted

Alt E - Transportation Element	Estimated Number of Potential Hazardous Materials Sites Impacted
<i>I-710 Mainline Improvements</i>	
Exclusive Autoway/Truck Facility	380
I-405 Truck Ramps	10
SR-91 Truck Ramps	18
Firestone Boulevard Truck Ramps	17
Washington Boulevard Truck Ramps	31
<i>I-710 Interchanges – Freeway</i>	
I-405/I-710 Interchange	9
SR-91/I-710 Interchange	10
I-5/I-710 Interchange/ Atlantic Viaduct	135
<i>I-710 Interchanges – Local</i>	
Slauson Boulevard Interchange	34
<i>Arterials</i>	295

Source: Fidelity National Information Systems Database (2002), Parson Brinckerhoff, April 2003.

Looking at the build alternatives as a whole, Alternative C would have the highest number of estimated impacts to hazardous waste sites (2,378), followed by Alternative D (1,525), and then Alternative E (939). It is important to note that the arterials component of each of the alternatives is responsible for a significant proportion of the total estimated number of impacted sites as the improvements associated with the arterials involve the addition of a travel lane in each direction through urbanized, commercial areas either through restriping or roadway widening. This is particularly evident with Alternatives C and D.

In the environmental screening analysis conducted for the I-710 Major Corridor Study, only the potential hazardous materials impacts are identified for each alternative. A more detailed, site-specific assessment will need to be performed during the environmental phase of project development in order to determine the extent and nature of the hazardous materials present on each site as well as the potential for a significant adverse impact. This step often reduces the total number of estimated impacts as more about these sites are known and understood. At this stage, avoidance or mitigation strategies would also be developed based on the findings of this analysis.

5.4.9 Hydrology, Water Quality, and Floodplains

At its southern terminus, the I-710 freeway begins at the Port of Long Beach in the San Pedro Bay. The freeway crosses the Los Angeles County Flood Control Channel (Los Angeles River) at Shoemaker Bridge and follows along the west side of the Los Angeles River. Next, I-710 crosses Compton Creek just south of Del Amo Boulevard. I-710 crosses the Los Angeles River again just north of the Los Angeles River / Rio Hondo River confluence. The I-710 Study Area is located within the Los Angeles River Watershed and part of the Dominguez Channel and Los Angeles/Long Beach Harbors Water Management Areas (WMA). The Los Angeles Watershed includes major tributaries such as the Pacoima Wash, Tujunga Wash, Burbank Western Channel, Verdugo Wash, Arroyo Seco, Rio Hondo, and Compton Creek.

The environmental screening assessment conducted for the I-710 Major Corridor Study examined three inter-related issues associated with water resources in the I-710 Study Area: water quality, floodplains, and groundwater.

Water Quality

Protection of water quality in California is primarily the responsibility of the State Water Resources Control Board (SWRCB) and, on a regional basis, the nine California Regional Water Quality Control Boards. With regard to the I-710 Study, the water quality in the watersheds is primarily under the jurisdiction of the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB).

Los Angeles River: The Los Angeles River is currently identified on the 1998 Clean Water Act Section 303(d) list of impaired waters for pH, ammonia, a number of metals, coliform, trash, scum, algae, oil, chlorpyrifos as well as other pesticides, and volatile organics. The Los Angeles River Channel has year-round flow which is maintained by urban and agricultural runoff, and discharges of treated wastewater. The soft bottom area of the river, which is tidally influenced, extends up to Willow Street Bridge, a distance of 2.6 miles from the mouth at Queensway Bay. Anywhere that the soft bottom portion of the river would be impacted, the California Department of Fish and Game (CDFG) would be involved.

Dominguez Channel: The Dominguez Channel area historically consisted of marshes and mudflats with a large marshy area, Dominguez Slough, to the north, and flow from the Los Angeles River entering where Dominguez Channel now drains. The Dominguez Channel is currently identified on the 1998 Clean Water Act Section 303(d) for aldrin, ammonia, ChemA, chlorade, chromium, copper, DDT, Dieldrin, coliform, lead, PAHs, PCBs, and Zinc.

The proposed project would need to demonstrate that it is consistent with the total daily maximum load (TDML) for the criteria pollutants identified for these two rivers: Dominguez Channel and the Los Angeles River.

Floodplains

A review of the Flood Insurance Rate Maps (FIRM) for Los Angeles County revealed that the I-710 freeway is within the Los Angeles River 100-year floodplain zone between 7th Street and Pacific Coast Highway and then again between Compton Creek and just north of Rio Hondo

River. On February 25, 2000, the Federal Emergency Management Agency (FEMA) redesignated many communities within the project study area as not being within a flood zone as a result of the U.S. Army Corps of Engineers (Corps) restoration of a section of the Los Angeles River levee system. The freeway also experiences the Rio Hondo 100-year floodplain effects when the freeway is in the vicinity of the Rio Hondo River. The Dominguez Channel 100-year floodplain zone is limited to the channel.

Groundwater

Groundwater accounts for most of the region's local supply of fresh water. The Los Angeles/Orange County coastal plain aquifer system extends across an area of approximately 860 square miles (2,230 square kilometers). Groundwater in the Coastal Plain Groundwater Basin generally flowed toward the Pacific Ocean, although flow directions have been altered by increased withdrawals due to rapid urban development. The I-710 Study Area is located in the West and Central Groundwater Basins. The general quality of groundwater within the Los Angeles Regional Water Quality Control Board (RWQCB) area has degraded substantially over the years as a result of fertilizers and pesticides; nitrogen and pathogenic bacteria from overloaded or improperly sited septic tanks; storage tanks that have leaked or are leaking hazardous substances into the subsurface; and a variety of other sources or conditions. In areas with industrial or commercial activities, aboveground and underground storage tanks contain vast quantities of hazardous substances. Results of basin-wide monitoring have confirmed that the quality of groundwater extracted from the Central Basin has been good. However, there is a continuing problem with industrial solvents contaminating groundwater within limited areas of the Central Basin. Also, seawater intrusion that has occurred in these basins is now under control in most areas through an artificial recharge system consisting of spreading basins and injection wells that form fresh water barriers along the coast; however, large plumes of saline water have been trapped behind the barrier of injection wells in the West Coast Basin, degrading significant volumes of groundwater with high concentrations of chloride.

Water level measurements from the Los Angeles County Department of Public Works (LACDPW) indicate that shallow groundwater exists along the I-710 Corridor in the vicinity of the Dominguez Gap and the Los Angeles Harbor area along Alameda Street, south of Pacific Coast Highway, and in the vicinity of Henry Ford Avenue. Although shallow groundwater was found in the above-mentioned adjacent areas, further investigation would be need to be conducted for subsequent environmental planning studies, via observation wells, to determine if shallow groundwater areas exist in the study area.

It is also important to note that water recharge areas are provided by a combination of permeable areas including spreading facilities, yards, parks, utility rights-of-way, and water recharge areas within the Rio Hondo River and Los Angeles River rights-of-way. The Los Angeles County Department of Public Works (LADPW) operates 2,436 acres of spreading grounds and soft-bottom channel spreading areas for replenishment of local groundwater supplies. Spreading facilities located within the project study area include the Dominguez Gap and Rio Hondo Coastal Spreading Facilities. A search of the U.S. Department of Transportation, Federal Highway Administration website (2002) indicates that the I-710 study area is not designated as having sole-source aquifers.

Impacts Evaluation

Adverse impacts could occur if the hydrology of the river system is affected. In cases where portions of the proposed build alternatives cross the Los Angeles River and Compton Creek, pier walls would be constructed or lengthened, which could raise the water level in those areas. In addition, the final phase of flood control improvements implemented by the Corps for the Los Angeles River was completed in December 2001. Reconstruction of overcrossings, on- and off-ramps, and construction of elevated portions of the freeway may affect areas identified within existing as well as these newly defined floodplain zones. Any redevelopment activity related to the proposed transportation improvements has the potential to impede or redirect flood flows and each redevelopment project will need to be evaluated to ensure they do not adversely impact flooding. Portions of the build alternatives that cross or modify the channel could adversely impact the hydrology of the river to sustain flood flows.

In addition, during construction of freeway improvements, there would be an increased potential for silt erosion and sediment transport due to grading and removal/addition of vegetation. Implementation of best management practices (BMPs) for erosion and storm-water pollution control, in accordance with the National Pollution Discharge Elimination System (NPDES) and compliance with all RWQCB water quality standards and waste discharge requirements would reduce potential impacts on drainage patterns and erosion to less than significant. Specific short-term and long-term erosion control measures prepared and implemented for the proposed transportation improvements would reduce potential impacts from erosion and siltation to less than significant on the Los Angeles River and Compton Creek.

The environmental screening analysis for the I-710 Study identified potential impacts to water resources in the I-710 Study Area attributable to each alternative as well as specific transportation components within the build alternatives. Alternatives A and B would not result in any additional potential impacts to hydrology or water quality beyond what has already been studied for previously approved projects. Each of the build alternatives has the potential to impact water resources within the I-710 Study Area. Tables 5.4-13, 5.4-14, and 5.4-15 highlight the potential impacts for Alternatives C, D, and E. Potential impacts associated with hydrology are identified as well as the estimated amount of acres of floodplain and/or wetlands that would be directly affected by the proposed transportation improvements.

All of the transportation components of these three alternatives involve construction, and thus there is potential for construction-related impacts due to erosion or siltation. The information presented in Tables 5.4-13, 5.4-14, and 5.4-15 does not incorporate the positive effects of mitigation that would be identified in subsequent environmental studies to the I-710 Major Corridor Study.

Table 5.4-13
Alternative C – Water Resources Impact Assessment

Alt. C - Transportation Elements	Potential Impacts to Water-Related Resources
<p><i>I-710 Mainline Improvements</i></p> <p>Mainline Widening</p> <p>Collector-Distributor Lane System</p> <p>Truck Inspection Facility</p> <p>I-405 Truck Bypass Lanes</p> <p>SR-91/I-105 Bypass Lanes</p> <p>Pacific Coast Highway Truck Ramps</p> <p>Washington Boulevard Truck Ramps</p>	<p>Would extend the pier walls in the Los Angeles River where I-710 crosses the LA River Channel north of Imperial Highway, thereby potentially affecting water levels in this area; 5.5 acres of floodplain affected; impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>New columns in the LA River would likely be required for this project element at some locations. Potential impact to Dominguez Gap Spreading Grounds Facility that may affect groundwater recharge; 0.7 acres floodplain affected; 0.4 acres of wetlands affected; potential for impacts during construction.</p> <p>6.2 acres of floodplain affected. Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p>
<p><i>I-710 Interchanges – Freeway</i></p> <p>I-405/I-710 Interchange</p> <p>I-5/I-710 Right Side Ramp</p>	<p>Would extend and add piers in the Los Angeles River near I-405, thereby potentially affecting water levels in this area; potential impact to Dominguez Gap Spreading Grounds Facility; potential for impacts during construction.</p> <p>Potential for impacts during construction.</p>
<p><i>I-710 Interchanges – Local</i></p> <p>Anaheim Street Braid</p> <p>Pacific Coast Highway Braid</p> <p>Willow Street Interchange</p> <p>Del Amo Boulevard Interchange</p> <p>Imperial Highway Interchange</p> <p>Florence Avenue Interchange</p> <p>Atlantic/Bandini Interchange</p> <p>Washington Boulevard Interchange</p> <p>Slauson Boulevard Interchange</p>	<p>8.7 acres of floodplain affected. Potential for impacts during construction.</p> <p>6.2 acres of floodplain affected. Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Would extend pier walls of I-710 in Compton Creek Channel, which could raise water levels; 0.2 acres of floodplain affected; impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p>
<p><i>Terminal Island Freeway Extension</i></p>	<p>Potential for impacts during construction.</p>
<p><i>Arterials</i></p>	<p>Potential impacts could occur for arterial roadway modifications along Compton Creek and the Rio Hondo River. Any construction of pier extensions and abutments built in river could cause water levels to rise. Portions of the arterials are located in the floodplain. Potential for impacts during construction.</p>

Source: Parsons Brinckerhoff, April 2003.

Table 5.4-14
Alternative D – Water Resources Impact Assessment

Alt. D - Transportation Element	Potential Impacts to Water-Related Resources
<p><i>I-710 Mainline Improvements</i></p> <p>Mainline Widening</p>	<p>Potential impact to Dominguez Gap Spreading Grounds Facility that may affect groundwater recharge; 1.3 acres floodplain affected; 0.5 acres of wetlands affected; potential for impacts during construction.</p>
<p><i>I-710 Interchanges – Freeway</i></p> <p>I-405/I-710 Interchange</p> <p>I-405/I-710 HOV Connector</p> <p>SR-91/I-710 Interchange</p> <p>I-5/I-710 Interchange</p>	<p>Would extend and add piers in the Los Angeles River near I-405, thereby potentially affecting water levels in this area; potential impact to Dominguez Gap Spreading Grounds Facility; potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Would result in new columns for this interchange in Los Angeles River, which could raise water levels; potential impact to Dominguez Gap Spreading Grounds Facility; potential for impacts during construction.</p> <p>Potential for impacts during construction.</p>
<p><i>I-710 Interchanges – Local</i></p> <p>Willow Street Diamond</p> <p>Del Amo Boulevard Diamond</p> <p>Long Beach Boulevard</p> <p>Imperial Highway Diamond</p> <p>Florence Avenue Diamond</p> <p>Atlantic/Bandini Interchange</p> <p>Washington Boulevard Interchange</p>	<p>Potential for impacts during construction.</p> <p>Would extend pier walls of I-710 in Compton Creek Channel, which could raise water levels; potential for impacts during construction.</p> <p>Would extend the pier walls in the Los Angeles River where elements of this interchange crosses the LA River Channel, thereby potentially affecting water levels in this area; potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p> <p>Potential for impacts during construction.</p>
<p><i>Terminal Island Freeway Connector</i></p>	<p>This new roadway element would cross the Dominguez Creek Channel and would result in new footings within the channel, which could impact hydrology. Groundwater resources in the area include the Domingez Gap Barrier Project, which is a program to prevent seawater intrusion into the groundwater supply. Impacts to this facility may adversely affect groundwater recharge in the area. 1.1 acres of floodplain affected; 0.3 acres of wetlands affected; potential for impacts during construction. .</p>
<p><i>Arterials</i></p>	<p>Potential impacts could occur where Garfield Ave. crosses the Rio Hondo River. Any construction of pier extensions in the river could cause water levels to rise. Portions of the arterials are located in the floodplain. Potential for impacts during construction.</p>

Source: Parsons Brinckerhoff, April 2003.

Table 5.4-15
Alternative E – Water Resources Impact Assessment

Alt E - Transportation Element	Potential Impacts to Water-Related Resources
<p><i>I-710 Mainline Improvements</i></p> <p>Exclusive Truck Facility</p> <p>I-405 Truck Ramps</p> <p>SR-91 Truck Ramps</p> <p>Firestone Boulevard Truck Ramps</p> <p>Washington Boulevard Truck Ramps</p>	<p>Would add new piers in Compton Creek and the Los Angeles River near where I-710 crosses over these two waterways, thereby potentially affecting water levels in these two areas; potential impact to Dominguez Gap Spreading Grounds Facility that may affect groundwater recharge; 14.1 acres floodplain affected; 1.1 acres of wetlands affected; potential for impacts during construction.</p> <p>Would add new piers in Compton Creek Channel near where I-710 currently crosses over, which could raise water levels; 0.8 acres floodplain affected; 0.5 acres of wetlands affected; potential for impacts during construction.</p> <p>Would add new piers in Los Angeles River near where SR-91 currently crosses over, which could raise water levels; 0.7 acres of floodplain affected; impacts during construction.</p> <p>Would add new piers in Los Angeles River, which could raise water levels; 0.7 acres of floodplain affected; potential for impacts during construction.</p> <p>Potential for impacts during construction.</p>
<p><i>I-710 Interchanges – Freeway</i></p> <p>I-405/I-710 Interchange</p> <p>SR-91/I-710 Interchange</p> <p>I-5/I-710 Interchange/ Atlantic Viaduct</p>	<p>Would add new piers in the Los Angeles River near I-405, thereby potentially affecting water levels in this area; potential for impacts during construction.</p> <p>Would add new piers in Los Angeles River near where SR-91 currently crosses over, which could raise water levels; 0.7 acres of floodplain affected; impacts during construction.</p> <p>Potential for impacts during construction.</p>
<p><i>I-710 Interchanges – Local</i></p> <p>Slauson Boulevard Interchange</p>	<p>Potential for impacts during construction.</p>
<p><i>Arterials</i></p>	<p>Potential for impacts during construction.</p>

Source: Parsons Brinckerhoff, April 2003.

5.4.10 Noise

As part of the I-710 Study, a sketch-level noise analysis was conducted for the five alternatives. Both short-term (15-minute sampling) and 24-hour noise measurements were taken next to I-710 along the Corridor to provide an assessment of existing noise levels. No detailed noise modeling was conducted for the alternatives. [Note: This level of analysis is performed during the environmental document phase of project development.] However, estimates of noise impacts were developed for each of build alternatives compared to the no build condition based on: the proposed change in the edge of roadway, locations of existing state noise barriers, anticipated vehicle mix; proximity of sensitive receivers, the proposed profile of the roadway element (e.g., elevated versus at-grade), and past noise modeling experience drawn from similar freeway projects. The sketch noise analysis conducted for the I-710 Major

Corridor Study did not take into account the effects of any noise mitigation that would be identified through detailed noise modeling to be conducted in subsequent project phases. Thus, only the potential adverse impacts of the alternatives were examined in the I-710 Study for purposes of comparing the alternatives.

The Federal Highway Administration (FHWA) and Caltrans have established criteria and protocols for determining what levels of noise impacts meet the test for significance as well as thresholds for noise abatement. FHWA's maximum exterior noise abatement criteria (NAC) is 67 dBA for sensitive receivers (e.g., residential areas, playgrounds, parks, schools, churches, libraries, and hospitals) and 72 dBA for commercial areas. In addition, according to these federal /state noise guidelines, potential noise mitigation such as sound walls would need to reduce the future noise levels on I-710 (assuming that the alternative is in place) by 5 dBA or more in order to be considered feasible.

Based on the noise measurements conducted in the I-710 Study Area, nearly all of the residential areas currently exposed to freeway noise directly adjacent to the I-710 freeway (e.g., first row receivers) exceed FHWA's NAC level of 67 dBA. Therefore, any discernable increase to noise levels on I-710 attributable to proposed transportation improvements is considered significant under federal guidelines. The term "first row" and "second row" in the noise discussion refers to parcels directly proximate to the freeway or roadway elements of the proposed alternatives. The first row is defined as those parcels (typically business or residences) directly adjacent to the freeway. The only objects between these first row parcels and the freeway could be a sound barrier and/or landscaping. The second row is defined as those parcels which are located directly behind the first row of parcels. The first row acts as a partial noise barrier for the second row as noise decreases with added distance. If, for example, the first row is removed when the freeway or arterial is widened, then the second row then becomes the first row and experiences an increase in noise levels.

Alternative A – No Build

Alternative A is a future baseline alternative consisting primarily of operational improvements and reconstruction activities that involve pavement replacement, standard shoulders, and a new median for I-710. By definition, these transportation improvements have already been planned and committed for the Year 2025. Potential noise impacts associated with these committed transportation improvements have already been studied, and mitigated as necessary.

Alternative B – TSM/TDM Alternative

Alternative B is a low impact alternative consisting of operational investments, policies, and actions targeted at improving goods movement, facilitating passenger auto and transit travel, and improving the flow of traffic in the I-710 Study Area. With the possible exception of extended Port gate hours, the strategies included in Alternative B would have no adverse effect on future noise levels on I-710 compared to Alternative A. Extended gate hours at the Ports and for related businesses may cause traffic noise levels to increase in non-peak hours, although these impacts could be offset by reductions in truck trips attributable to the empty container management strategy in Alternative B. Therefore, taken as a whole, Alternative B ranges between no noise impact and potentially low noise impact.

Alternative C – Medium General Purpose / Medium Truck Alternative

Alternative C has a high potential for adverse noise impacts. Existing noise levels in residential areas along I-710 already exceed 67 dBA and any measurable increase in noise levels (1 dBA) would be considered significant. In addition, new areas of sensitive receivers would be exposed to freeway noise levels due to the extension of the Terminal Island Freeway, the Truck Bypass Lanes, and the Collector-Distributor Lane system. Table 5.4-16 lists the different transportation elements included in Alternative C as well as a summary assessment of the potential for noise impact for each element given the presence of noise sensitive receivers and the location and configuration of the proposed transportation element. Potential noise impacts can be avoided, minimized, or mitigated by one or more of the following actions: dropping the proposed element, changing the conceptual design, or by adding noise abatement measures such as noise barriers (e.g., soundwalls) and double-pane windows.

**Table 5.4-16
Alternative C – Noise Impact Assessment**

Alt. C - Transportation Elements	Potential Noise Impacts
<p><i>I-710 Mainline Improvements</i></p> <p>Mainline Widening</p> <p>Collector-Distributor Lane System</p> <p>Truck Inspection Facility</p> <p>I-405 Truck Bypass Lanes</p> <p>SR-91/I-105 Bypass Lanes</p> <p>Pacific Coast Highway Truck Ramps</p> <p>Washington Boulevard Truck Ramps</p>	<p>Noise levels for first row sensitive receivers currently exceed 67 dBA. Mainline widening would require the relocation of at least one existing noise barrier and would remove first row receivers in some areas. Would result in an adverse noise impact without mitigation.</p> <p>Four added lanes combined with roadway widening is estimated to result in a 3-5 dBA increase for first row receivers. Some of the first row parcels would be removed and second and third row receivers will experience greater levels of noise as a result. Potentially significant adverse noise impact without mitigation.</p> <p>No sensitive receivers in the immediate area.</p> <p>Noise sensitive receivers are located to the west of the proposed ramps. Existing noise levels are due to traffic noise from Wardlow Rd. and from I-405 at the north end of this element. The proposed alignment of this element would expose these areas to freeway noise. Potential adverse noise impact without mitigation.</p> <p>The proposed southbound truck bypass lane would affect 4.8 miles of noise sensitive receivers. This element is elevated and places trucks closer to these sensitive receivers. Noise levels in areas currently protected by a noise barrier would increase, along with 2nd and 3rd row receivers and receivers above the height of the existing freeway that would have unobstructed line-of-sight to the elevated lanes. Potential adverse noise impact without mitigation.</p> <p>Proposed southbound truck ramp would require the relocation of the existing sound barrier as well as some first and second row receivers. Results in added noise exposure for remaining receivers. Potential adverse noise impact without mitigation.</p> <p>No sensitive receivers in the immediate area.</p>
<p><i>I-710 Interchanges – Freeway</i></p> <p>I-405/I-710 Interchange</p> <p>I-5/I-710 Right Side Ramp</p>	<p>No sensitive receivers in the immediate area.</p> <p>No sensitive receivers in the immediate area.</p>

Table 5.4-16 Continued
Alternative C - Noise Impact Assessment

Alt. C - Transportation Elements	Potential Noise Impacts
<p><i>I-710 Interchanges – Local</i></p> <p>Anaheim Street Braid</p> <p>Pacific Coast Highway Braid</p> <p>Willow Street Interchange</p> <p>Del Amo Boulevard Interchange</p> <p>Imperial Highway Interchange</p> <p>Florence Avenue Interchange</p> <p>Atlantic/Bandini Interchange</p> <p>Washington Boulevard Interchange</p> <p>Slauson Boulevard Interchange</p>	<p>No sensitive receivers in the immediate area.</p> <p>Proposed southbound off-ramp to Pacific Coast Hwy. would require the relocation of the existing sound barrier and the acquisition of some first and second row receivers. Results in added noise exposure for remaining receivers. Potential adverse noise impact without mitigation.</p> <p>Proposed southbound on- and off-ramps would require the relocation of the existing sound barrier and the acquisition of some first and second row receivers. Results in added noise exposure for remaining receivers. Potential adverse noise impact without mitigation.</p> <p>No sensitive receivers in the immediate area.</p> <p>Proposed interchange modification is predicted to cause a noise increase of 1 to 2 dBA to first row receivers located to the west of I-710 and to the north and south of Imperial Highway. Potential adverse noise impact without mitigation.</p> <p>Proposed interchange modification is not predicted to cause a discernable noise impact to any noise sensitive receivers.</p> <p>No sensitive receivers in the immediate area.</p> <p>Proposed interchange modification would take most of the first and some of the second row receivers, leaving remaining residences with greater noise exposure to I-710. Potential adverse noise impact without mitigation.</p> <p>No sensitive receivers in the immediate area.</p>
<p><i>Terminal Island Freeway Extension</i></p>	<p>Several residential areas are located along the proposed alignment, representing sensitive receivers. Existing noise levels are currently below the state/federal NAC because these residential areas are only exposed to traffic noise from local roads. The T.I. Freeway Extension would expose these residential areas to freeway noise, thus substantially increasing the noise level. Potential adverse noise impact without mitigation.</p>
<p><i>Arterials</i></p>	<p>Minor potential for noise impact to sensitive receivers that abut the arterials where improvements are proposed. Majority of land uses are commercial and current noise levels are well below 72 dBA. The addition of one lane in each direction may cause an increase of 1 dBA.</p>

Source: Parsons Brinckerhoff, April 2003.

