ALAMEDA CORRIDOR

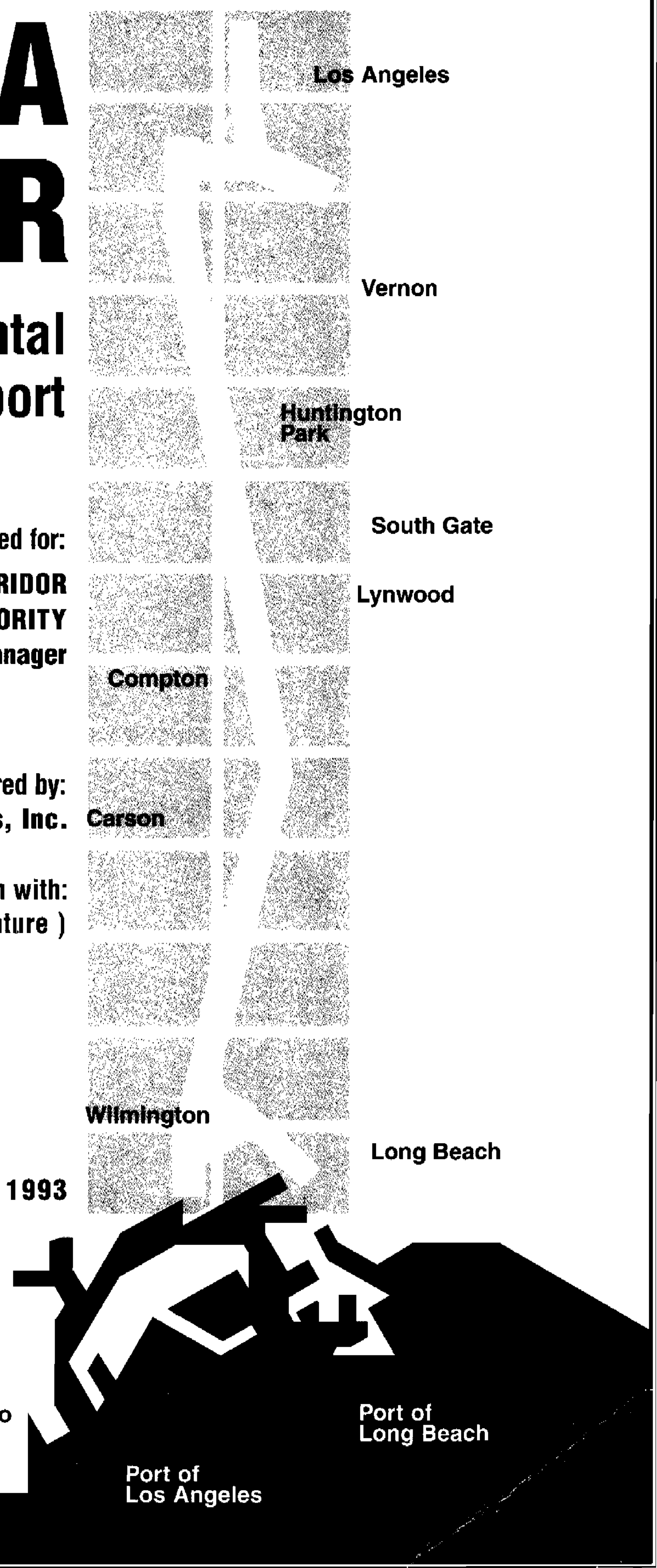
Environmental Impact Report

Prepared for:

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY
Gill V. Hicks, General Manager

Prepared by:
Myra L. Frank & Associates, Inc.

In Association with:
DMJM/M & N (A Joint Venture)



January 1993

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FOR THE

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SCH# 90011169

LAC# 910108

PREFACE

The Governing Board of the Alameda Corridor Transportation Authority wishes to acknowledge the time and effort afforded to the project by the representatives of all ACTA members, including the ports of Los Angeles and Long Beach, SCAG, Caltrans, LACTC, the County of Los Angeles, and the cities of Los Angeles, Long Beach, Vernon, Huntington Park, South Gate, Lynwood, Compton and Carson. The input received played an important role in the success of the project.

In addition, ACTA wishes to acknowledge the efforts of the subconsultants who performed specific tasks on this project. These include: Myra L. Frank & Associates, Inc.; Felicia Bragg & Associates; Givens, Saiki, Williams/Airborne Systems; Katz, Okitsu & Associates; DKS & Associates; RL Banks & Associates; Harris Miller, Miller & Hanson; KaWES and Associates, Inc.; Leachman & Associates; Law/Crandall & Associates; MAA Engineering; Robert K. Meeks and Associates; J.L. Patterson & Associates; and the Radian Corporation.

The development of the Alameda Corridor project has resulted in a set of companion documents to this Environmental Impact Report. Those documents are fully cited in the bibliography, and they include the following:

DMJM/M&N. Concept Study of Railroad and Highway Improvement for the Development of the Alameda Corridor. 1991.

DMJM/M&N and DKS & Associates. Appendix A: Highway Capacity and Level-of-Service Analysis. 1992.

DMJM/M&N and Leachman & Associates. Appendix B: Railroad Capacity and Operation Analysis. 1991.

DMJM/M&N and Law/Crandall & Associates. Appendix C: Preliminary Geotechnical Investigation. 1991.

DMJM/M&N and MAA Engineering. Appendix D: Preliminary Environmental Site Assessment. 1991.

DMJM/M&N. Appendix E: Project Cost (3 vols.). 1991.

DMJM/M&N. Appendix F: Existing Corridor Projects and Status. 1991.

DMJM/M&N. Appendix G: Alternatives Analysis. 1991.

DMJM/M&N. Appendix H: Conceptual Design Layouts, Alternative 1: At-Grade Trainway. 1991.

DMJM/M&N. Appendix I: Conceptual Design Layouts, Alternative 2.1 and 2.2 Depressed Trainway. 1991.

DMJM/M&N. Feasibility Study of the Union Pacific San Pedro Branch and Los Angeles River Route as Alternative Consolidated Rail Corridor. 1991.

DMJM/M&N. Feasibility Study - Design Layouts. 1991.

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SUMMARY

SUMMARY

S.1 INTRODUCTION