Alternative D - High General Purpose / High HOV Alternative

Table 5.4-17 lists the different transportation elements included in Alternative D as well as a summary assessment of the potential for noise impact for each element given the presence of noise sensitive receivers and the location and configuration of the proposed transportation element.

Table 5.4-17
Alternative D - Noise Impact Assessment

Alt. D - Transportation Element	Potential Noise Impacts
<p><i>I-710 Mainline Improvements</i></p> <p>Mainline Widening</p>	<p>This element would entail both roadway widening and the construction of elevated HOV lanes in the median of I-710 along a major portion of the I-710 freeway. Noise levels for first row sensitive receivers currently exceed 67 dBA. Sensitive receivers along the alignment would experience increases in noise levels particularly those receivers that are above the elevation of the existing freeway that would have unobstructed line-of-sight to the elevated lanes. Would result in an adverse noise impact without mitigation.</p>
<p><i>I-710 Interchanges – Freeway</i></p> <p>I-405/I-710 Interchange</p> <p>I-405/I-710 HOV Connector</p> <p>SR-91/I-710 Interchange</p> <p>I-5/I-710 Interchange</p>	<p>No sensitive receivers in the immediate area.</p> <p>No sensitive receivers in the immediate area.</p> <p>Proposed interchange modification would result in the acquisition of several homes in the vicinity of this interchange, exposing remaining homes to freeway noise. It would also add new ramps closer to existing receivers, which would also increase noise levels. Would result in adverse noise impact without mitigation.</p> <p>Proposed interchange modification would add ramps closer to existing receivers and could result in increased noise levels of 1 to 3 dBA. Potential adverse noise impact without mitigation.</p>
<p><i>I-710 Interchanges – Local</i></p> <p>Willow Street Diamond</p> <p>Del Amo Boulevard Diamond</p> <p>Long Beach Boulevard</p> <p>Imperial Highway Diamond</p> <p>Florence Avenue Diamond</p> <p>Atlantic/Bandini Interchange</p> <p>Washington Boulevard Interchange</p>	<p>Proposed reconfiguration is not predicted to result in increased noise levels.</p> <p>No sensitive receivers in the immediate area.</p> <p>No sensitive receivers in the immediate area.</p> <p>Proposed interchange modification is predicted to cause a noise increase of 1 to 2 dBA to first row receivers located to the west of I-710 and to the north and south of Imperial Highway. Potential adverse noise impact without mitigation.</p> <p>Proposed reconfiguration is not predicted to result in increased noise levels.</p> <p>No sensitive receivers in the immediate area.</p> <p>Proposed interchange modification would take most of the first and some of the second row receivers, leaving remaining residences with greater noise exposure to I-710. Potential adverse noise impact without mitigation.</p>
<p><i>Terminal Island Freeway Connector</i></p>	<p>No sensitive receivers in the immediate area.</p>
<p><i>Arterials</i></p>	<p>Minor potential for noise impact to sensitive receivers that abut the arterials where improvements are proposed. Majority of land uses are commercial and current noise levels are well below 72 dBA. The addition of one lane in each direction may cause an increase of 1 dBA.</p>

Source: Parsons Brinckerhoff, April 2003.

Alternative D has a high potential for adverse noise impacts. Existing noise levels in residential areas along I-710 already exceed 67 dBA and any measurable increase in noise levels (1 dBA) would be considered significant. Unlike Alternatives C and E, no elements are proposed that would expose new areas of sensitive receivers to freeway noise levels. However sensitive receivers near the freeway would experience some increase in noise levels. This is particularly true of second and third row receivers who are near proposed elevated lanes and ramps or who would be exposed to added freeway noise due to the acquisition of first row receivers. Beyond the first and second row, receivers that are located above the elevation of the existing freeway would have unobstructed line-of-sight to the elevated lanes and ramps resulting in higher traffic noise. Potential noise impacts can be avoided, minimized, or mitigated by one or more of the following actions: dropping the proposed element, changing the conceptual design, or by adding noise abatement measures such as noise barriers (e.g., soundwalls) and double-pane windows.

Alternative E - High Truck Alternative

Alternative E has a high potential for adverse noise impacts. Existing noise levels in residential areas along I-710 already exceed 67 dBA and any measurable increase in noise levels (1 dBA) would be considered significant. In addition, new areas of sensitive receivers would be exposed to freeway noise levels due to property acquisitions at the freeway-to-freeway interchanges (I-405/I-710, SR-91/I-710, and I-5/I-710) and between Imperial Highway and Slauson Avenue due to the proposed elevated truckway.

Table 5.4-18 lists the different transportation elements included in Alternative E as well as a summary assessment of the potential for noise impact for each element given the presence of noise sensitive receivers and the location and configuration of the proposed transportation element. Potential noise impacts can be avoided, minimized, or mitigated by one or more of the following actions: dropping the proposed element, changing the conceptual design, or by adding noise abatement measures such as noise barriers (e.g., soundwalls) and double-pane windows.

Table 5.4-18
Alternative E - Noise Impact Assessment

Alt E - Transportation Element	Potential Noise Impacts
<p><i>I-710 Mainline Improvements</i></p> <p>Exclusive Autoway/Truck Facility</p> <p>I-405 Truck Ramps</p> <p>SR-91 Truck Ramps</p> <p>Firestone Boulevard Truck Ramps</p> <p>Washington Boulevard Truck Ramps</p>	<p>Along some stretches of the I-710 Corridor, elevated truck lanes are proposed next to and to the outside of existing travel lanes on I-710. Noise levels for first row sensitive receivers currently exceed 67 dBA. Predicted increases of noise levels to first row sensitive receivers would be 3 dBA or more. In addition, some first row receivers would be acquired, exposing second and third row receivers to added freeway noise. Beyond the first and second row, receivers that are located above the elevation of the existing freeway would have unobstructed line-of-sight to the elevated lanes and ramps resulting in higher traffic noise. Would result in an adverse noise impact without mitigation.</p> <p>No sensitive receivers in the immediate area.</p> <p>Proposed element adds ramps closer to existing receivers and could result in increased noise levels of 1 to 3 dBA. Potential adverse noise impact without mitigation.</p> <p>No sensitive receivers in the immediate area.</p> <p>Proposed interchange modification would take most of the first and some of the second row receivers, leaving remaining residences with greater noise exposure to I-710. Potential adverse noise impact without mitigation.</p>
<p><i>I-710 Interchanges – Freeway</i></p> <p>I-405/I-710 Interchange</p> <p>SR-91/I-710 Interchange</p> <p>I-5/I-710 Interchange/ Atlantic Viaduct</p>	<p>Proposed interchange modification would result in the acquisition of first and second row receivers resulting in added noise exposure for remaining receivers. Would also add new elevated ramps near to existing receivers. Potential adverse noise impact without mitigation.</p> <p>Proposed interchange modification would add ramps closer to existing receivers and could result in increased noise levels. It would also acquire several homes, exposing the remaining homes to higher levels of noise. Potential adverse noise impact without mitigation.</p> <p>Proposed viaduct would increase noise levels for sensitive receivers by bringing freeway traffic along Atlantic Boulevard at a height above the first row of buildings. At this interchange, ramps would also be placed closer to existing sensitive receivers and some first row homes would be acquired. Would result in an adverse noise impact without mitigation.</p>
<p><i>I-710 Interchanges – Local</i></p> <p>Slauson Boulevard Interchange</p>	<p>No sensitive receivers in the immediate area.</p>
<p><i>Arterials</i></p>	<p>Some potential for noise impact to sensitive receivers that abut the arterials where improvements are proposed. Majority of land uses are commercial and current noise levels are below 72 dBA. The addition of one lane in each direction may cause an increase of 1 dBA.</p>

Source: Parsons Brinckerhoff, April 2003.

5.5 Costs

Similar to the right-of-way impact analysis, costs were also assessed to establish the relative differences among the alternatives in terms of absolute cost and the cost of various components of the alternatives to support decision making for the I-710 Study. The cost estimates assume that all the transportation improvements associated with each alternative would be constructed.

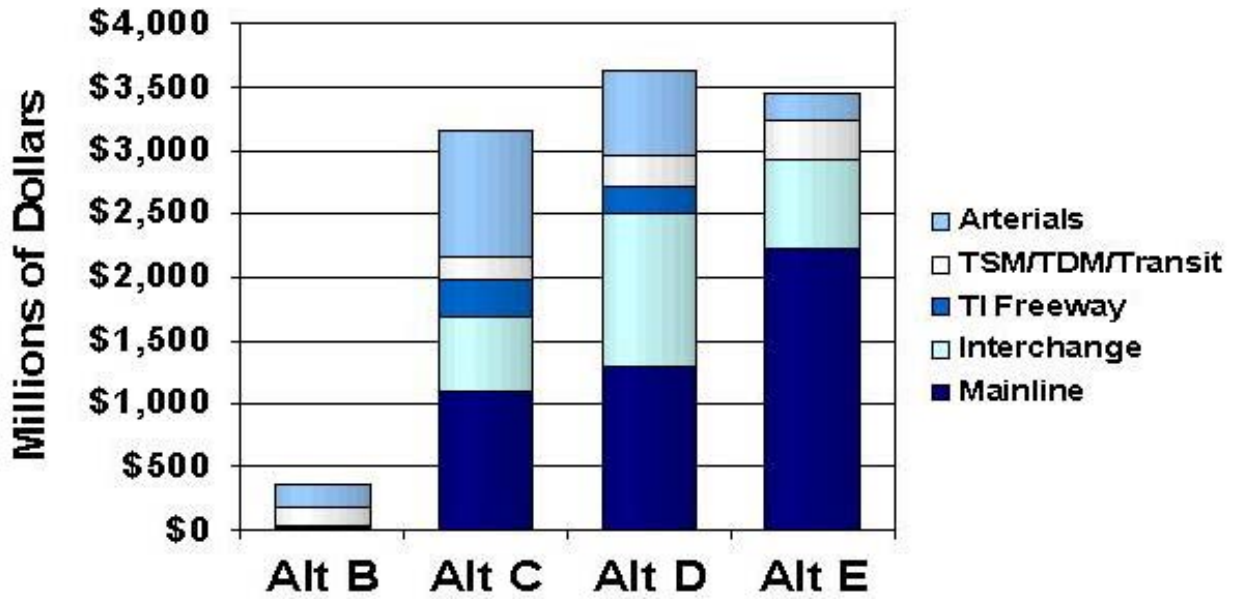
It is important to recognize that these are concept level estimates and that they will be further refined in any subsequent preliminary engineering and final design phases of project development. At this early stage in the project development process, a great deal of uncertainty exists about precisely how the proposed improvements would be constructed and eventually implemented. Consequently, average unit costs were developed for some quantities (pavement, earthwork, structures); some categories of cost were included on a per mile basis (drainage, traffic handling); and others were based on percentages of construction cost (mobilization, contingency, design). The right-of-way unit costs were developed based on a database search of recent sales in the Study Area. Due to the uncertainties at this early stage of project definition, a cost contingency factor of 50 percent was applied to the construction and right-of-way cost estimates. All costs are shown in year 2003 dollars. Appendix O of this report contains a breakdown of the estimated costs for each alternative by category.

Costs are included for those improvements that would entail an additional capital cost beyond what is already planned and committed for the I-710 Corridor. Since Alternative A, the No Build Alternative, represents the “no action” option, this alternative would not result in any additional capital expense beyond what is already planned for implementation by 2025. Thus no costs are shown for Alternative A. Cost estimates for the other four alternatives reflect the capital expenses of these alternatives over and above the No Build Alternative.

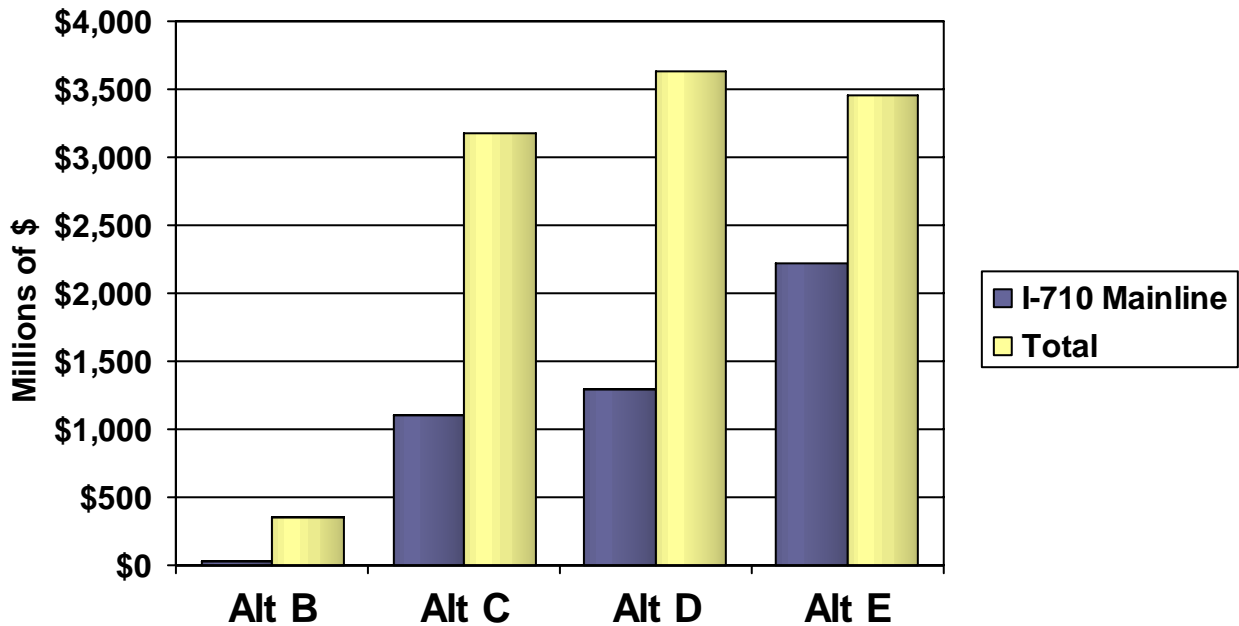
For Alternative B, the TSM/TDM Alternative, the component categories included I-710 Mainline Improvements, Interchanges and Arterials, Goods Movement, Transit, and Intelligent Transportation Systems (ITS). For Alternatives C, D and E, the component categories included I-710 Mainline Improvements, Interchanges, the Terminal Island Freeway, TSM/TDM/Transit, and Arterials. Total costs for Alternative B were estimated at approximately \$355 million, \$3.2 billion for Alternative C, \$3.6 billion for Alternative D, and \$3.5 billion for Alternative E (2003 dollars).

The costs were compared in various ways to illustrate the differences between the alternatives. A comparison of the total cost shows that Alternative D had the highest total cost (Figure 5.5-1). A comparison of the mainline costs relative to the total costs shows that the Alternative E mainline concept would be the highest total cost, twice the cost of the Alternative C mainline, and almost twice the cost of the Alternative D mainline (Figure 5.5-2). The Alternative E mainline design concept is largely comprised of a new, four-lane structure 17.5 miles long for the proposed truckway and autoway. Construction of that much structure would be very costly. The Alternative C and D mainline design concepts provide for more of the construction at grade and less on structure, thus resulting in a lower mainline cost element.

**Figure 5.5-1
Total Cost Comparison**

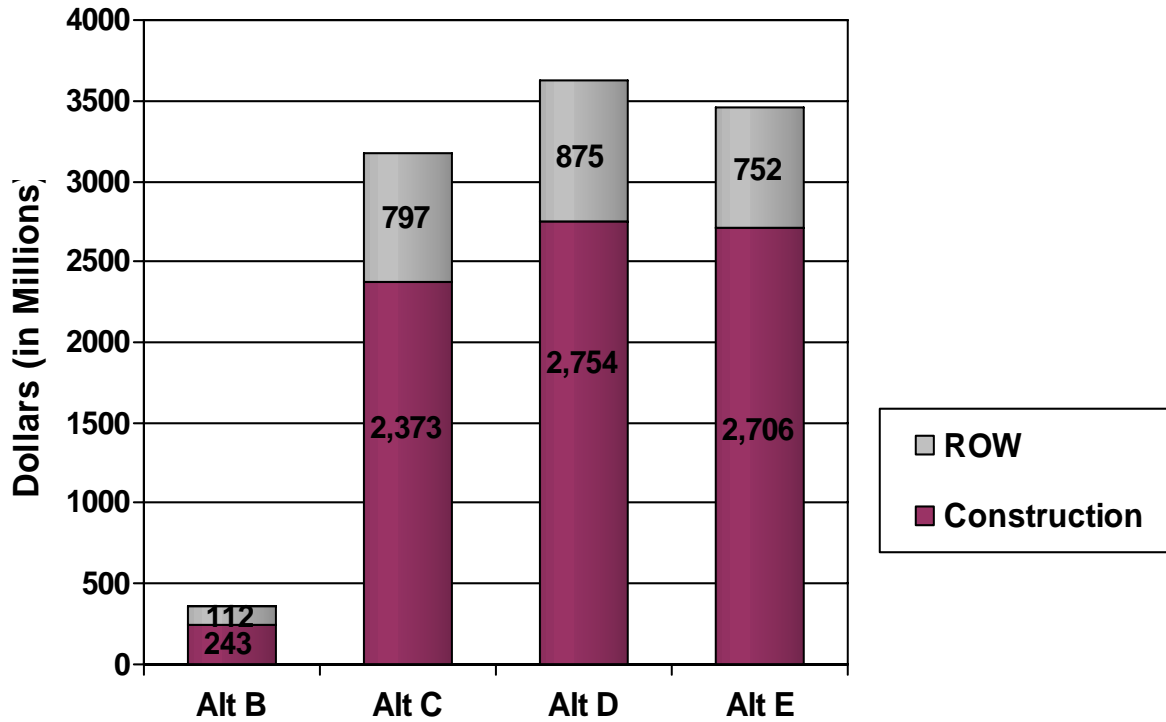


**Figure 5.5-2
I-710 Mainline vs. Total Cost Comparison**



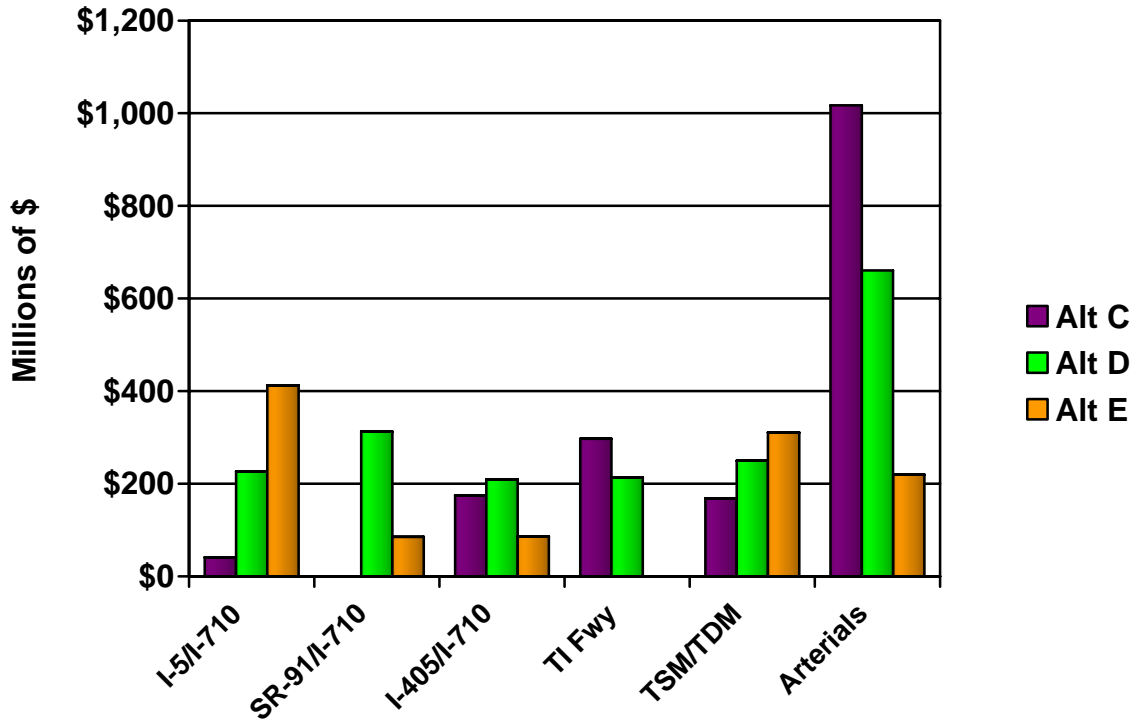
Right-of-way costs for Alternative B were estimated at \$112 million associated with the assumed off-street replacement of on-street parking that would be removed from arterials during the peak periods. Right-of-way costs for the three build alternatives ranged from approximately \$752 million to approximately \$875 million (2003 dollars) (Figure 5.5-3).

**Figure 5.5-3
Construction vs. Right-of-Way Cost Comparison**



The different alternatives include different design options for several of the transportation facility components (Figure 5.5-4). The costs for the three freeway-to-freeway interchanges, I-5/I-710, SR-91/I-710, and I-405/I-710, vary with the complexity and degree of benefit of the proposed improvements across the alternatives. The proposed extension of the Terminal Island Freeway in Alternative C would have a higher cost than the Alameda Street/TI connector proposed in Alternative D. The TSM/TDM/Transit costs are lowest for Alternative C because more of the TSM/TDM/Transit-type of improvements are already included in the I-710 mainline, interchange and arterial components of Alternative C than any other alternative. This is also evidenced by the fact that the proposed arterial improvement costs for Alternative C are considerably higher than those of the other alternatives.

**Figure 5.5-4
Component Cost Comparison**



5.6 Public and Community Input

The Alternatives Evaluation phase of the public involvement process for the I-710 Study involved conducting outreach to stakeholders and gathering feedback regarding the final set of five alternatives (refer to Section 2.4). The goal of this phase of the I-710 Study was to identify a Locally Preferred Strategy based on the best combination of transportation elements drawn from the Final Set of Alternatives.

The outreach process contacted and met with elected officials at all levels of government along the Corridor, as well as with numerous community, business, and environmental groups regarding the five alternatives. Once the potential impacts of the alternatives, including potential right-of-way acquisition requirements became known, the previously approved outreach strategy was revised to go beyond what is typically undertaken for a Major Corridor Study to ensure that all stakeholders would have an opportunity to review study information, including right-of-way impacts, as well as provide feedback on the Final Set of Alternatives. Details of the outreach process and public and community input summarized in this section can be found in the *I-710 Major Corridor Study – Final Set of Five Alternatives Issues Analysis* (October 2003.)

5.6.1 Public and Community Outreach Opportunities

Throughout the Alternatives Evaluation phase of the I-710 Study, meetings with key community organizations along the Corridor, as well as all other groups interested in receiving a

presentation were held. These organizations were invited to participate in the process as soon as the Final Set of Alternatives was selected and approved by the OPC. After each presentation, groups were given the opportunity to ask questions and submit oral or written comments regarding the alternatives.

A mailing was conducted in October 2002 inviting local elected officials and interested stakeholders to request individual or group briefings regarding the five alternatives. Targeted outreach efforts were also directed towards churches and schools throughout the I-710 Corridor. After the mailing, all churches and schools in the stakeholder database received follow-up calls asking if their organizations were interested in receiving a briefing regarding the Final Set of Alternatives. Briefings were then held with all interested stakeholders.

As additional information was developed and became available regarding the potential impacts of each of the five alternatives, it became crucial to ensure that local environmental groups had ample opportunities to provide feedback about the I-710 Study, as well as any potential impacts that would need to be addressed further in subsequent environmental analyses. A meeting for the environmental community was held in January 2003. Attendees were first given an overview presentation regarding the alternatives. At the conclusion of the presentation, all those present had the opportunity to ask questions and submit comments regarding the alternatives.

Roundtable sessions, with the goal of bringing members of similar stakeholder groups (e.g. community groups, business groups, transportation groups, etc.) together to review and exchange information, were held for this study phase in mid April 2003 to discuss the final set of five alternatives. These meetings provided the public another opportunity to provide comments regarding the alternatives.

A total of three Open Houses regarding the I-710 Major Corridor Study Final Set of Alternatives were held at the end of April 2003 in the cities of Long Beach (south Corridor), Bell Gardens (mid-Corridor), and in the unincorporated area of East Los Angeles (north Corridor). The open house format was used to facilitate the exchange of information with the general public, as well as allow for interaction with the study agencies and their consultants. As a result of concerted outreach efforts, attendance at each of the open houses ranged from 100 to 400 people.

Finally, community meetings were held in the most potentially impacted cities along the Corridor to offer local residents and businesses another opportunity to review and comment on the Final Set of Alternatives. Impacted cities are those that were identified as having the greatest amount of right-of-way impacts among the three build alternatives, and included Commerce, unincorporated East Los Angeles, Long Beach, and Bell Gardens.

5.6.2 Public and Community Feedback

The key issues and themes identified throughout this phase of the public involvement process were: concerns about the large amount of proposed property acquisitions and relocation among the proposed build alternatives, environmental and health concerns, concerns about environmental justice, and perceived shortcomings in the public outreach for the I-710 Study. Each of these issues is elaborated below.

Property Acquisition/Relocation—The majority of residents, business leaders, and elected officials along the Corridor expressed strong dissatisfaction with the amount of residential and

commercial property that would need to be acquired for the implementation of the build alternatives. Some of the property that could be acquired would include homes, businesses, parks, schools, and churches. There was also a pervasive feeling among the public that property owners would not receive adequate compensation for their properties in an acquisition process. There were also significant concerns regarding the impacts to their communities of the magnitude of the proposed property acquisitions.

Environmental/Health Concerns—Many stakeholders were concerned that construction of any of the alternatives and the additional truck traffic that is expected on I-710 will lead to increases in dust, smog, noise, and diesel emissions in the communities adjacent to the freeway. Increased cancer risks from diesel toxins and increased incidence of respiratory diseases were also a major concern of stakeholders throughout the I-710 Study Area.

Environmental Justice—Most of the residents living along the I-710 freeway are members of minority groups, and as such, feel that their communities will be unfairly impacted by any of the build alternatives. They would prefer to see further studies conducted to ensure that all potential negative impacts to their communities can either be avoided or sufficiently mitigated.

Public Outreach— An open house format was used for disseminating Final Set of Alternatives related information to the public. This format was chosen to ensure that all stakeholders had the opportunity to view project study maps and displays, and to speak with study team members one-on-one. In response to the stated preference for formal meetings over the open house format, by some stakeholders, such meetings were held in each potentially impacted city. At these meetings, the stakeholders were able to receive presentations regarding the I-710 Study, and formally interact with study staff in a group setting.

As a consequence of the high level of public and community concern voiced about the Final Set of Alternatives, the MTA Board and the I-710 Oversight Policy Committee (OPC) directed agency staff to undertake a revised community engagement process. The goal of this revised process was to develop a community consensus on a Hybrid Strategy for the I-710 Major Corridor Study. The revised process is discussed in Section 2.0 of this report and public feedback during the steps taken to develop a Hybrid Design Concept, operational and policy Improvements, and ultimately the Locally Preferred Strategy is summarized in Sections 6.1, 7.0, and 9.0 of this report.

6.0 DEVELOPMENT OF A HYBRID STRATEGY

In response to the community concerns and opposition to the Build Alternatives (C, D, and E) of the Final Set of Alternatives, the MTA Board passed a motion and the I-710 Oversight Policy Committee adopted Guiding Principles and directed staff to continue to work with the affected communities and other stakeholders to develop a Hybrid Strategy that would be acceptable to them, while meeting the adopted Purpose and Need of the I-710 Corridor. This Hybrid Strategy would have both operational and policy elements, as well as proposed physical infrastructure improvements. This section describes the development and content of the Hybrid Strategy, as well as an assessment of its impacts and financing.

6.1 Revised Study Direction

After learning of concerns regarding proposed right of way impacts and health and air quality issues voiced by residents and other stakeholders during the public outreach on the Final Set of Alternatives during the Spring of 2003, the MTA Board adopted a motion by Board member Molina at their May 2003 meeting that stated the following:

I move that the MTA staff express their preference for Alternative B, the TSM/TDM alternative, to the I-710 Corridor Technical Advisory Committee (TAC) and the Oversight Policy Committee (OPC) and work with the various entities to develop a hybrid alternative using elements from Alternative C, D, and E that results in meaningful improvements to the corridor without impacting residences and businesses.

Furthermore, I move that the staff urge the TAC and OPC to remove from consideration the design elements of Alternatives C, D and E that result in acquisition of business and residential parcels. Staff should continue working with the TAC, OPC and Gateway Cities COG to identify improvements to the I-710 freeway that do not rely solely on cost and that explore non-standard design methods.

Additionally:

- 1) Form advisory committees in key areas along the Corridor where current design alternatives require the acquisition of large amounts of private property. These committees should be comprised of residents and business owners and staff should work with local jurisdictions to identify members. The establishment of these committees should begin immediately.*
- 2) And report back on the use of rail, specifically the Alameda Corridor, as a method of moving cargo to and from the ports. The report should include possible policies and incentives in order to further promote rail usages as the preferred method of transportation to and from the ports.*

Source: MTA Board Meeting Minutes, May 22, 2003.

The May 2003 MTA Board Action placed renewed emphasis on community outreach through the formation of community advisory committees. In response, MTA staff worked with the approval of their Planning and Programming Committee to modify the I-710 Major Corridor Study Scope of Work to enhance the public outreach process and add a task (Task 9.0) to address the creation of a Hybrid Alternative (June 18, 2003). In order to keep the change to the Scope of Work cost neutral, technical activities related to the development of three Project Study Reports (Task 8.0) were eliminated from the Scope of Work.

The I-710 Oversight Policy Committee (OPC), also cognizant of community concerns regarding the Final Set of Alternatives, adopted a set of Guiding Principles at their May 28, 2003 meeting that further elaborated on the MTA motion and provided guidance to the development of a Hybrid Strategy for the I-710 Corridor. Refer to Section 3.3 of this report for the text of the Guiding Principles. The OPC created two tiers of Community Advisory Committees to advise the OPC on the development of the Hybrid Strategy. The following section describes this community engagement process that helped lead to the development of a Hybrid Design Concept for I-710.

6.2 Community Engagement

As discussed in Section 2.5 of this report, at the direction of the OPC, Tier 1 Community Advisory Committees (CACs) were formed for each of the communities that border the I-710 freeway to advise the study team on the development of a Hybrid Strategy. These cities would have potential right-of-way impacts created by the build alternatives (C, D, and E) of the Final Set of Alternatives. These CACs primarily focused on key issues that affected their communities including health, environmental, quality of life, safety, and mobility issues, as well as economic development and land use issues.

To assist with the formation and coordination of these Tier 1 CACs, MTA and the Gateway Cities COG retained a consultant, Moore, Icofano, Goltsman, Inc. (MIG), to facilitate meetings of these committees. The Gateway Cities COG also retained an engineer to assist the Tier 1 CACs in the development of their recommendations for improvements to the I-710 freeway and the transportation system in the surrounding study area.

MIG facilitated the formation and meetings of the Tier 1 CACs representing the communities of: Carson, Compton, Lynwood, Bell Gardens, Commerce, and East Los Angeles. The Gateway Cities COG engineer worked with these Tier 1 CACs as well as the South Gate Tier I CAC to help develop a Hybrid Strategy.

Rather than form a Tier 1 CAC, the City of Long Beach formed an I-710 Oversight Committee comprised of the three city council members whose districts border the I-710 freeway. The City of Long Beach also retained consultants for facilitation (DSO) and engineering (MMA) to support its separate community outreach process, leading to the development and adoption by the Long Beach City Council of their portion of the Hybrid Strategy. "Long Beach City Council I-710 Oversight Policy Committee, Summary of Outreach" (September 2004), included in Appendix E of this report, provides a summary of the concerns and recommendations elicited by this process.

Each of the Tier 1 CACs met numerous times and developed a list of their issues and concerns, along with a list of the recommendations for improvements to the I-710 freeway and the surrounding study area. Appendix E of this report contains a detailed summary of the

issues, concerns and recommendations from the Tier 1 CACs that just relate to the improvements to the I-710 freeway. There were a number of similar and common issues, concerns, and recommendations developed by these Tier 1 CACs that were applied to the development of the Hybrid Design Concept and include the following:

- Separate cars and trucks as much as possible.
- Minimize elevated structures.
- Keep trucks at grade as much as possible.
- Move the existing centerline of the freeway to take advantage of adjacent property that will minimize impacts to existing homes, parks and businesses.
- Minimize (or eliminate) property impacts required to improve the I-710 freeway.
- Use "diamond" type interchange designs to modify some existing interchanges to reduce property impacts at these interchanges.
- Keep trucks away from existing homes as much as possible.
- Use the adjacent river to construct additional lanes for the freeway.
- Relocate utility systems adjacent to the freeway to provide space to improve the freeway.
- Keep trucks off local streets.
- Extend any improvements of the I-710 freeway past the SR-60 freeway.
- Include landscaping and aesthetic treatments in any improvements to the I-710 freeway to beautify the freeway.
- Construct soundwalls at all sensitive receptive locations.
- Consider safety in all design improvements.
- Do not extend the Terminal Island Freeway to the I-710/1-405 interchange (but consider such elimination impacts to the City of Carson).
- Provide a truck inspection facility.
- Consider limiting trucks on the I-710 freeway during peak hours and encourage the ports to provide extended hours of operation for truck movements.
- Consider the "Bandini Alternative" at the I-5/I-710 interchange to reduce the impacts at this location.
- Consider constructing elevated HOV lanes on the I-5 freeway north and south of the I-710 freeway to reduce adjacent property impacts.
- The communities along the freeway should benefit economically from the construction of the improvements in the corridor during and after construction.

The preceding list shows how similar the design issues, concerns and recommendations were for all eight of the Tier 1 CACs. The list of general issues, concerns and recommendations presented above, along with the specific local issues, concerns and recommendations developed by each Tier 1 CAC contained in Appendix E were used to prepare and refine the Hybrid design concept with each of the Tier 1 CACs. After reviewing the lists contained in Appendix E, preliminary design concepts for their respective segments of I-710 were developed and presented to each Tier 1 CAC for their review and comment. [Note: due to the design complexity and great potential for right-of-way impacts associated with improvements to the I-710/I-5 interchange area, the East Los Angeles and Commerce Tier 1 CACs are still working on their recommendations for I-710 between Atlantic/Bandini Boulevard and SR-60 via a "mini-corridor study" to be completed prior to kicking off the environmental phase of the overall Hybrid Strategy for I-710.] Based on the reviews conducted over numerous meetings

with each Tier 1 CAC, a design concept for the I-710 Hybrid Strategy was formed. The Draft Hybrid Design Concept is presented in Section 6.3.

6.3 Hybrid Design Concept

The community participation phase of the development of the Hybrid Strategy generated a significant number of comments on those physical features that were viewed as providing future improvement on I-710. These physical features were combined and coordinated to develop the I-710 Draft Hybrid Design Concept. As described above, the GCCOG engaged an engineering consultant to work with the Tier 1 CACs to develop a design concept for the I-710 that meets the Purpose and Need for the I-710 Corridor as well as address community issues and concerns and meets the MTA Board's and OPC's guiding principles. The summary information on the Draft Hybrid Design Concept provided throughout this report is drawn from the *I-710 Major Corridor Study "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report* (Gateway Cities Council of Governments, April 2004), which is included in Appendix P.

The purpose of the I-710 Draft Hybrid Design Concept is to provide infrastructure improvements to I-710 focused on improving safety; increasing capacity for growing heavy duty truck demand; increasing capacity for high general-purpose traffic demand; improving reliability of travel times; and separating autos and trucks to the greatest extent possible while limiting direct and indirect right-of-way impacts. The Draft Hybrid Design Concept is comprised of 10 general-purpose traffic lanes, 4 exclusive truck lanes, and interchange improvements from Ocean Boulevard in Long Beach to the intermodal railroad yards in Commerce/Vernon. It is important to note that proposed improvements to the segment of I-710 between Washington Boulevard and SR-60 are still under study due to the design complexities and potential right-of-way impacts in the vicinity of the I-710/I-5 interchange.

The I-710 Draft Hybrid Design Concept is comprised of the following components (also refer to Figure 6.3-1):

Exclusive Truck Facility on I-710

- 4 lanes (2 in each direction) mostly at-grade between Ocean Boulevard and the intermodal rail-yards in Vernon/Commerce, with the truck lanes being elevated at the following locations: near the SR-91 interchange; north of I-105 near Imperial Highway; and north of Slauson Avenue
- dedicated ingress/egress points for trucks at selected locations: north of Ocean Boulevard (ingress northbound, egress southbound); north of I-405 (ingress northbound, egress southbound); SR-91 interchange (NB I-710 to EB SR-91, WB SR-91 to SB I-710, EB SR-91 to NB I-710, and SB I-710 to WB SR-91); south of Firestone Boulevard (ingress southbound, egress northbound); and north of Atlantic/Bandini Boulevard (ingress southbound, egress northbound)
- horizontal alignment is generally as follows:
 - split on both sides of I-710 from Ocean Boulevard to north of Pacific Coast Highway (Figure 6.3-2)
 - decked over I-710 for a short stretch north of Pacific Coast Highway to Willow Street (Figure 6.3-3)

- on the east side of I-710 from north of Pacific Coast Highway to south of Imperial Highway, largely (though not entirely) within the existing State right-of-way or the Southern California Edison right-of-way (Figures 6.3-4 and 6.3-5)
- decked over the northbound I-710 for a short stretch south of Imperial Highway (Figure 6.3-6)
- on the west side of I-710 from Imperial Highway to Gage Avenue (Figures 6.3-7 and 6.3-8)
- on the east side of I-710 from Gage Avenue to Bandini Boulevard
- split on both sides of I-710 from Bandini Boulevard to south of Washington Boulevard

General Purpose Traffic Improvements on I-710

- one additional general purpose lane in each direction from Ocean Boulevard to the Shoemaker Bridge
- two additional general purpose lanes in each direction from Shoemaker Bridge to I-405
- one additional general purpose lane in each direction from I-405 to Atlantic Boulevard
- shifting the freeway centerline at various locations between Shoemaker Bridge and Atlantic Boulevard to attempt to minimize right-of-way impacts

Interchange Improvements – Truck-Related

- add a truck interchange on the exclusive truck facility providing a northbound exit ramp and a southbound entrance ramp viaduct for trucks only along Sheila Street south of Washington Boulevard providing direct access to/from the UP and BNSF rail yards; also provide a southbound exit ramp and a northbound entrance ramp using the viaduct from the rail yards

Interchange Improvements – General Purpose Traffic

- eliminate some of the design deficiencies at I-405/I-710 and SR-91/I-710 interchanges
- reconfigure approximately 13 local access interchanges between and including Ocean Boulevard at Shoreline Drive in Long Beach and Atlantic Boulevard/Bandini Boulevard in Vernon/Bell
- add one new interchange (Slauson Avenue)
- eliminate freeway access at 9 locations:
 - entrance from 7th Street to SB Shoreline Drive (1 ramp)
 - connection from Shoemaker Bridge to Pico Avenue (1 ramp)
 - connection from Pico Avenue to Shoemaker Bridge (1 ramp)
 - SB exit to and NB entrance from Wardlow Road at I-710 (2 ramps)
 - NB and SB I-710 to Santa Fe Avenue (1 ramp)
 - exit from WB SR-91 to Alondra Boulevard (1 ramp)
 - exit from EB SR-91 to Cherry Avenue (1 ramp)
 - WB exit to and EB entrance from Atlantic Boulevard at SR-91 (2 ramps)
 - all ramps at Washington Boulevard (4 ramps)

Note that the community engagement process to reach consensus on the I-710 Draft Hybrid Design Concept north of Washington Boulevard is still underway with Commerce and East Los Angeles and therefore proposed improvements to this segment are yet to be defined.

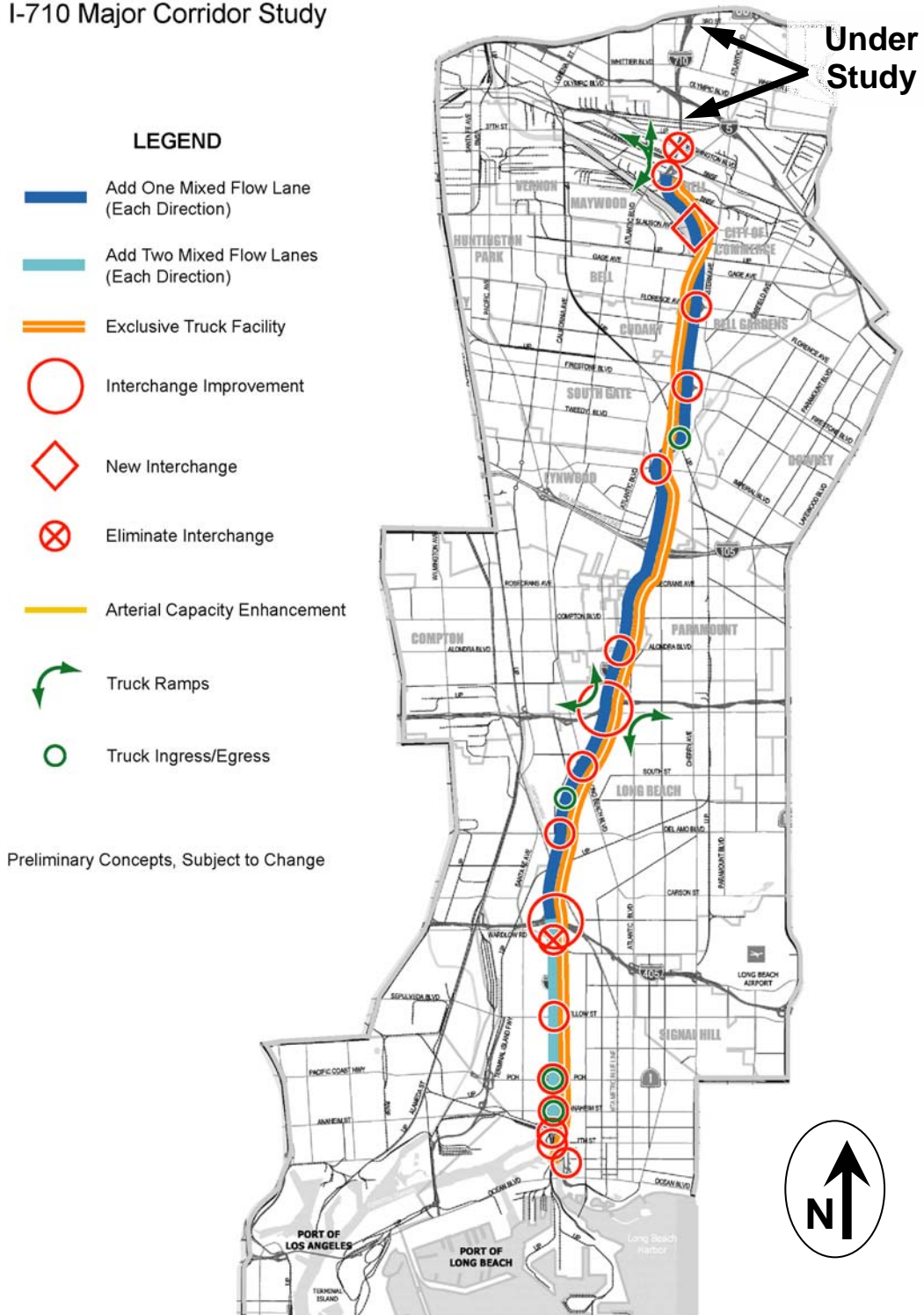
Caltrans standards were considered during the development of the Draft Hybrid Design Concept. However, the standards could not be met at all locations and Caltrans/FHWA approval of design exceptions will be needed to implement the geometric design as currently

proposed. If the design exceptions are not acceptable to Caltrans/FHWA, then the geometric designs at certain locations will have to be restudied and the design modified. Any changes to the design and their potential impacts will need to be reviewed with the affected communities to ascertain whether a consensus can be maintained on the design concept that is acceptable to Caltrans, FHWA, and other agencies whose facilities and operations are impacted by the design.

Figure 6.3-1

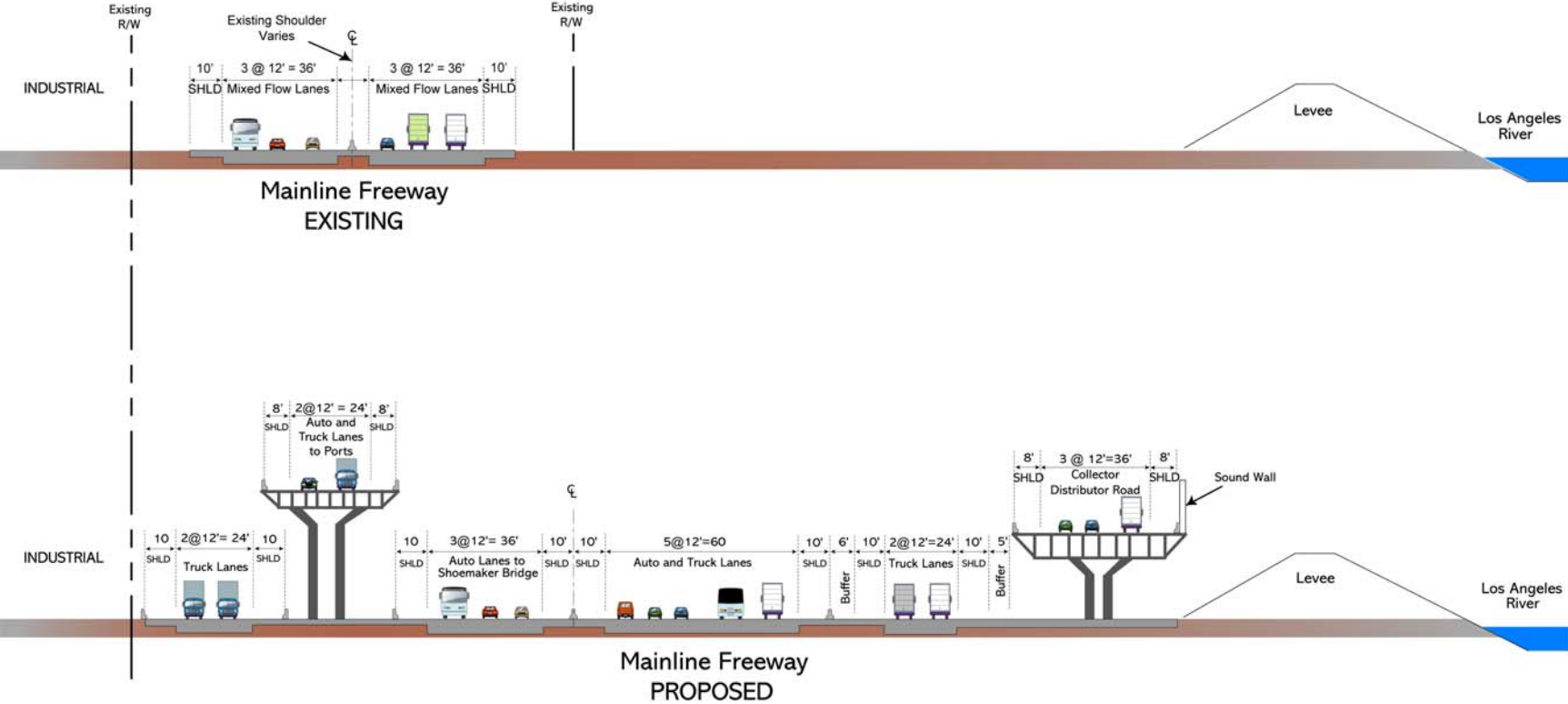
I-710 Draft Hybrid Design Concept

I-710 Major Corridor Study



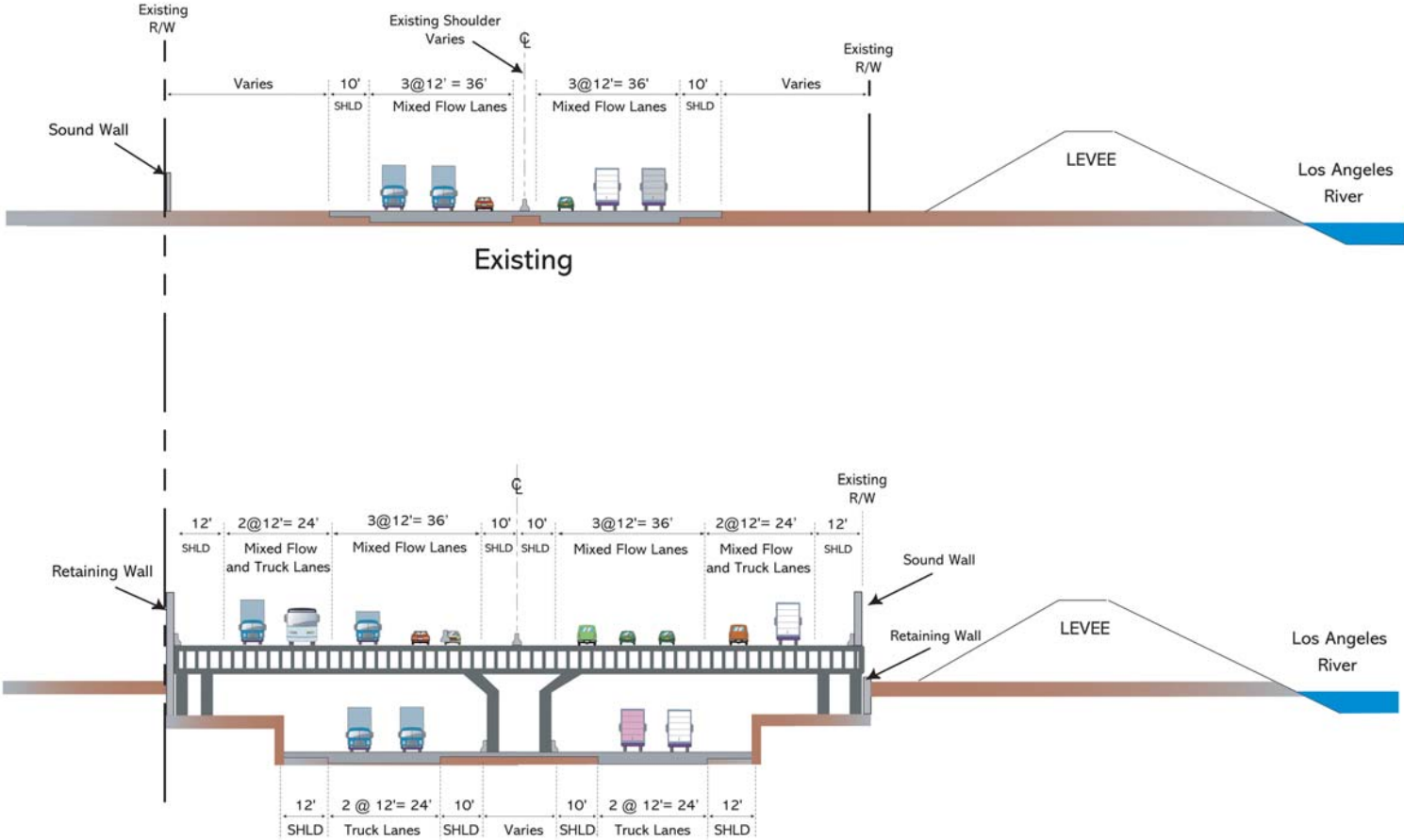
Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc. April 2004.

Figure 6.3-2
Draft Hybrid Design Concept
Typical Section between Anaheim Street and Pacific Coast Highway



Source: "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report (Gateway Cities Council of Governments, April 2004)

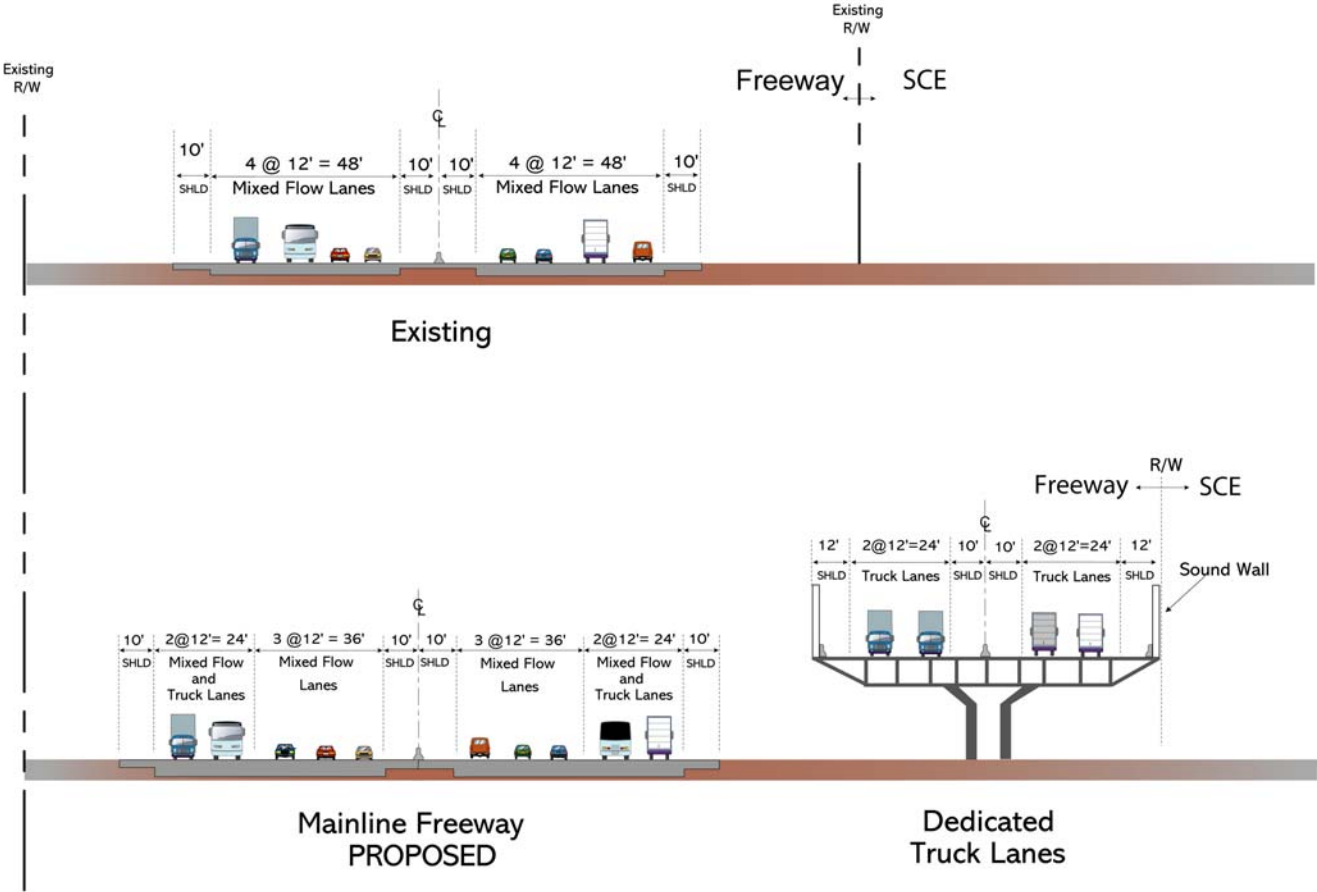
Figure 6.3-3
Draft Hybrid Design Concept
Typical Section between Pacific Coast Highway and Willow Street



(Proposed Depressed)

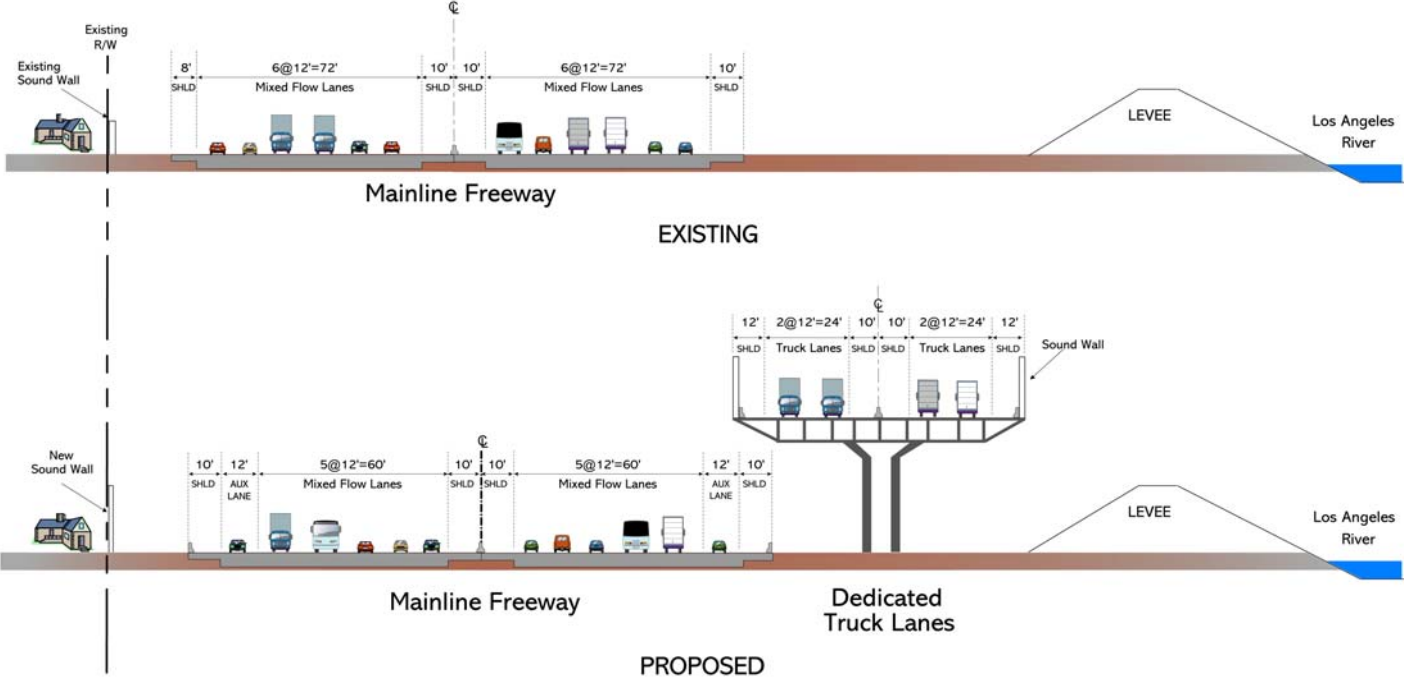
Source: "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report (Gateway Cities Council of Governments, April 2004)

Figure 6.3-4
Draft Hybrid Design Concept
Typical Section North of Del Amo Boulevard



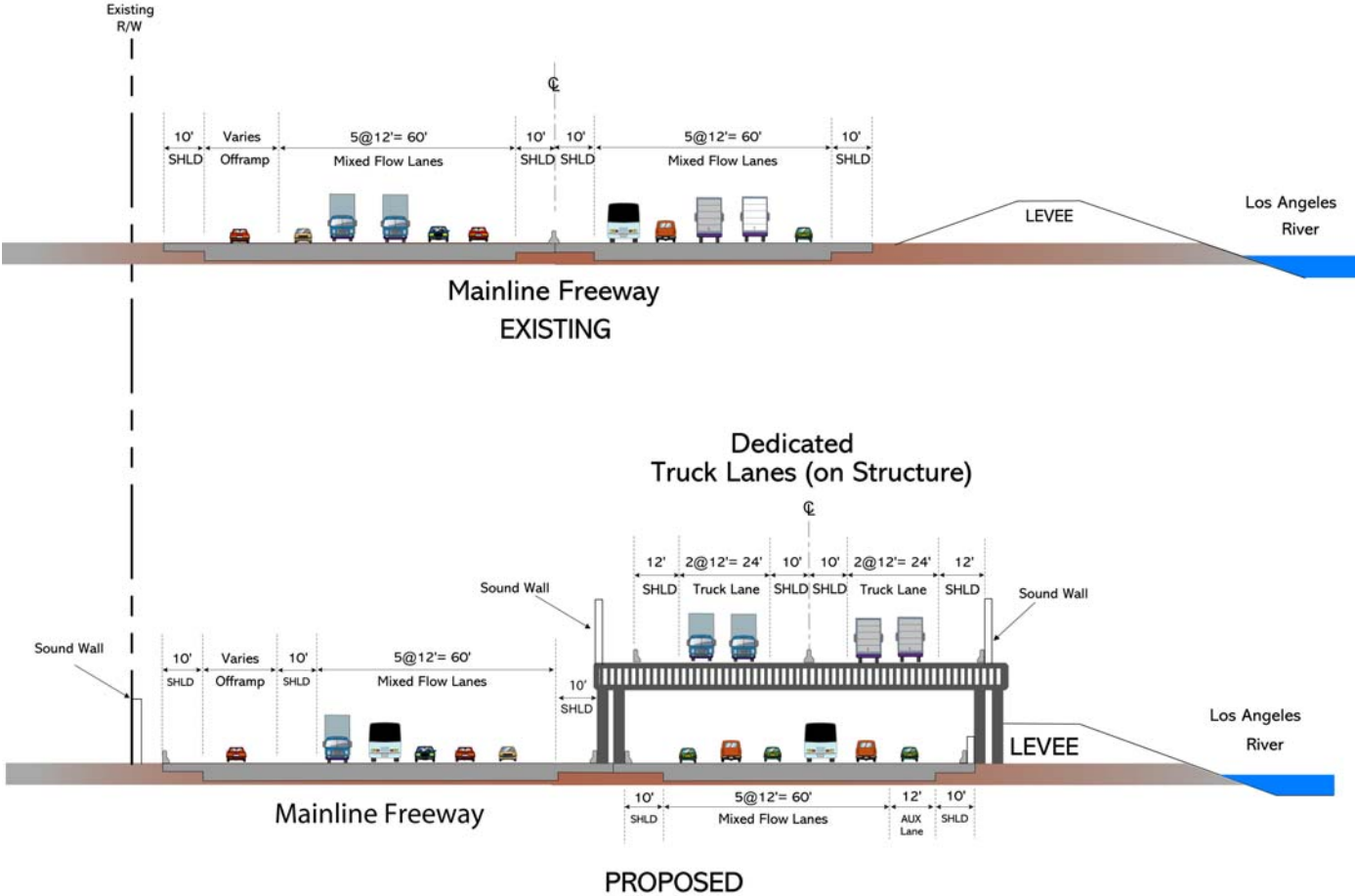
Source: "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report (Gateway Cities Council of Governments, April 2004)

Figure 6.3-5
Draft Hybrid Design Concept
Typical Section between Alondra Boulevard and Rosecrans Avenue



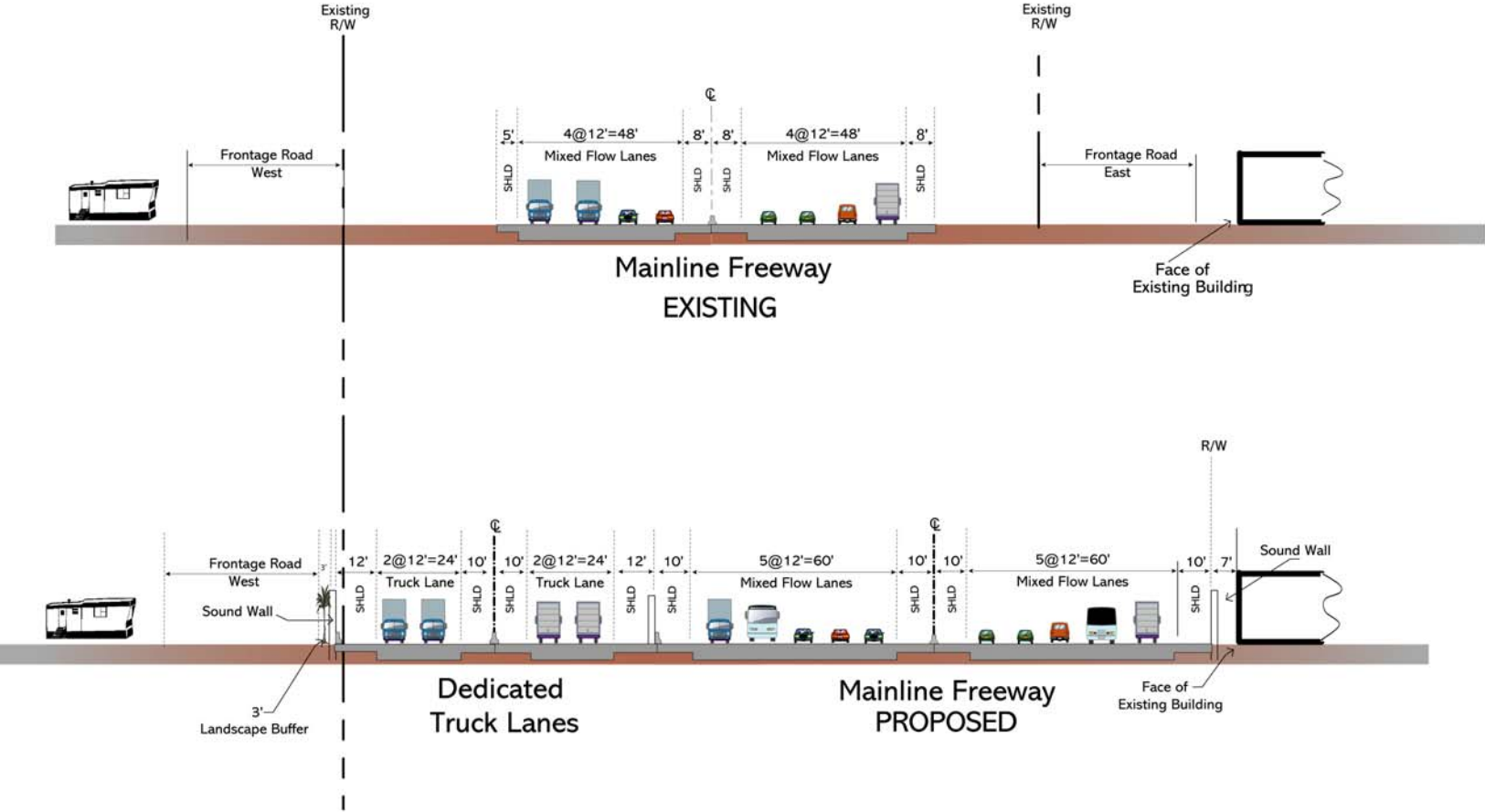
Source: "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report (Gateway Cities Council of Governments, April 2004)

Figure 6.3-6
Draft Hybrid Design Concept
Typical Section South of Imperial Highway



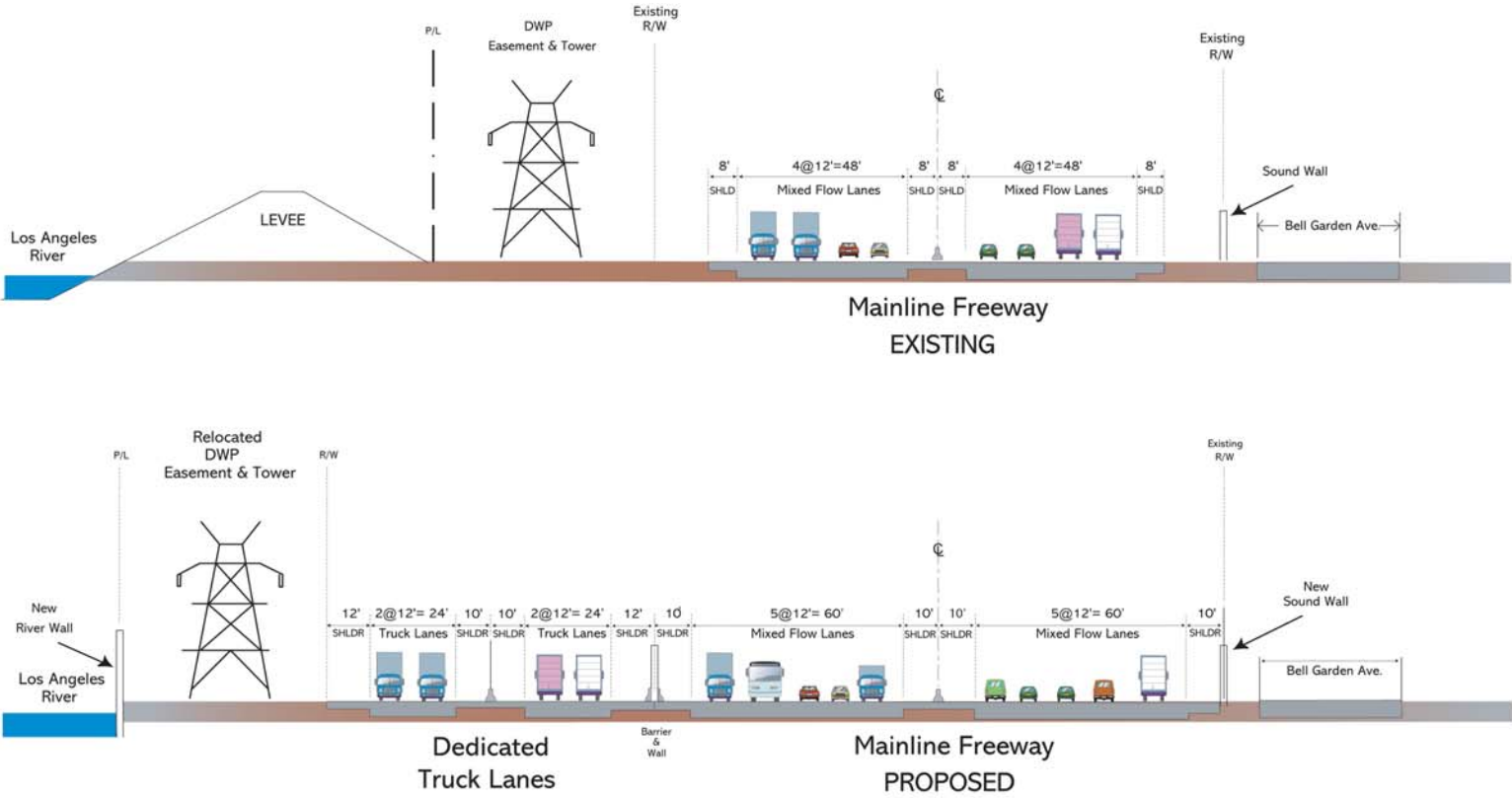
Source: "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report (Gateway Cities Council of Governments, April 2004)

Figure 6.3-7
Draft Hybrid Design Concept
Typical Section between Imperial Highway and Firestone Boulevard



Source: "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report (Gateway Cities Council of Governments, April 2004)

Figure 6.3-8
Draft Hybrid Design Concept
Typical Section between Firestone Boulevard and Florence Avenue



Source: "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report (Gateway Cities Council of Governments, April 2004)

6.4 Right-of-Way Impact Analysis

As right-of-way impacts of proposed I-710 improvements are of great concern to the public, MTA Board, and OPC, right-of-way impacts were assessed for the I-710 Draft Hybrid Design Concept. The precision of this right-of-way impact analysis is governed by the conceptual level of engineering design of the Draft Hybrid Design Concept, which is appropriate for this stage of project planning.

Based on aerial photography and topographic information, the approximate number of structures that would be impacted was assessed, as well as the total acreage that would be impacted by the Draft Hybrid Design Concept. Each potentially impacted structure was assigned to a specific land use category to provide an understanding of what kind of structures were being impacted. The land use categories are residential, commercial/industrial, railroad, power/utility, environmentally sensitive, or undeveloped land uses. The estimated number of impacted structures in each affected city is shown in Table 6.4-1. The City of Long Beach would have the greatest number of impacted structures, which is related to the fact that Long Beach encompasses the largest portion of the I-710 Corridor. Further, there are more estimated commercial structure impacts than any other category as a consequence of the Draft Hybrid Design Concept's attempt to preserve residential structures as well as the significant number of commercial and industrial structures along I-710 in the Study Area. This preliminary analysis estimates that only five residential structures would be removed by the Draft Hybrid Design Concept.

Right-of-way impacts were also assessed on an acreage basis, again utilizing aerial photographs, topographic mapping, and GIS database mapping. Table 6.4-2 displays the impacted acreage stratified by city and by land use type. The same land use categories were used as in the structure impact analysis. Again, the City of Long Beach, by virtue of the fact that the City stretches from the southerly project limit at Ocean Boulevard northward to near the SR-91/I-710 interchange, would have the greatest acreage impact of any jurisdiction, 91.2 acres out of a total of 241.4 acres. However, almost half of the impacted acreage in Long Beach is in the Power/Utility land use category. This is an intentional by-product of the design of the Draft Hybrid Design Concept, which attempts to maximize use of existing utility owned land adjacent to the I-710 for improvements and hence minimize impacts to residential and commercial properties.

Figure 6.4-1 displays the potential right-of-way impacts of Alternatives C, D, and E along with the same data for the Draft Hybrid Design Concept. Only the right-of-way impacts of the I-710 mainline concepts are shown. Impacts of proposed improvements north of Washington Boulevard are included in Alternatives C, D, and E, while the Draft Hybrid Design Concept improvements are currently defined only as far north as the I-710/Washington Boulevard interchange. The right-of-way impacts for the proposed truck inspection station have been excluded from Alternative C to normalize its comparison with the Draft Hybrid Design Concept. The right-of-way impacts for the Draft Hybrid Design Concept do not include those from a truck inspection station, nor do they account for impacts for any improvements north of Washington Boulevard, as these are yet to be defined.

Table 6.4-1
Estimated Number of Structures Removed by Land Use Type by City
Draft Hybrid Design Concept

City/Land Use Type	Long Beach	County - Rancho Dominguez	Carson	Compton	Paramount	Lynwood	South Gate	Bell	Bell Gardens	Commerce	Vernon	Total
Residential Structures	3									2		5
Commercial/Industrial Structures	1		3	7			14	15		18	3	61
Railroad Structures												0
Power/Utility Structures	42							9				51
Sensitive Land Use Structures				1								1
Undeveloped Land Structures												0
Total Structures by City	46		3	8			14	24		20	3	118

Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc., April 2004.

Note: Does not include right-of-way impacts between I-710/Washington Boulevard and I-710/SR-60, including I-5/I-710 interchange improvements.

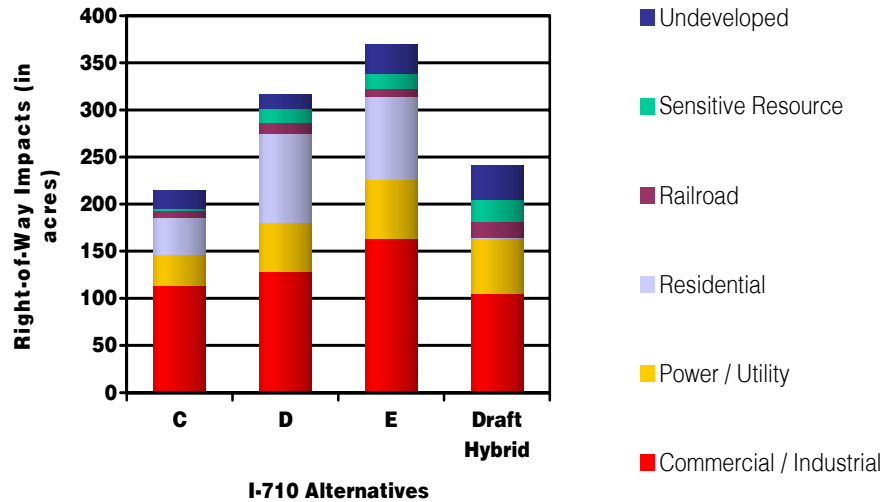
Table 6.4-2
Acreage Impacts by Land Use Type by City
Draft Hybrid Design Concept

City/Land Use Type	Long Beach	County - Rancho Dominguez	Carson	Compton	Paramount	Lynwood	South Gate	Bell	Bell Gardens	Commerce	Vernon	Total
Residential Acreage	1.0									0.5		1.5
Commercial/Industrial Acreage	5.5		2.9	18.1	0.5		19.0	20.6		29.0	9.9	105.5
Railroad Acreage										17.3		17.3
Power/Utility Acreage	45.5						0.4	11.9				57.8
Sensitive Land Use Acreage	12.6			3.0	1.6			4.3	0.3			21.8
Undeveloped Acreage	26.6					3.1	6.2	1.6				37.5
Total Acreage by City	91.2		2.9	21.1	2.1	3.1	25.6	38.4	0.3	46.8	9.9	241.4

Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc., April 2004.

Note: Does not include right-of-way impacts between I-710/Washington Boulevard and I-710/SR-60, including I-5/I-710 interchange improvements.

**Figure 6.4-1
Acreage Impacts by Land Use Type by Alternative**



Source: Parsons Brinckerhoff (March 2003) for Alternatives C, D, and E; Jerry Wood, consultant, in association with MMA, Inc. and Nolan Consulting, Inc. (April 2004) for the Draft Hybrid Design Concept.

Notes: Alternative C impacts exclude proposed truck inspection facility. Draft Hybrid Design Concept impacts exclude truck inspection facility and improvements north of I-710/Washington Boulevard.

6.5 Cost and Financial Analysis of the Draft Hybrid Strategy

This section presents the estimated costs of the Draft Hybrid Design Concept and a menu of potential revenue sources that may be explored in the financing of the Draft Hybrid Strategy.

The concept level cost estimates generated in this phase include a significant contingency factor to address the account for the uncertainties typical for this stage of study.

This analysis assumes that existing and new state and federal grant-in-aid programs will be required in funding the I-710 improvements. In view of the nationwide destination of goods arriving at the ports and transported on the I-710 Freeway, the MTA Board has recommended exploring a coalition of partners to fund the improvements.

Access to federal and state grants is significantly influenced by the availability of local matching funds. Options for generating local sources of revenue dedicated to funding the I-710 improvements from port-related freight and trucking activities, are explored in this section. The objective of this analysis is to provide a preliminary order-of-magnitude estimate of revenue that could be expected based on assumptions relative to container fees, value of time, etc. The revenue estimates are only intended to be used as a point of reference, and detailed financial analyses will be performed during the environmental phase of this project.

6.5.1 Draft Hybrid Design Concept Cost Estimate

The cost of the Draft Hybrid Design Concept was estimated using the same methodology that was used to estimate the costs of the prior Final Set of Alternatives. In the year since the

previous cost estimates were prepared, there has been a dramatic change in certain elements of the local economy. Land values have risen significantly, as have the unit costs of certain construction materials, specifically concrete and steel. As such, the estimate for the Draft Hybrid Design Concept is in 2004 dollars as compared to the estimates for Alternatives C, D and E, which were developed in 2003 dollars and presented in Section 5.5. To provide a clearer comparison among the alternatives, the estimates for Alternatives C, D and E have been escalated to 2004 dollars within this section only. Previous references to the Alternatives C, D, and E costs were relative to their estimates in 2003 dollars.

It is important to recognize that these are concept level cost estimates and that they will be further refined in subsequent preliminary engineering and final design phases. At this early stage in the project development process, uncertainty exists about precisely how the improvements will be constructed and eventually implemented. Consequently, average unit costs were developed for some quantities (pavement, earthwork, structures); some categories of cost were included on a per mile basis (drainage, traffic handling); and others were based on percentages of construction cost (mobilization, contingency, design). The right-of-way unit costs were developed based on a database search of recent real estate values in the Study Area. All costs are shown in 2004 dollars and include a 50 percent contingency factor to account for uncertainties inherent at this stage of engineering design development. Costs are included for those improvements that would entail an additional capital cost beyond what is already planned and committed for the I-710 Corridor.

The estimated cost for the Draft Hybrid Design Concept is \$4.5 billion for mainline and interchanges improvements. This includes \$3.9 billion for infrastructure construction and \$0.6 billion for right-of-way acquisition. The cost estimate does not currently include any improvements north of Washington Boulevard in the City of Commerce, nor does it include:

- a truck inspection station,
- any arterial improvements, or
- TSM/TDM/Transit elements.

The cost estimates for Alternatives C, D, and E have been escalated to 2004 dollars and modified to exclude elements that are not included in the Draft Hybrid Design Concept for purposes of comparison. Table 6.5-1 displays the cost estimates for the various alternatives.

**Table 6.5-1
Comparison of I-710 Alternatives Cost Estimates
(2004 dollars in millions)**

	Alternative C	Alternative D	Alternative E	Draft Hybrid Design Concept
Construction	\$1,787.5	\$2,709.3	\$2,992.3	\$3,902.8
Right-of-Way	\$627.1	\$692.9	\$900.7	\$584.8
Total	\$2,414.6	\$3,402.2	\$3,893.0	\$4,487.6

The Draft Hybrid Design Concept has the highest estimated construction cost, but the lowest estimated right-of-way cost. One of the goals of the Draft Hybrid Design Concept was to reduce residential right-of-way impacts, which would commensurately reduce right-of-way acquisition costs. The measures taken to reduce right-of-way impacts include constructing

more of the alignment on elevated structure or building other features that would result in higher construction costs. The Draft Hybrid Design Concept has a construction cost estimate that is about 595 million dollars higher than Alternative E, the alternative with the next highest estimated construction cost.

6.5.2 Financial Analysis

A significant portion of the total capital cost of the Draft Hybrid Strategy could come from existing or new state and federal grant-in-aid programs (both formula and discretionary). Access to these grants depends on and is greatly influenced by matching these funds with significant amounts of local funds. So, the financial feasibility of the Draft Hybrid Strategy would ultimately depend on the amount of revenue that can be generated from local sources.

MTA's existing portfolio of local revenue sources will be insufficient to fund major transportation improvements that are not already ranked as priorities in its Long Range Regional Transportation Plan (LRTP). Therefore, funding for the improvements will have to come from new, dedicated sources of revenue. The goal of this analysis was to leverage the maximum amount of funding over time from a short-list of local revenue sources using a variety of conventional debt financing structures as well as more innovative financing tools.

While the amount of federal funding for this project cannot be assessed at this time, the local agencies expect some federal funding participation based on the benefits to the rest of the nation from the Hybrid's improvements to I-710 freight throughput. MTA is interested in pursuing the designation of the I-710 Corridor Improvements as a Project of National Significance. Specifically, 45 percent of all goods moving from the Ports have final destinations east of the Rocky Mountains. In recognition of the material benefits accruing from the Ports, congressional proposals have included federal demonstration earmarks of new federal funds for the I-710 Corridor expansion. Although the receipt of significant federal earmarks can be justified and is needed, no assumption on the receipt of such grant funds is carried forward.

This section explores local revenue generation options from port-related freight and trucking activities, for funding the Draft Hybrid Strategy. Specifically, revenue generation through container fees and a truck-way toll are presented. Other options were considered but not reported or explored further as they were not perceived to be viable.

The funding alternatives and financing plan were developed by the application of the I-710 travel demand model, research on value of time, and a financial model. The financial model is a significantly improved version of a model built for the SCAG SR-60 Truck Lanes analysis. The model shows expenditures, revenues, debt service requirements, and cash flow over the life of the project. The modeling effort and results provided in this section depend on a large number of assumptions and analytical details. For ease of comprehension and clarity, only the model output is presented in this section. The details of the assumptions and documentation of the model are presented in Appendix Q.

The financial analysis evaluated a long list of possible federal, state and local funding sources that could be used for some or all elements of the Hybrid Alternative. In addition to the regular Federal-aid highway programs such as Interstate Maintenance, the National Highway System Program, and the Surface Transportation Program, the evaluation included the following innovative financing and discretionary mechanisms as possible sources:

- Transportation Infrastructure Finance and Innovation Act (TIFIA)
- Grant Anticipation Revenue Vehicle (GARVEE) bonds
- State Infrastructure Banks (SIBs)
- TEA-21 authorized pilots for conversion of a free Interstate highway to tolled facilities in conjunction with reconstruction or rehabilitation.
- Interstate Discretionary¹
- High Priority Projects²
- Corridors and Borders
- California Transportation Commission Interregional Program (IPP)
- State Highway Operation and Protection Program (SHOPP)
- Interregional Improvement Program (IIP)
- Regional Improvement Program (RIP)
- State Loan Program (AB 1012)

Two local revenue sources, namely container fees and tolls, proceeds from which could potentially be dedicated to the I-710 Corridor improvements were analyzed. Both sources would generate revenue from users or beneficiaries of the proposed Hybrid Strategy improvements. The purpose of this analysis was to explore orders of magnitude of revenue that could be generated and be eligible to be used for funding the improvements.

Tolls would be levied exclusively on the users of the truckway, and therefore can be used in their entirety to pay for truckway improvements. Since only a portion of the containers entering or leaving the ports would use the facilities that are being improved, only a part of the container fees can be used to fund these improvements.

This analysis does not attempt to establish a “nexus” between the payment burden placed on the users or beneficiaries and the benefits they receive. The calculation of nexus would be performed in future phases. Nevertheless, each potential revenue source is based on a link between those initially proposed to pay for these improvements and the beneficiaries of the proposed improvements.

The two local sources of revenue explored are:

1. Extension of Alameda Corridor rail-borne container charges to all truck-borne containers leaving or entering the Ports of Long Beach and Los Angeles on trucks. This fee would be similar to the Alameda Corridor fees which are now imposed on containers moving into and out of the Ports on rail or being moved to a rail head. This new charge is intended to provide parity between rail and truck by assessing the same fee on all containers moving into and out of the ports. The total amount of capital funds that could be leveraged from this source is estimated to be \$1.4 billion.

¹ A relatively small program of \$100 million authorized in 2003, for high cost Interstate projects for resurfacing, restoring, rehabilitating, and reconstructing Interstate routes. Capacity additions cannot be funded, therefore only a portion of I-710 costs could be eligible for these funds. Criteria for this program require that the state has obligated all its Interstate maintenance funds and that that it could obligate the discretionary funds in one year.

² In TEA-21 there were \$3.5 billion in earmarked high priority projects. The single largest TEA-21 high priority project allocation was \$100 million for Alameda Corridor East.

2. Tolling of the dedicated truck-only lanes component of the Hybrid Strategy whereby trucks traveling between the ports and SR-60 would have the option of either entering the truck lanes and paying a toll or using the I-710 general purpose lanes or alternative routes. This analysis assumes the decision to use the toll lanes is market driven and would not be imposed on the truckers through regulations restricting trucks on alternative routes.

Other potential sources that depended on user charges assessed on other local goods movement activities were considered. These include such charges as: gate fees, surcharges on terminal operators, and other dock-side sources. After further investigation, these sources were eliminated from consideration because they would effectively duplicate the potential sources that could be explored in future phases of the project. The results of the financial analysis of container fees and tolling of the dedicated truck-only lanes are summarized in the following sections.

Container Fee

The container fee was structured to be identical to the current fees being levied by the Alameda Corridor Transportation Authority (ACTA). The ACTA container fees are assessed on containers that are traveling into or out of the ports either on rail or destined for a rail head within the region.

The volume of containers that could be charged is based on the Port forecast for inbound and outbound containers that will be moved by trucks between 2005 and 2035. The forecast estimates 10.8 million total container movements (for both ports) in 2005 and forecasts this total will grow to 40.5 million by 2027 where the analysis assumes it will remain constant through the remaining forecast period (2044).

The analysis assumes that these fees will increase annually at an annual inflation rate of two percent from the current levels of \$30 per container until the year 2035 when charges would be \$54.30 per full box and \$14.50 on empties. These fees have the potential to generate about \$51.5 million annually in 2005 and would grow to \$303.4 million in 2035.

This 30-year, container fee-based stream of revenue could then be used to issue container fee revenue bonds worth approximately \$430 million. These revenue bonds assume 23% of container fees is leveraged. Under the Transportation Infrastructure Finance and Innovation Act (TIFIA), loan guarantees would allow leveraging of additional container fee revenues. By leveraging an additional 54%, \$667 million in Capital appreciation bonds could be issued. Finally, a subordinate federal loan serviced by an additional 20% of container fee revenue could leverage an additional \$310 million. Thus the total capital amount generated from these container fees could be used to make \$1.4 billion available as a single amount of capital for Corridor improvements. The net proceeds from each of these three sources are shown in Table 6.5-2 below:

Table 6.5-2
Projected Net Proceeds from Container Fee

Financing Mechanism	Capital Amount	% of Container fee Revenue
Container Fee Revenue Bonds	\$430 million	23%
Capital Appreciation Bonds	\$667 million	54%
Federal Loan	\$310 million	20%
Total Funds	\$1,408 million	97%

Source Cambridge Systematics, Inc., 2004

The \$1.4 billion represents the total amount of capital that could be used for I-710 corridor projects linked to the Port's activities. Other potential funding sources such as federal, state, or local grants, GARVEE bonds, or construction fund investment earnings were not included in this analysis. Nevertheless, the local agencies believe that federal funds for Corridor improvements should be forthcoming given the national importance of improved access into and out of the Ports.

Selected intermediate results and significant assumptions included in the financial modeling are shown in Table 6.5-3 and the most significant interest rates are shown in Table 6.5-4. More detail of the financial model is shown in Appendix Q of this report.

Table 6.5-3
Container Fee Bond Assumptions

Assumption	Value
Gross Bond Proceeds	\$565,410,696
Annual Debt Service	\$41,516,956
Issuance Cost (percent of gross proceeds)	1.5%
Issuance Cost	\$8,481,160
Years of Capitalized Interest	3
Capitalized Interest	\$92,022,016
Debt Service Reserve Deposit	\$34,759,967
Construction Deposit	\$430,147,553
Value of Time Inflation Rate ¹	3.2%
O&M Cost Inflation Rate	2.2%
Construction Inflation Rate	2.2%
Required Coverage Factor (Senior Debt)	1.3
Required Coverage Factor (Combined Coverage)	1.1
Operating Revenue Reserve Fund	\$2,956,780
Capital Renewal Fund	\$50,000,000

Source: Cambridge Systematics, Inc., 2004

Note: This model requires the toll to inflate at the same rate as the value of time

Table 6.5-4
Interest Rate Assumptions

Type of Interest Rate	Annual Value
Capitalized Interest Reinvestment Rate	6.10%
Reserve Earnings Reinvestment Rate	6.10%
Construction Fund Reinvestment Rate	0.00%
Senior Bond Borrowing Rate	6.10%
Federal Loan Borrowing Rate	6.10%
Local Debt Borrowing Rate	5.90%
Capital Appreciation Bonds	6.35%

Source: Cambridge Systematics, Inc., 2004

Use of container fees for funding the I-710 improvements would be subject to a stricter nexus, since there would be trucks other than those carrying containers from the port that would benefit from the improvements. Therefore, it is likely that only a portion of the container fee based capital of \$1.4 billion could be used for the I-710 improvements.

Table 6.5-5 shows the forecast 2010 volumes of trucks entering and leaving the ports via the four principal roadways serving the Ports during the three peak periods (AM, midday, and PM) and the sum of all three.

Table 6.5-5
Forecast 2010 Truck Volumes North of Pacific Coast Highway

Time Period	2010 Truck Volumes	I-710		SR-47/SR-103		Henry Ford / Alameda St.		I-110	
		In	Out	In	Out	In	Out	In	Out
AM Peak	Number	965	595	207	149	187	101	364	244
	% of Total	41.9%	36.6%	9.0%	9.2%	8.1%	6.2%	15.8%	15.0%
Midday Peak	Number	936	1,006	191	173	268	284	420	455
	% of Total	34.7%	36.0%	7.1%	6.2%	9.9%	10.2%	15.6%	16.3%
PM Peak	Number	486	760	116	140	139	203	206	352
	% of Total	33.3%	38.0%	8.0%	7.0%	9.5%	10.1%	14.1%	17.6%
Sum of Above	Number	2,387	2,361	514	462	594	588	990	1,051
	% of Total	37.3%	36.8%	8.0%	7.4%	9.3%	9.5%	15.4%	16.4%

Source: Cambridge Systematics, Inc., 2004

The table shows that approximately 37 percent of the truck trips serving the Ports would travel on I-710 north of PCH. This share of truck traffic using I-710 provides a basis for the nexus between a container fee charge at the Ports and the improvements in the Hybrid Strategy located along the I-710. This nexus definition is that any truck-borne container entering or leaving the Ports that travels within the I-710 Corridor benefits from the proposed improvements within that Corridor, and should pay the fee. This definition of nexus does not take into account the distance, particular route, time-of-day, or the value or weight of the goods

being moved. Nor does it in any way validate the amount of the existing ACTA fee schedule which has been applied to generate the funding alternatives.

Approximately 16 percent of all trucks entering or leaving the ports would use the I-110. These estimates are based on the Ports' 2010 traffic forecasts. The Port data provides percentages for truck trips by terminal and totals for both inbound and outbound trucks for each of the three peak hours (AM peak hour, mid-day peak hour, and PM peak hour).³ The rationale for including these trips in the nexus calculation is that these trucks move within and contribute to some of the traffic impacts in the I-710 Study Area, that the improvements are aimed at mitigating.

These percentages also include trucks that are moving to the off-dock terminals that have already been charged the container fee by ACTA. The base revenue calculations do not assume any new revenue from these truck moves. In other words, the \$1.4 billion in total bond proceeds and federal loans do not include any revenues from these off-dock moves. However, a higher percentage of these trucks- use the I-710 relative to the proportion of all port trucks that use the I-710. Thus revenue estimates based on the 37 percent figure would be somewhat high.⁴ To give a range of the revenue available to the Hybrid Strategy projects, this preliminary nexus analysis set a higher and lower bound:

- The lower bound of the container fee revenue estimate is based on a traffic volume-weighted average of only those port trucks using the I-710 and shown in the I-710 column in Table 6.5-5 as an average of 37 percent. \$520 million of the \$1.4 billion total capital could be generated from container fees at \$30 per container.
- The upper bound is based on a traffic volume-weighted average of all trucks not traveling on the I-110. This would be the total truck traffic using I-710, SR-47/SR-103 (Terminal Island Freeway), Henry Ford/Alameda Street, and other ingress and egress routes not in the I-110 corridor. This would approximately be 84 percent of all truck volume or \$1.2 billion of capital generated from the proposed container fee. This higher end of the range recognizes that some of the proposed elements of the Hybrid Strategy are not just limited to the I-710 but are also located elsewhere throughout the I-710 Study Area.

Tolled Truck Lanes

Another option explored for local revenue generation for I-710 related infrastructure improvements is the application of tolls to the separate truck lanes proposed in the Hybrid Strategy. The financial feasibility of the proposed truck lanes as defined in Alternative E was evaluated, and these findings should generally apply to the truck lanes proposed in the Hybrid Strategy. This evaluation determined the revenue potential if these lanes were to be tolled. The following are key features of the approach to toll analysis:

³ These percentages are based on all gate moves, so the percentages for all the major facilities in the study area (including the 110) do not add up to 100 percent for two reasons: First, there are inter-terminal trips within the port area that never get on any of the major roads. Second, there are some truck trips that have exited or entered south of PCH, data for which was not available.

⁴ It would require additional analysis to determine more precisely how much it overstates the trucks using I-710, but a rough estimate would be as much as 10 percent. A more detailed assessment of the more precise nexus would be the subject of a future, more detailed study.

- The analysis is based on a tradeoff between travel time savings on the truck lanes vs. the cost of the tolls. Thus, the analysis relies on travel time data derived from the I-710 sub-area focus traffic forecasting model and data on value of time for truckers collected in a stated preference survey by researchers at University of California at Berkeley.⁵ A randomly selected sample of California registered trucks was used from these data, and only the Southern California data were extracted. The data was collected by interviewing fleet managers who can make routing decisions. Data for port only trucks were also assessed, but the sample was too small to make reliable assumptions. A logit curve was fitted to the value of time data. The trucks were split into five value-of-time categories for each of two weight ranges, greater than 33,000 pounds, and 8,500 to 33,000 pounds.
- The value of time data recognizes that different types of trucks have different values of time. This is represented by a probability distribution in the data. In modeling tolls, trucks were divided into two weight classes and five value-of-time categories and assigned to the roadway system using different values of time for each vehicle class.
- Tolls were represented as an equivalent travel time impact. This affects route choice in the traffic forecasts.

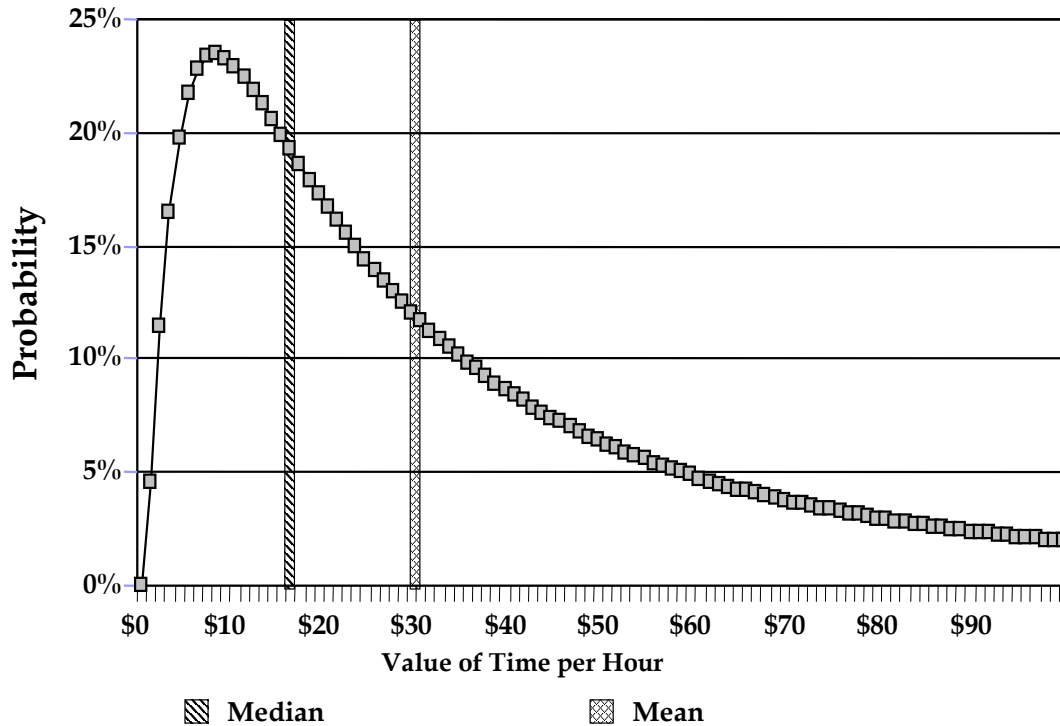
Based on the data, mean value of time was assumed to be \$30 per hour and median value of time was assumed to be \$18 per hour, reflecting a distribution skewed to the lower values of time but with some trucks having a very high value of time (Figure 6.5-5).

These assumptions and the methodology used provide a lower bound estimate of the potential of tolls for the following reasons:

- The value of reliability benefits are not factored into route choice due to the methodology available within the travel forecasting model.
- The data represent the average for all California trucks. The value of time for trucks serving the ports may be higher.

⁵ Kazuya Kawamura, UC Berkeley dissertation, *Commercial Vehicle Value of Time and Perceived Benefit of Congestion Pricing*, 1999.

**Figure 6.5-5
Truck Value of Time Distribution**



Source: Kazuya Kawamura, UC Berkeley dissertation, *Commercial Vehicle Value of Time and Perceived Benefit of Congestion Pricing*, 1999

- Speed estimates from the traffic forecasting model are critical and are difficult to validate. Even small changes in the assumed difference in speeds between the mainline and the truck lanes can have significant impacts on the results of the analysis.

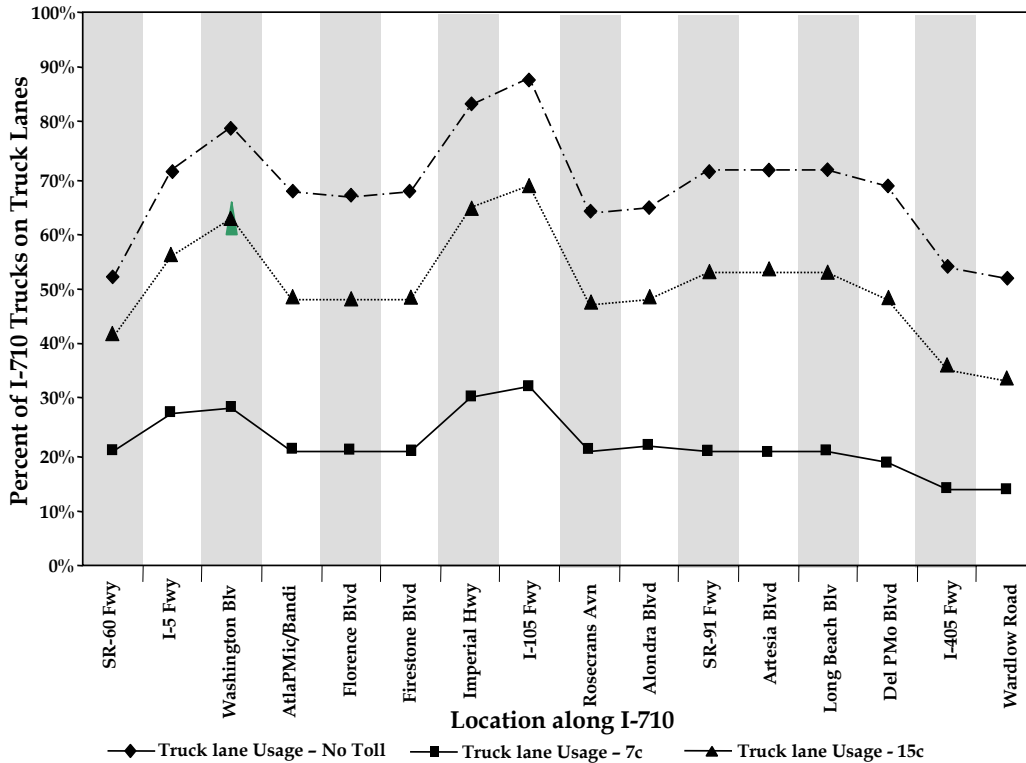
Using a hypothetical trip from the port, the impact of different assumptions about the value of time and speeds on the mainline can be illustrated using information derived from the Final Set of Alternatives. Assuming a trip from the Port of Long Beach to SR-91 along I-710, a distance of about seven miles, a truck is forecast to take 9.8 minutes on average in 2025 in Alternative B (TSM/TDM Alternative) and 7.4 minutes on average using the truck lanes in Alternative E. This information was used subsequently to conduct a sensitivity analysis of the results. Specifically, to capture 50 percent of the truck traffic on I-710 on the truck lanes would require a toll of \$0.105/mile if the value of time is \$18/hour, \$0.175/mile at \$30/hour and \$0.35/mile at \$60/hour.

One point that is clear from the example is that for relatively short trips that characterize truck operations on I-710, the impact of saving time on I-710 itself may be small relative to the amount of time they spend waiting for pick-up and delivery during other parts of their trip.

Forecasts of truck lane utilization rates for two scenarios, a \$0.07/mile toll and a \$0.15/mile toll are shown in Figure 6.5-6. The maximum revenue toll is expected to be somewhere between these two values. At \$0.07/mile, truck lane utilization is estimated to average around 60 percent of all trucks using I-710, whereas at \$0.15/mile this is forecast to drop to around 35 percent. The difference between peak period truck lane utilization rates and daily utilization

rates is not significant because of relatively constant congestion levels throughout the day and high mid-day truck volumes.

**Figure 6.5-6
Tolls and Truck Lane Usage¹
Impacts of Toll Values by Freeway Segment**



¹Percent of trucks that use the truck-exclusive lanes derived from forecast of daily truck lane usage in Alternative E.

In a sensitivity analysis, utilization rates were compared for a \$0.15 per mile toll assuming that actual value of time is twice that assumed in the base case analysis. Utilization rates were approximately equivalent to the base case of \$0.07 per mile toll. In the base case of \$0.07 per mile, annual revenue in 2003 dollars was estimated at \$6.1 million. Maximum revenue for the base case is closer to \$8 million annually in 2025. This annual amount would leverage a total capital fund of roughly \$80 million assuming an annual growth rate in truck volumes of 2.96 percent from 2005 to 2035.⁶ This amount is significantly less than the \$1.4 billion that could be raised by implementing a container fee as discussed earlier in this section.

Sensitivity cases by doubling the value of time to \$60 per hour and assuming that speeds on the I-710 mainline are five to eight miles per hour lower than the forecast were also tested. In these best case set of assumptions, annual revenues might be as high as \$25 to \$30 million. The increased value of time figures may be a way of taking into account the value of travel time

⁶ 2.96 percent is the projected annual average growth rate of truck traffic on the I-710 between 1997 and 2025.

reliability, for example. This annual amount would leverage a total capital fund of roughly \$330 million using the same assumptions as stated above.

Conclusions

Federal and state funding would be required to implement the I-710 Draft Hybrid Strategy improvements. Access to these funds will depend in part on the extent to which local matching funds can be raised. Several conventional and innovative sources were considered, and two such revenue sources were explored to provide an understanding of the order-of-magnitude of such funds.

The charging of container fees for all non-rail borne containers was analyzed using the rate similar currently charged by the Alameda Corridor Transportation Authority. Revenue generated by charging container fees could potentially be leveraged to raise an estimated \$1.4 billion.

Revenue likely to be generated by charging tolls for use of the truck-only lanes were based on estimated value of time, and applying travel time savings generated by the model. Using a toll of 7 cents per mile and value of time of \$30 per hour, the revenues could be leveraged to raise \$80 million in capital. A scenario doubling the toll to 15 cents per mile, representing a doubling of value of time to \$60 per was tested. Under this scenario, it was estimated that approximately \$330 million in capital could be raised.

The analyses presented in this section are intended to provide a general order-of-magnitude estimate of potential revenues through charging container fees and truck-only lane tolls. Significant additional analysis will be necessary for generating estimates usable in developing financial plans for the I-710 improvements.

7.0 TIER 2 COMMUNITY ADVISORY COMMITTEE (CAC) RECOMMENDATIONS

7.1 Tier 2 Committee Activities

The Tier 2 Community Advisory Committee first convened on February 3, 2004 and met a dozen times over a period of seven months between February 2004 and August 2004 in order to develop their recommendations for the I-710 Study. Agendas and meeting minutes from this time period are provided in Appendix R of this report.

The charge of the Tier 2 Committee was to review key local issues and opportunities identified by the Tier 1 Community Advisory Committees, consider issues of local and regional importance from a corridor-wide perspective, and provide recommendations to the Oversight Policy Committee on a comprehensive transportation solution for the I-710 Corridor.

The Tier 2 Committee covered a number of issue areas, including: health, jobs and economic development, safety, noise, congestion and mobility, community enhancements, design concepts, environmental justice, and organization and process. Consequently, the Tier 2 Committee recommendations are wide ranging in scope and encompass not only transportation improvements, but also policy proposals, strategies to improve the current environment, specific items for further study, and conditions for future implementation. The Tier 2 Committee work effort also incorporates the suggestions, ideas, and input from the Tier 1 Committees that represent the most directly impacted communities along I-710.

Several of the Tier 2 meetings were devoted to the preparation of a report, documenting the Committee's findings and recommendations. Great care was taken to develop precise wording to convey the convictions and intent of the overall group.

7.2 Tier 2 Committee Summary Recommendations

The following summary recommendations from the Tier 2 Committee on the I-710 Major Corridor Study is taken directly from the executive summary of the Tier 2 Community Advisory Committee's full report entitled *Major Opportunity/Strategy Recommendations and Conditions*, prepared with the assistance of Moore, Iacofano, Goltzman, Inc. (MIG), on August 2004. The full report from the Tier 2 Committee is provided in Appendix S in its entirety.

Introduction

This report presents the final consensus resulting from nine months of deliberations by a broad-based group appointed by the I-710 corridor communities and the I-710 Oversight Policy Committee. Known as the Tier 2 Committee, this group represented a broad base of interests, including local communities, academic, environmental, business, community and environmental justice. The most directly impacted communities in the corridor were invited to form community-level committees (known as the Tier 1 Committees). The chairs of these committees were also represented on the Tier 2 Committee, along with a representative named by each City Council in the remaining corridor cities.

The following guiding principles define the priorities of the Tier 2 Committee and reflect the consensus that emerged during this process:

- 1. This is a corridor – considerations go beyond the freeway and infrastructure.*
- 2. Health is the overriding consideration.*
- 3. Every action should be viewed as an opportunity for repair and improvement of the current situation.*

The Committee recognizes that something must be done to address the current congestion and design of the I-710 freeway. The high number of trucks on the freeway uses up capacity and the mix of cars and trucks poses a serious safety concern. The committee agrees that the hybrid design concept presented could accomplish maximum build out in a manner that reflects the Tier 1 CACs' concerns and recommendations for their communities, with the exception of the City of Commerce and East Los Angeles area, which require further study. However, the I-710 corridor is more than just a place for trucks to pass through on their way to their final destination. It is the location of our homes, businesses, schools, parks, and lives. Today, particulates and other pollutants from diesel truck traffic in the I-710 Corridor and the ports of Long Beach and Los Angeles are our communities' primary air-quality-related health concern. Therefore, the conditions for major infrastructure improvements must be as follows:

- 1. Implement a corridor level action plan to improve air quality.*
- 2. Major infrastructure improvements must be conditioned on achieving air quality goals to protect public health; corridor air quality must comply with county, state and federal standards prior to the start of mainline construction and the entire project taken as a whole must result in a net reduction in criteria pollutants.*
- 3. Prior to the initiation of the environmental review process, all Tier 1 Community Advisory Committees must have formally endorsed the freeway improvement design concept.*
- 4. Prior to adopting a preferred alternative the OPC must conduct a study and cost benefit analysis of potential goods movement alternatives as an alternative to increasing capacity of the I-710 Freeway.*
- 5. A study of the impact of construction on air quality, traffic, congestion, noise and impact on surrounding communities must be conducted, and if construction does go forward, specific mitigation plans must be developed and put into effect during the construction process to minimize and mitigate the impact of construction on the surrounding communities.*
- 6. Major infrastructure improvements must be conditioned on achieving a net decrease in noise impacts upon the affected communities.*

The Committee recognizes that certain aspects of the design concepts, particularly for designated on-ramps, may be appropriate for implementation prior to addressing the "mainline" issues. However, these improvements cannot be constructed in isolation from all of the other recommendations such as public

health, community enhancement, and noise abatement. The I-710 design must take into account the safety and quality of life of the communities in the corridor, including provisions for greenbelts and open space.

This Executive Summary presents a synopsis of our committee's findings and recommendations which are presented in eight topic areas. (Greater detail is provided in the full report).

Health

Air quality is the number one public health issue. Poor air quality has had significant negative impacts on public, economic, environmental and community health in the corridor. Particulates and other pollutants from diesel truck traffic in the I-710 Corridor and the ports of Los Angeles and Long Beach are our communities' primary air-quality-related health concern. The first consideration for approval of any improvements within the I-710 corridor must be the project's ability to reduce air quality impacts. Therefore, these steps must be taken before construction can begin on the "mainline" project to reduce air pollution.

The Tier 2 Committee recommends the following air quality improvement strategies:

1. Develop an action plan to improve air quality in the corridor.
2. Implement a corridor level action plan to improve community air quality.
3. Implement local alternative fuels/electrification and/or hydrogen policies and programs to reduce diesel emissions.
4. Pursue opportunities for incremental improvements.
5. Implement port-specific air quality improvement strategies.

Jobs and Economic Development

The twin ports of the San Pedro Bay generate significant economic benefits for the region as a whole. However, the cost associated with the movement of goods is primarily borne by local communities. These external costs, including increased levels of pollution, have reduced the attractiveness and livability of these communities. To address this imbalance, local residents and businesses must become net beneficiaries of the continued growth in international trade through the local ports. Improvement of air quality and the environment are essential for the area to take advantage of and capitalize on the area's assets. In addition, an investment of education is necessary to continue to diversify the economy and provide economic opportunity for residents.

The Tier 2 Committee recommends the following economic development strategies:

1. Position the I-710 corridor and Gateway communities for a post-oil economy.
2. Create a community environment that attracts and retains businesses and residents who can support a new gateway cities economy.

3. *Enable the I-710 corridor and Gateway communities to become more proactive in today's economy.*
4. *Institute corridor-wide programs and partnerships to equip area residents with the skills needed to move into higher-paying jobs in the new economy.*
5. *While promoting the importance of all business, specifically recognize small business as an economic driver and foster its growth within the communities.*
6. *Consistent with current law, advocate policies at the national, state, regional and local levels to require businesses that benefit from any potential I-710 improvements to pay living wages.*

Safety

The I-710 corridor is one of the most unsafe freeways in the State. Increasing truck traffic, conflicts between cars and trucks, aging infrastructure, and outdated design are all contributing causes to accidents in and around the freeway. The high concentration of older trucks, which frequently become disabled, poses a significant safety hazard, as do truck intrusions into nearby communities and neighborhoods. Just as the Alameda Corridor helped reduce conflicts between trains and automobiles, any improvements to the I-710 corridor must resolve the inherent conflicts between automobiles and trucks.

The Tier 2 Committee recommends the following safety improvement strategies:

1. *Continue support and implementation of safety programs.*
2. *Increase enforcement of traffic and vehicle safety laws and regulations.*
3. *Increase public and truck education on safety and neighborhood issues.*
4. *Implement infrastructure improvements.*
5. *Separate trucks and cars.*

Noise

Excessive noise is a serious public health concern in the corridor and cannot be resolved by simply building more sound walls. A comprehensive analysis of noise along the corridor must lead to a plan that recognizes the health impacts to our communities and seeks to resolve those impacts by providing appropriate relief. Major infrastructure improvements must be conditioned on achieving a net decrease in noise impact upon the affected communities.

The Tier 2 Committee recommends the following noise control strategies:

1. *Provide appropriate and effective sound walls to reduce noise impacts to neighborhoods and schools adjacent to the freeway.*
2. *Implement noise mitigation programs.*
3. *Conduct a study to assess how truck traffic from extended gate hours for trucks and 24/7 port operations will impact communities, and assess what mitigations may be appropriate.*

Congestion and Mobility

The major purpose of congestion relief must be to improve the quality of life and economic vitality of the corridor rather than simply to accommodate port growth. The current corridor capacity is not adequate even for the existing demands in the area. The current conditions along the corridor are simply not acceptable. The Committee suggests an approach that provides multiple options for personal mobility – auto, pedestrian, bike and transit – within the corridor. Likewise, goods movement requires a comprehensive, regional approach that reduces bottlenecks in all segments – ship, truck, and rail.

The Tier 2 Committee recommends the following congestion and mobility strategies:

- 1. Maximize use of existing infrastructure.*
- 2. Implement expanded public transit solutions.*
- 3. Provide a comprehensive bicycle and pedestrian network with connectivity throughout the area.*
- 4. Develop a consistently implemented plan with cities and residents to mitigate construction impacts and maintain access.*
- 5. Support cooperative planning among all ports along the West Coast.*

Community Enhancements

The I-710 corridor is more than just a place for trucks to pass through on their way to their final destination. It is the location of our homes, businesses, schools, parks, and lives. Plans for future improvements to the I-710 are not intended to solely address congestion and mobility problems. Instead a revitalized I-710 must be the catalyst to enhance local communities along the corridor, creating an even more desirable place to live, work, and play. Major infrastructure improvements must also be conditioned on conclusion of satisfactory agreements with the neighboring communities to fully mitigate negative aesthetic impacts and to mitigate the impacts of any increased light and glare.

The Tier 2 Committee recommends the following community enhancement strategies:

- 1. Preserve existing parks, open space, and natural areas.*
- 2. Develop and implement community enhancement projects.*
- 3. Provide programs to minimize construction impacts.*
- 4. Develop and implement a plan for arterial streetscapes.*
- 5. Mitigate light and glare in surrounding communities.*

Design Concepts

A new design concept for I-710 and/or alternative transportation modes for vehicles and goods movement is needed that responds to the specific design recommendations developed by the Tier 1 CACs to minimize or limit take of homes within their communities along I-710. The hybrid design, as developed to

date, does a credible job of accomplishing this goal. However, final decisions on project configuration can only be made subsequent to incorporation of the further study of East Los Angeles and City of Commerce and upon completion of cost benefit and environmental studies. The I-710 design must take into account the safety and quality of life of the communities located next to the freeway, including provisions for greenbelts and open space.

The Tier 2 Committee recommends the following design concept strategies:

1. Endorse the specific Tier 1 CAC recommendations included in the Appendix.
2. Support capacity enhancement improvements for the I-710 Freeway upon meeting the conditions recommended in this report, including those recommended by both Tier 1 and Tier 2 CACs.
3. If economic and environmental studies show that expansion of the freeway is necessary, develop new transportation infrastructure for I-710 that separates cars from trucks.
4. If economic and environmental studies show that expansion of the freeway is necessary, locate the new truck lanes in such a way as to minimize community impacts.
5. Redesign unsafe and congested interchanges on I-710.
6. Consider future needs and requirements in implementing any new I-710 design.
7. If economic and environmental studies show that expansion of the freeway is necessary, upgrade of the existing freeway must satisfy criteria detailed in this report.

Environmental Justice

In the fifty years since the freeway was first built, the corridor has become home to minority and low-income populations. For many years, the people who live within the corridor have shouldered an unfair burden in health, economic, and quality of life issues. Environmental justice requires a mechanism for the meaningful involvement of all people in the transportation decision-making process to ensure that the low-income and minority communities receive equitable distribution of the benefits from transportation activities without suffering disproportionate adverse impacts.

The Tier 2 Committee recommends the following environmental justice strategies:

1. Include the corridor communities in the planning process, in a meaningful way, including provision of appropriate language translation.
2. Ensure that impacts do not disproportionately fall on low-income people or people of color.
3. Ensure that the benefits from the projects flow to the corridor communities.

Organization and Process

To ensure that the work of the Tier 2 Committee is carried forward as set forth in the full report, a task force of representatives from the Tier 2 CAC, the OPC and the TAC should be established to plan and oversee the implementation of the conditions and recommendations of the Tier 2 CAC.

The Tier 2 Committee recommends the following organization and process strategies:

- 1. This Tier 2 Report will be formally "agendized" and presented to the OPC when it convenes in September 2004 for consideration and decision. All Tier 2 members will be invited to the OPC meeting, and the presentation of the Tier 2 report will be delivered by a representative group of Tier 2 spokespersons.*
- 2. Following the OPC's meeting, there will be a follow-up meeting(s) of the Tier 2 Committee to discuss actions taken by the OPC.*
- 3. Prior to the beginning of any formal EIR for the I-710 Major Corridor Study, Metro (MTA) and the Gateway Cities COG will work with the communities, appropriate agencies, organizations and community groups in developing a collaborative process for community participation in the environmental review process. This process will continue to work collaboratively throughout the EIR process.*

Conclusions and Next Steps

This report is hereby presented by the Tier 2 CAC to the I-710 Oversight Policy Committee. The Committee expects that its recommendations will be carried forward by the OPC, the Gateway Cities COG, the Los Angeles County Metropolitan Transportation Authority (Metro), the Southern California Association of Governments (SCAG) and the California State Department of Transportation (Caltrans). Further, we expect our recommendations to be used as required guidance in the planning and development of future corridor improvements. The Committee and the communities we represent expect to have continued formal and meaningful participation in the I-710 corridor improvement process and look forward to working with the OPC and future project sponsors toward an improved and revitalized I-710 Corridor.

8.0 TECHNICAL ADVISORY COMMITTEE (TAC) RECOMMENDATIONS

8.1 TAC Review Activities

The TAC is one of two advisory bodies to the Oversight Policy Committee. The role of the Technical Advisory Committee is to provide technical oversight of study methods, assumptions, and findings throughout the course of the I-710 Major Corridor Study and to make recommendations to the Oversight Policy Committee prior to key decision points. The TAC is made up of staff professionals from fourteen cities, the County of Los Angeles, the Ports of Long Beach and Los Angeles, the South Coast Air Quality Management District (AQMD), the California Highway Patrol, Caltrans, the Federal Highway Administration (FHWA), the Los Angeles Metropolitan Transportation Authority (MTA), and the Southern Association of Governments (SCAG). The Automobile Club also sits as an ex officio member.

Between March and May, 2003, the TAC met several times to hear and review technical reports from the study team on the evaluation results of the Final Set of Alternatives – Alternatives A, B, C, D, and E. The evaluation provided information on the benefits, costs, and impacts of the different transportation elements and conceptual design treatments that formed the transportation alternatives. Evaluation results included: travel demand forecasts; mobility benefits such as delay reductions; safety benefits; estimates of right-of-way impacts to neighborhoods and properties; estimates of diesel emissions; capital costs; and environmental impacts to cultural, natural, and social resources within the I-710 Study Area. These evaluation findings are summarized in Section 5 of this report. The TAC members also attended numerous public and community meetings that were held within their respective jurisdictions to hear public concerns on the five alternatives. Through this process, the TAC immersed itself in the details of the elements that made up the various alternatives.

On May 28, 2003, the Oversight Policy Committee directed the TAC to start with Alternative B and create a “hybrid” alternative recommendation that combines appropriate elements from all five alternatives. The OPC further directed that these elements must be acceptable to each affected city with the purpose of minimizing right-of-way acquisitions and the objective of preserving existing housing stock, yet work together as an integrated strategy consistent with adopted guiding principles. The following month, June 2003, the TAC formally adopted the OPC's guiding principles to guide the next phase of their effort in developing a technical recommendation for a Hybrid Strategy. [For a copy of the Guiding Principles, please refer to Section 3.3 of this report.]

For a period of several months, individual TAC members met with their communities and with the Gateway Cities COG's engineer to develop a community-based design that incorporated the most appropriate elements for a Hybrid Design Concept for I-710. This community-based design process looked at exceptions to federal and state highway design standards as well as other opportunities to avoid residential property takes. TAC members from potentially impacted cities actively participated in their respective Tier 1 community advisory committees to help identify and resolve technical issues for each of their cities. The TAC Chair served as an active member of the Corridor-wide (Tier 2) Community Advisory Committee. In addition, several TAC members routinely attended the Tier 2 CAC meetings either to observe or to serve

as a technical resource, which helped provide both continuity and interface among these advisory bodies to the I-710 Study.

The TAC reconvened, as a whole, beginning in February 2004 to hear status reports on the development of a community-based design concept for the Hybrid Strategy and to receive updates on the activities of the Tier 1 and Tier 2 Community Advisory Committees. During March and April of 2004, the TAC reviewed conceptual plans of the Hybrid Design Concept, representing the work of the Gateway Cities COG engineering team and the Tier 1 community advisory committees. [Note: This work effort is documented in *I-710 Major Corridor Study "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report* (Gateway Cities Council of Governments, April 2004), which can be found in Appendix P of this report. A summary description of the draft Hybrid Design Concept and corresponding estimates of right-of-way impacts and costs are provided in Sections 6.3, 6.4, and 6.5 of this report.] In addition, the conceptual plans on the draft Hybrid Design Concept for I-710 were sent to design staff at both Caltrans and the Federal Highway Administration for their independent review.

By August 2004, Caltrans and FHWA had completed their review of the conceptual plans of the draft Hybrid Design Concept. During that same timeframe, the Tier 2 CAC finalized their written report on findings, strategies, policies and conditions for the I-710 Corridor (See Section 7). In early September 2004, the TAC met to receive this input and to formulate their recommendations for a Hybrid Strategy for the I-710 Study Area for consideration by the Oversight Policy Committee. The TAC sought to bring the greatest transportation benefit to the overall I-710 Corridor in terms of public health, safety and mobility, while adhering to the Guiding Principles.

8.2 TAC Recommendations

The TAC made no further changes to the draft Hybrid Design Concept (presented in Section 6.3 of this report) with the understanding that the segment of the I-710 Corridor between the BNSF/UP railroad yards in Vernon/Commerce and SR-60 is still under study and that findings from this focused study effort, including any new freeway-to-freeway ramp connections between I-710 and I-5, will need to be integrated with the overall I-710 Hybrid Design Concept prior to initiating environmental studies on I-710. The TAC further recognizes that additional design options will be explored and refinements will necessarily occur to the Hybrid Design Concept as it moves forward into project development (e.g., environmental studies and preliminary engineering.) Examples of these design issues include items such as the specific location of truck lane ingress/egress ramps; evaluation of traffic impacts of proposed ramp closures; proposed local interchange configurations; and weave distances between ramps that connect to I-710. Some of these design issues were identified during the course of the I-710 Study and are called out in Section 10 of this report (Issues for Further Consideration). Yet others will be identified through the more detailed environmental and engineering studies that typically occur in future phases of project development.

The Hybrid Design Concept is comprised of 10 general purpose traffic lanes, 4 exclusive truck lanes, and interchange improvements on I-710, from Ocean Boulevard in Long Beach to the intermodal railroad yards in Vernon/Commerce.

In addition, the TAC recommended that the proposed transportation systems management and transportation demand management improvements previously identified in Alternative B be

included in the overall Hybrid Strategy. This action is consistent with the direction given to the TAC by the OPC on May 2003 to use technologies, programs, and strategies to better manage traffic flow and to make full use of freeway, roadway, rail, and transit systems. These improvements include strategies such as: empty container management programs to reduce truck traffic to and from the Ports; diesel emissions reduction programs that provide subsidies to encourage truck operators to replace or purchase new, cleaner burning power units; and expanded intelligent transportation systems to manage and help redistribute traffic flow to reduce congestion, among others. The TAC also formally endorsed the transportation improvements included in Alternative A, the future year transportation condition, in order to continue to affirm the need for these improvements in the event that future funding commitments fail to materialize due to the current state budgetary crisis.

For the Hybrid Strategy, the TAC also included two major transportation components that meet the purpose and need for the I-710 Major Corridor Study, but that will require additional feasibility studies to define their scope and specific location: (i) improvement of selected arterial roadways within the I-710 Corridor, and (ii) a truck inspection facility.

After some discussion, the TAC agreed to support the broad concepts in the Tier 2 CAC's Final Report Major Opportunity/Strategy Recommendations and Conditions while acknowledging that some of the recommendations would require legislative and/or regulatory changes.

In summary, the TAC recommendation for a Hybrid Strategy, developed September 9, 2004, includes the following physical and operational transportation elements:

**Table 8.2-1
Summary TAC Recommendations - Hybrid Strategy**

Component	Descriptive Elements
Hybrid Design Concept ¹ (Ocean Blvd. to the Intermodal Railroad Yards ²)	<ul style="list-style-type: none"> ➤ 10 general purpose traffic lanes on I-710 ➤ 4 exclusive truck lanes along I-710, between Ocean Blvd. and the intermodal rail-yards in Vernon/Commerce, including dedicated ingress/egress points for trucks at selected locations ➤ exclusive truck ramps from the truck lanes to the intermodal railroad yards in Vernon / Commerce ➤ new local interchange at Slauson on I-710 ➤ interchange modifications at 15 local interchanges and 2 freeway-to-freeway interchanges on I-710
	➤

Notes: ¹Detailed information on the Hybrid Design Concept is provided in *I-710 Major Corridor Study "Hybrid" Mainline Alternative of Locally Preferred Strategy Technical Report*, Gateway Cities COG, April 2004.

²The portion of the I-710 Corridor between the BNSF /UP intermodal railroad yards in Vernon / Commerce and SR-60 is currently under study. Results from this focused study effort will be integrated with the Hybrid Design Concept prior to initiating follow-on environmental studies.

Table 8.2-1 Continued
Summary TAC Recommendation – Hybrid Strategy

Component	Descriptive Elements
Alternative A – No Build Improvements	<ul style="list-style-type: none"> ➤ Future improvements to the existing transportation system that are already planned and committed and are, therefore, expected to be in place by 2025. Examples of these projects include: replacement of all of the pavement and construction of a new concrete, median divider on I-710 between Ocean Boulevard and I-10; added bus service throughout the I-710 Study Area; and improvements to truck-impacted intersections, among other future transportation projects. (See Section 4.5 of this report, Alternative A, for a complete list.)
Alternative B – TSM/TDM Improvements	<ul style="list-style-type: none"> ➤ Transportation strategies to better manage how the existing freeways, roadways, and the transit systems operate in the I-710 Study Area. Examples include: added bus service for local communities; the completion of the ramp metering system on I-710, advanced technologies to manage traffic and to inform motorists about alternate routes to avoid traffic congestion; and programs to reduce truck diesel emissions and encourage a shift of truck traffic into the late evening or early morning hours. (See Section 4.5 of this report, Alternative B, for a complete list.)
Truck Inspection Facility	<ul style="list-style-type: none"> ➤ Precise configuration and location of the truck inspection facility within the I-710 Study Area to be determined through further study.
Arterial Roadway Improvements	<ul style="list-style-type: none"> ➤ Operational and/or capacity improvements to selected arterial roadways within the I-710 Study Area. The scope and extent of the proposed improvements as well as those arterials to be included in this component of the Hybrid Strategy to be determined through further study.

Source: I-710 Technical Advisory Committee, Materials and Minutes of the Meeting of September 9, 2003.

The TAC’s recommendations were presented to the Oversight Policy Committee by the TAC Chair on September 30, 2004. A copy of the technical memorandum, “Recommendations for Consideration in Adoption of I-710 Locally Preferred Strategy,” as well as a map of the TAC recommended Hybrid Design Concept is included in Appendix T of this report.

9.0 SELECTION OF A PREFERRED STRATEGY

9.1 Decision-Making Process

The Oversight Policy Committee was vested by the four study funding partners (MTA, Caltrans, Gateway COG and SCAG) with decision making authority for the I-710 Major Corridor Study, including selection of the Locally Preferred Strategy (LPS). As described in Section 1.3 of this report, the Oversight Policy Committee is comprised of elected officials from participating cities and the County of Los Angeles; executive managers and/or senior staff from three of the principal partners (MTA, Caltrans, and SCAG); and a Commissioner from each of the Ports of Long Beach and Los Angeles. The Oversight Policy Committee is advised by three sets of advisory committees – the Technical Advisory Committee (TAC) and the Tier 1 and Tier 2 Community Advisory Committees (CACs). The I-710 TAC was created at the onset of the study and is made up of technical and engineering staff from the municipalities located within the I-710 Study Area; the principal study partners; the Ports of Long Beach and Los Angeles; and staff from the Federal Highway Administration/Federal Transit Administration (FHWA/FTA), Southern California Air Quality Management District (SCAQMD), the California Highway Patrol (CHP), and other stakeholders such as the Automobile Club of Southern California.

The MTA Board directed staff to establish a community advisory committee for the I-710 Major Corridor Study in May 2003 in response to concerns expressed by the communities regarding the potential impacts of the final set of five alternatives when these were made public in the spring of 2003. This concept was fully endorsed by the Oversight Policy Committee, which then took steps in early summer of 2003 to develop and implement a tiered community advisory committee structure for the I-710 Study to strengthen the level of public input for project decision-making. Each city is different and the tiering structure of the I-710 Community Advisory Committees needed to be able to respond to the organizational framework and processes within each city. The membership, tiering structure, roles and responsibilities, and key activities of the Community Advisory Committee(s) are detailed in Section 2.5 of this report.

After receiving reports from the advisory committees, the Oversight Policy Committee deliberated and made a decision regarding a Locally Preferred Strategy in November 2004. The foundation for the I-710 Locally Preferred Strategy was the recommendations made by the advisory committees on the Hybrid Strategy as well as policy and operational considerations raised by the public and these committees. This process is described further in Section 9.2 of this report. The OPC's LPS decision was then forwarded to the MTA Board of Directors for consideration.

On January 2005, the MTA Board adopted the I-710 Locally Preferred Strategy. The MTA is vested by the state with planning and programming authority for transportation projects within Los Angeles County. MTA's Long Range Transportation Plan guides transportation development in Los Angeles County over a period of twenty-five years. It identifies strategic priorities for projects and services that are regionally significant, but require new or additional revenue sources. The LRTP is essentially a blueprint for transportation improvements. The Locally Preferred Strategy for the I-710 Corridor defines the physical and operational transportation improvements and policies that are approved for further development and implementation in the I-710 Corridor over the next 25 years. The I-710 Locally Preferred Strategy becomes a component of MTA's Long Range Transportation Plan.

Subsequent also to its adoption by the MTA Board, the I-710 Locally Preferred Strategy is forwarded to SCAG for inclusion in the Regional Transportation Plan (RTP), which is the official long range transportation plan for the six-county SCAG region. Upon inclusion in the Regional Transportation Plan, the I-710 Locally Preferred Strategy becomes eligible for federal funding participation. SCAG is also charged with the responsibility of assessing the adequacy of the I-710 Major Corridor Study based upon regional and federal guidelines for these types of studies, which are called Regionally Significant Transportation Investment Studies (RSTIS). This assessment is conducted by the RSTIS Peer Review Group, which is comprised of staff from study sponsors, SCAG, Caltrans, the county transportation agencies/authorities, state and federal resource agencies, FHWA and FTA. The committee has determined that the I-710 Major Corridor Study has appropriately followed the RSTIS guidelines; a letter of completion was prepared and forwarded to SCAG's Transportation and Communications Committee for their endorsement.

Sections 9.2, 9.3, and 9.4 elaborate on these steps of the I-710 Major Corridor Study decision making process.

9.2 I-710 Oversight Policy Committee Actions

The I-710 Oversight Policy Committee met on September 30, 2004 to receive the reports from the Tier 2 Community Advisory Committee and the Technical Advisory Committee, as well as public comment related to both reports. The recommendations of these two advisory committees are summarized in Sections 7.0 and 8.0 of this report. After consideration of these two reports, the Oversight Policy Committee then met on November 18, 2004 and adopted the Locally Preferred Strategy for the I-710 Major Corridor Study. In addition, they adopted four recommendations providing direction and guidance for the future phases of project development and on companion actions. The full text of these adopted actions are included in Appendix U of this report.

9.2.1 I-710 Locally Preferred Strategy

The Oversight Policy Committee approved the recommended Hybrid Design Concept and the related supporting elements as the Locally Preferred Strategy for the I-710 Corridor:

- Hybrid Design Concept, which consists of ten (10) mixed flow lanes, specified interchange improvements, and four (4) truck lanes between the intermodal rail-yards in Vernon/Commerce and Ocean Boulevard in Long Beach
- Alternative B – Transportation System Management/Transportation Demand Management (TSM/TDM) Improvements
- Improvement to arterial highways within the I-710 Corridor
- Construction of truck inspection facilities to be integrated with the selected overall design concept

The Locally Preferred Strategy adds general purpose capacity to I-710, as well as separating trucks from autos to the fullest extent feasible by adding truck-only lanes. By definition, the Locally Preferred Strategy includes all of the transportation projects of the No Build Alternative (Alternative A) as these comprise the future year 2025 condition in the I-710 Corridor. As described above, the Locally Preferred Strategy also includes all of the programs, policies, and strategies from Alternative B, the Transportation Systems Management/ Transportation Demand Management Alternative.

The Oversight Policy Committee, as part of the LPS decision, also committed to an additional “mini” study of the segment of the Corridor between Atlantic/Bandini and SR-60 to determine an acceptable design concept and scope for that segment of the Corridor. The results of this mini-study will be reviewed by the impacted Tier 1 Community Advisory Committees, the Tier 2 Community Advisory Committee, and the Technical Advisory Committee. These advisory committee recommendations will be considered by the Oversight Policy Committee prior to its adoption of the design concept and scope for this segment of the Corridor, which will then be referred to the MTA for inclusion in the I-710 Locally Preferred Strategy. It is anticipated that these efforts will be concluded by Summer 2005.

The cost of the I-710 Locally Preferred Strategy is estimated to be at least \$4.95 billion in 2004 dollars, which includes the estimated costs of the Hybrid Design Concept up to Washington Blvd. and the TSM/TDM elements, but excludes the as yet to be specified arterial street improvements, the truck inspection facilities, or any improvements to I-710 north of Washington Blvd.

Specific components of the I-710 Locally Preferred Strategy are defined as follows.

Hybrid Design Concept

Refer to Figure 9.2-1 for a map of the I-710 Hybrid Design Concept. The I-710 Hybrid Design Concept is made up of the following elements:

Exclusive Truck Facility on I-710

- 4 lanes (2 in each direction) mostly at-grade between Ocean Boulevard and the intermodal rail-yards in Vernon/Commerce, with the truck lanes being elevated at the following locations: near the SR-91 interchange; north of I-105 near Imperial Highway; and north of Slauson Avenue.
- Dedicated ingress/egress points for trucks at selected locations: north of Ocean Boulevard (ingress northbound, egress southbound); north of I-405 (ingress northbound, egress southbound); SR-91 interchange (NB I-710 to EB SR-91, WB SR-91 to SB I-710, EB SR-91 to NB I-710, and SB I-710 to WB SR-91); south of Firestone Boulevard (ingress southbound, egress northbound); and north of Atlantic/Bandini Boulevard (ingress southbound, egress northbound).
- Horizontal alignment is generally as follows:
 - Split on both sides of I-710 from Ocean Boulevard to north of Pacific Coast Highway.
 - Decked over I-710 for a short stretch north of Pacific Coast Highway to Willow Street.
 - On the east side of I-710 from north of Pacific Coast Highway to south of Imperial Highway, largely (though not entirely) within the existing State right-of-way or the Southern California Edison right-of-way.
 - Decked over the northbound I-710 for a short stretch south of Imperial Highway.
 - On the west side of I-710 from Imperial Highway to Gage Avenue.

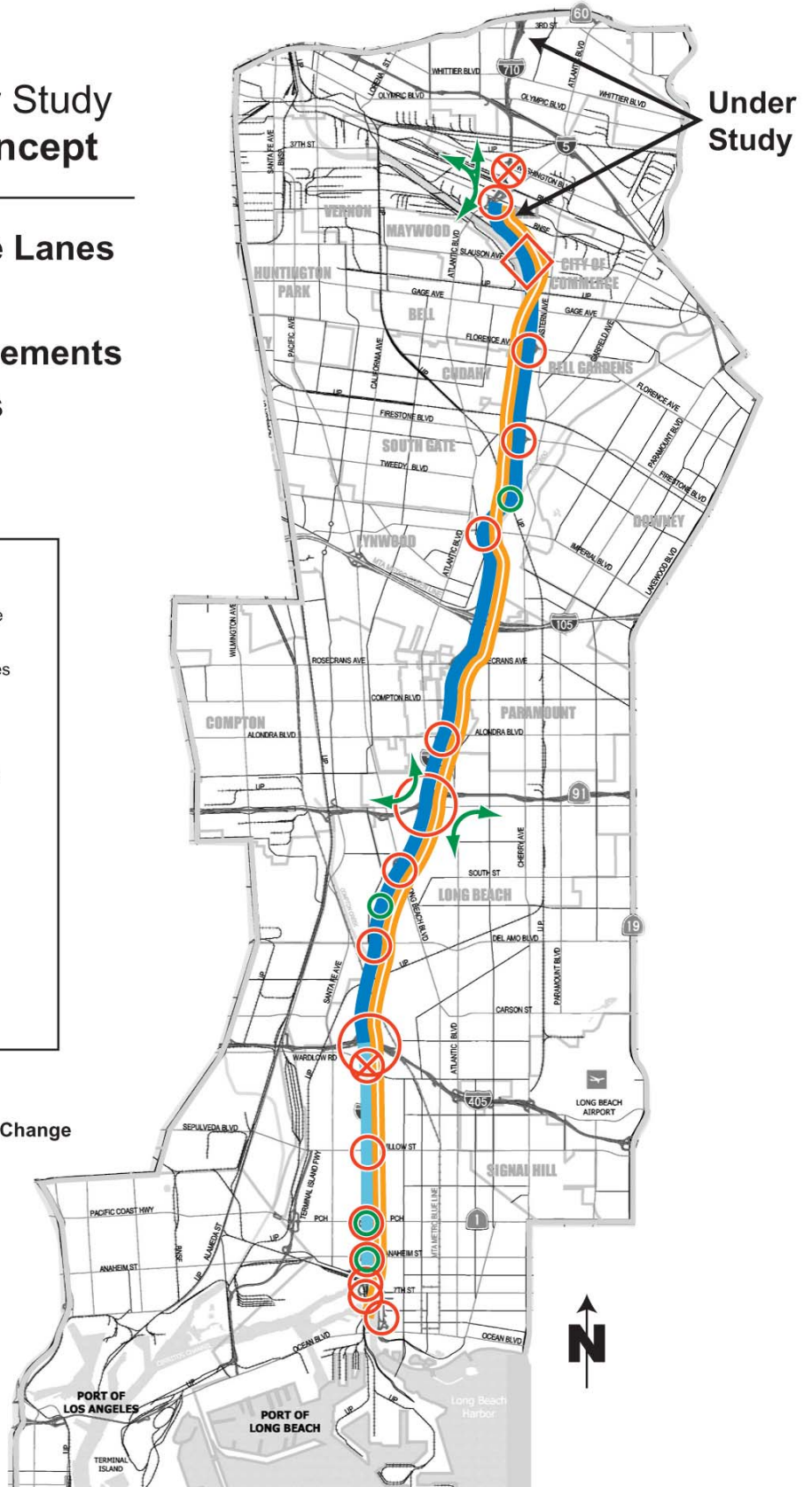
Figure 9.2-1

I-710 Major Corridor Study Hybrid Design Concept

- 10 General Purpose Lanes
- 4-Lane Truckway
- Interchange Improvements
- Direct Truck Ramps

LEGEND	
	Add One Mixed Flow Lane (Each Direction)
	Add Two Mixed Flow Lanes (Each Direction)
	Exclusive Truck Facility
	Interchange Improvement
	New Interchange
	Eliminate Interchange
	Truck Ramps
	Truck Ingress/Egress

Preliminary Concepts, Subject to Change



Source: Jerry Wood, Consultant, in association with MMA, Inc. and Nolan Consulting, Inc., April 2004

- On the east side of I-710 from Gage Avenue to Bandini Boulevard.
- Split on both sides of I-710 from Bandini Boulevard to south of Washington Boulevard.

General Purpose Traffic Improvements on I-710

- One additional general purpose lane in each direction from Ocean Boulevard to the Shoemaker Bridge.
- Two additional general purpose lanes in each direction from Shoemaker Bridge to I-405.
- One additional general purpose lane in each direction from I-405 to Atlantic Boulevard.
- Shifting the freeway centerline at various locations between Shoemaker Bridge and Atlantic Boulevard to attempt to minimize right-of-way impacts.

Interchange Improvements – Truck-Related

- Add a truck interchange on the exclusive truck facility providing a northbound exit ramp and a southbound entrance ramp viaduct for trucks only along Sheila Street south of Washington Boulevard providing direct access to/from the UP and BNSF rail yards. Also provide a southbound exit ramp and a northbound entrance ramp using the viaduct from the rail yards.

Interchange Improvements – General Purpose Traffic

- Eliminate some of the design deficiencies at I-405/I-710 and SR-91/I-710 interchanges.
- Reconfigure approximately 13 local access interchanges between and including Ocean Boulevard at Shoreline Drive in Long Beach and Atlantic Boulevard/Bandini Boulevard in Vernon/Bell.
- Add one new interchange (Slauson Avenue).
- Eliminate freeway access at 9 locations:
 - Entrance from 7th Street to SB Shoreline Drive (1 ramp).
 - Connection from Shoemaker Bridge to Pico Avenue (1 ramp).
 - Connection from Pico Avenue to Shoemaker Bridge (1 ramp).
 - SB exit to and NB entrance from Wardlow Road at I-710 (2 ramps).
 - NB and SB I-710 to Santa Fe Avenue (1 ramp).
 - Exit from WB SR-91 to Alondra Boulevard (1 ramp).
 - Exit from EB SR-91 to Cherry Avenue (1 ramp).
 - WB exit to and EB entrance from Atlantic Boulevard at SR-91 (2 ramps).
 - All ramps at Washington Boulevard (4 ramps).

Elements of the TSM/TDM Alternative (Alternative B)

The elements of the Transportation Systems Management/Transportation Demand Management (TSM/TDM) Alternative largely consist of operational investments, policies, and actions aimed at improving goods movement, passenger auto and transit travel, and reducing the environmental impacts of transportation facilities and operations in the Study Area. Specific improvements drawn from the TSM/TDM Alternative are detailed as follows. Added

explanation of how some of the goods movement strategies would operate are provided in Appendix K of this report.

Mainlines on I-710

- Additional ramp metering.
- Aesthetics (landscaping and hardscape treatments along I-710).
- Continuous high-mast illumination.
- Improved signage on I-710.

Interchanges/Arterials

- I-710 ramp terminus/arterial improvements:
 - for example, curb and gutter, including aesthetics improvements
 - mostly in state right-of-way
- Implement parking restrictions on major parallel arterials during peak periods.

Goods Movement

- Empty container management through policies and incentives.
- Expanded drayage truck emission reduction program.
- Extended gate hours at the ports:
 - move toward 24 hour / 7 days a week operations
 - incentives / disincentives (emphasize policy recommendations, not mandate)
 - include all entities in the supply chain

Transit

- Additional Blue/Green Line feeder bus shuttles.
- Enhanced community service (local circulators).

Intelligent Transportation Systems (ITS)

- Expand ITS Corridors:
 - expand “depth” of ITS coverage on two identified ITS corridors (I-710/Atlantic; I-105 Corridor)
 - emphasize system connectivity

Improvement to Arterial Highways within the I-710 Corridor

While the Major Corridor Study proposed three alternative packages of arterial improvements within the Study Area, the I-710 Technical Advisory Committee did not recommend a specific set of arterial highways for improvement nor the types of improvements to be implemented. The determination of these specific arterial highway improvements is left to be determined in a future study. Section 10 of this report discusses these arterials in more detail.

Construction of Truck Inspection Facilities to be Integrated with the Selected Overall Design Concept

The final component of the Locally Preferred Strategy is the construction of one or more truck inspection facilities within the Corridor. While the Major Corridor Study did assess a truck inspection facility that would be located within Southern California Edison right-of-way adjacent

to northbound I-710 between Del Amo Blvd. and Long Beach Blvd., the I-710 Locally Preferred Strategy did not determine a specific location for one or more truck inspection facilities. This determination is left for a future study.

9.2.2 Additional Oversight Policy Committee Actions

The Oversight Policy Committee adopted four additional actions to support the LPS decision and in response to community issues regarding the I-710 Corridor, as expressed in the Tier 2 Community Advisory Committee's report. These actions are:

1. Request the Gateway Cities Council of Governments to return with suggested steps for initiating the development and implementation of a corridor level air quality action plan to include not only technical but also funding, institutional structure and legislative strategies as well as an approach to holding public agencies with jurisdiction in the Corridor accountable for progress in meeting air quality and public health objectives in the Corridor and Region.
2. Forward the Tier 2 report in its entirety to be accepted as pre-scoping guidance to the preparation of the EIR/EIS.
3. Request the Gateway Cities Council of Governments to identify and pursue appropriate avenues to implement those Tier 2 recommendations that prove to exceed the scope of any I-710 transportation improvement project and report back to the community.
4. Request MTA and COG staff to suggest a process and structure for continuing community participation throughout the environmental analysis.

9.3 MTA Board Action

Based on the OPC Action of November 18, 2004, the Locally Preferred Strategy was forwarded to the MTA Board for its consideration and action. On January 27, 2005, the MTA Board met and adopted the Draft Final Report of the I-710 Major Corridor Study. Additionally the Board acted to:

1. Authorize the Chief Executive Officer to proceed with the preparation of a Scope of Work and Funding Plan that will include funding commitments from multiple partners for the environmental phase of the project pursuant to the Major Corridor Study's Locally Preferred Strategy and use input from the I-710 Community Advisory Committees in the environmental scoping process. The Scope of Work should also include assessment of impacts to the I-170/SR-60 interchange and evaluation of alternative project delivery methods.
2. Direct MTA staff to report back to the Board with the results of the East Los Angeles Mini-Study and that results be included into the Locally Preferred Strategy prior to initiating scoping for the EIR/EIS;
3. Receive the TIER II report to be accepted and utilized as pre-scoping guidance for the EIR/EIS;

4. Direct the MTA CEO, with the assistance of our state and federal advocates, to work with the appropriate governmental and non-governmental agencies to form a multi-jurisdictional entity to coordinate the appropriate aspects of the project, including identification of a funding plan with funding sources from multiple partners, and upon formation, the multi-jurisdictional partnership be tasked with identifying strategies for achieving near-term improvements to the Corridor's air quality and that the strategies be identified prior to initiation of the EIR/EIS Request for Proposals.

9.4 RSTIS Peer Review Group

The I-710 Major Corridor Study was conducted according to SCAG's Regionally Significant Transportation Investment Study (RSTIS) guidelines. The RSTIS is necessary for major projects seeking federal funding. As such, the RSTIS is part of the federal planning process, yet decision-making takes place at the local and regional levels.

Under the Final Metropolitan Planning Rules (23 CFR Part 450.318) that guide the RSTIS, the I-710 Major Corridor Study is an integral element of a metropolitan area's long range planning process. The RSTIS evaluation leads to a decision on a design concept and scope for transportation investments in the corridor – a Locally Preferred Strategy – that is then incorporated into a metropolitan area's transportation plan.

Once the purpose and need, design concept, scope, and other elements have been adopted into the Southern California Regional Transportation Plan (RTP) and the transportation improvement program (TIP), the Locally Preferred Strategy can then be advanced into environmental review and preliminary engineering. Consideration of more detailed design issues and completion of National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements occur in this next phase.

SCAG has organized a RSTIS Peer Review Group that operates according to the Association's adopted guidelines for the conduct of RSTIS studies in the SCAG region and provides advice to study sponsors and review of study process. Peer Review Group members include technical staff from study sponsors, SCAG, Caltrans, the county transportation agencies/authorities, state and federal resource agencies, FHWA, and FTA

The MTA, as lead agency for the I-710 MCS, has been keeping the RSTIS Peer Review Group apprised of study status and progress for the duration of the Study, since its initiation in early 2001 through periodic briefings. Now that the study is concluding, the MTA has requested, and the Peer Review Group has granted, a RSTIS Letter of Completion at their meeting on December 16, 2004. This signifies that the I-710 Major Corridor Study has followed the adopted procedures for execution and completion of the RSTIS¹. The MTA can then incorporate the Locally Preferred Strategy resulting from the I-710 RSTIS into their Long Range Transportation Plan and then, by amendment, into SCAG's RTP and TIP. This Letter of Completion was formally ratified by SCAG's Transportation and Communications Committee at their February 2005 meeting.

¹ *Procedures Manual for Regionally Significant Transportation Investment Studies (RSTIS)*, Southern California Association of Governments, March 1, 2001.

10.0 Issues for Further Consideration

While consensus for a Locally Preferred Strategy was reached among study decision-makers, it was with the understanding that a number of issues of concern that were raised during the study process would be revisited during the environmental review, preliminary engineering, final design, and construction phases of the proposed project. For the most part, these are issues that were beyond the scope and authority of the I-710 Major Corridor Study. Some are matters about which design assumptions had to be made for study purposes and yet about which considerable controversy remains. Others have to do with phasing of the overall project and ensuring that it supports the overall health and quality of life issues in the I-710 Study Area. These issues represent critical concerns of several of the local representatives, the community advisory group members, and the public, and will become part of future discussions as the various aspects of the proposed project move into the next phases.

10.1 Air Quality Action Plan

The Tier 2 Community Advisory Committee (CAC) determined that air quality is the number one public health issue in the I-710 Corridor. The Oversight Policy Committee (OPC) agreed and has approved a resolution at its November 2004 meeting requesting the Gateway Cities COG develop and implement a corridor level Air Quality Action Plan, independent of the future environmental studies of proposed improvements to I-710. The OPC requested the COG's Action Plan include the following objectives:

- Determine and quantify the existing air and health quality setting.
- Determine the effectiveness of planned near-term air quality improvements.
- Analyze and determine possible new or emerging air quality improvements or strategies, including estimating costs, timelines and responsibilities.
- Develop a conceptual plan to implement and measure air quality improvements for the region.
- Work with regional, state and federal agencies responsible for air pollution control and enforcement, industry stakeholders and local communities to develop consensus for this plan.

This study will need to be developed and a framework for continued participation with the affected communities implemented. In addition, this Action Plan will need to inform the future environmental studies of the proposed I-710 improvements.

10.2 Public Involvement Plan for EIS/EIR Phase

Concurrent with their Locally Preferred Strategy decision, the OPC has also approved a request to MTA and Gateway Cities COG staff to suggest a process and structure for continuing community participation throughout the upcoming environmental analysis of the proposed I-710 infrastructure improvements. The OPC has committed to the public to continue the high level of community participation achieved with the Tier 1 and Tier 2 Community Advisory Committees through the environmental analysis phase of proposed I-710 improvements. Specifically, the OPC made the following recommendations:

- That a collaborative and participative process for community engagement be developed to continue throughout the environmental analysis.
- That particular attention be paid to inclusion of low-income communities and persons of color in the process, including appropriate language translation.

The agency staff will need to work with the affected communities, their elected officials and stakeholder groups to determine if the current Community Advisory Committee process best serves the community engagement process in the EIS/EIR phase or whether a different process that meets the above stated objectives is preferred.

10.3 Mini-Corridor Study

As part of their Locally Preferred Strategy (LPS) decision, the OPC acknowledged that additional study and community consensus building is required to determine the LPS design concept and scope for the northern segment of the Corridor between the Atlantic Blvd./Bandini Blvd. interchange and SR-60. The OPC has committed to undertake this “mini” corridor study and incorporate its results into the LPS that they adopted in November 2004, prior to the initiation of environmental studies of the LPS. The MTA and the I-5 Joint Powers Authority (JPA) have agreed to jointly fund this mini corridor study. The OPC further committed to consider recommendations from the impacted Tier 1 Community Advisory Committees, Tier 2 Community Advisory Committee and Technical Advisory Committee (TAC) prior to its decision on the LPS for this segment of the Corridor. It remains to be determined if transportation infrastructure improvements that are acceptable to the local communities can be developed for this segment of the Corridor. The issues primarily relate to right-of-way impacts associated with potential improvements through this segment, which includes the I-710/I-5 interchange, as well as traffic impacts to surrounding communities.

10.4 Freeway Design Issues

The Hybrid Design Concept adopted as the Locally Preferred Strategy contains several design exceptions to state and federal highway design standards to achieve the objectives of increasing corridor roadway capacity while minimizing right-of-way impacts. Caltrans and the Federal Highway Administration (FHWA) have performed a preliminary review of the conceptual design of the Locally Preferred Strategy and have commented on several design features for which they have concerns. Appendix V contains the full set of these comments. These concerns will be addressed in subsequent engineering development phases of the project.

The following is a summary of the issues raised by Caltrans and FHWA relative to the Hybrid Design Concept of the Locally Preferred Strategy:

- Require more detailed traffic analyses to support specific design features.
- Lack of adequate length weave sections at several locations.
- Operational concerns about types of proposed interchange configurations.
- Inadequate merge lengths at freeway to freeway connector ramps.
- Constructibility concerns regarding the proposed decking of the Pacific Coast Highway to Willow Street section of I-710.

- Potentially inadequate sight distances at several locations.
- Operational concerns regarding lack of elimination of ramps/movements.
- Inclusion of partial interchanges.
- Non-standard lane and shoulder widths at various locations.

These issues relate to accepted state and federal highway design standards, which have been developed to make freeways as safe as practicable for the motoring public. While the objective is to minimize right-of-way impacts, addressing design issues/concerns may require revising acquisition needs. These impacts will be reviewed with the affected communities to ascertain whether a consensus can be maintained on the design concept that is acceptable to Caltrans, FHWA, and other agencies whose facilities and operations are impacted by the design.

10.5 Definition of Arterial Street Improvements

As part of the Locally Preferred Strategy, the OPC approved an element “improvement of arterial highways within the I-710 Corridor”. The scope and extent of these arterial improvements will need to be defined in future project development phases. The Final Set of Alternatives of the Major Corridor Study presented three different “packages” of arterial improvements, one emphasizing north-south arterials, one emphasizing east-west truck access routes to I-710 and one comprised of a combination of both north-south and east-west arterials. However, none of these packages were adopted as part of the LPS decision, the determination of which is left to future study. The TAC had differences of opinion as to the scope of arterial improvements within each of the respective local jurisdictions, which range from lane additions, to intersection improvements, to signal system upgrades or spot improvements. These improvements will also need to achieve consistency, such as lane continuity, among jurisdictions in order to be effective as traffic flow improvements. At a minimum, pavement on arterials to withstand the anticipated detour traffic in advance of I-710 construction that can handle the weight of heavy duty trucks would need to be examined.

10.6 Determination of Truck Inspection Facility(ies)

Construction of truck inspection facilities integrated with the overall design concept is a component of the Locally Preferred Strategy. During the Major Corridor Study, a candidate site was identified for an inspection facility adjacent to northbound I-710 between Long Beach Blvd. and Del Amo Blvd., primarily located within Southern California Edison right-of-way. However, specific sites have not been subjected to more detailed scrutiny, nor integrated with the Hybrid Design Concept. Several interests, including the California Highway Patrol, prefer that a site close to the Ports be selected, if feasible. However, available right-of-way is scarce in the segment of I-710 south of I-405. Siting issues which will need to be addressed include proximity to the Ports, adequate space to queue trucks awaiting inspections, noise and air emissions impacts to surrounding communities and traffic safety.

10.7 Phasing of Improvements

All of the elements in the Locally Preferred Strategy (LPS), including the Hybrid Design Concept, will have a total cost in excess of \$5 billion and their implementation will need to be phased over several years. Decisions will need to be made regarding the order of phasing of

implementation of the LPS components, including items such as the truckway, added general purpose travel lanes for I-710, interchange improvements and arterial street improvements. Considerations in these decisions will include constructability, maintenance of traffic, funding availability, and political and community consensus. A phasing plan will need to be agreed upon by the funding and implementing agencies as part of the EIS/EIR phase of the project development process.

10.8 Technology, Construction and Noise Impacts

The OPC at its November 2004 meeting adopted guiding principles stating that the analysis during the EIR/EIS Phase include detailed review of construction and noise impacts and mitigation; and the feasibility of alternative technologies for movement of goods in the corridor.

10.9 Project Funding

MTA views the I-710 Corridor Improvement Project as one of national significance. As a consequence, the MTA intends to assemble a multi-jurisdictional coalition of funding partners. In order to access federal and state funds for the project, innovative and conventional local revenue sources must be analyzed in detail. A detailed financial plan will be prepared exploring such revenue sources as container fees and truck-way tolls, during the next phases of project planning and development.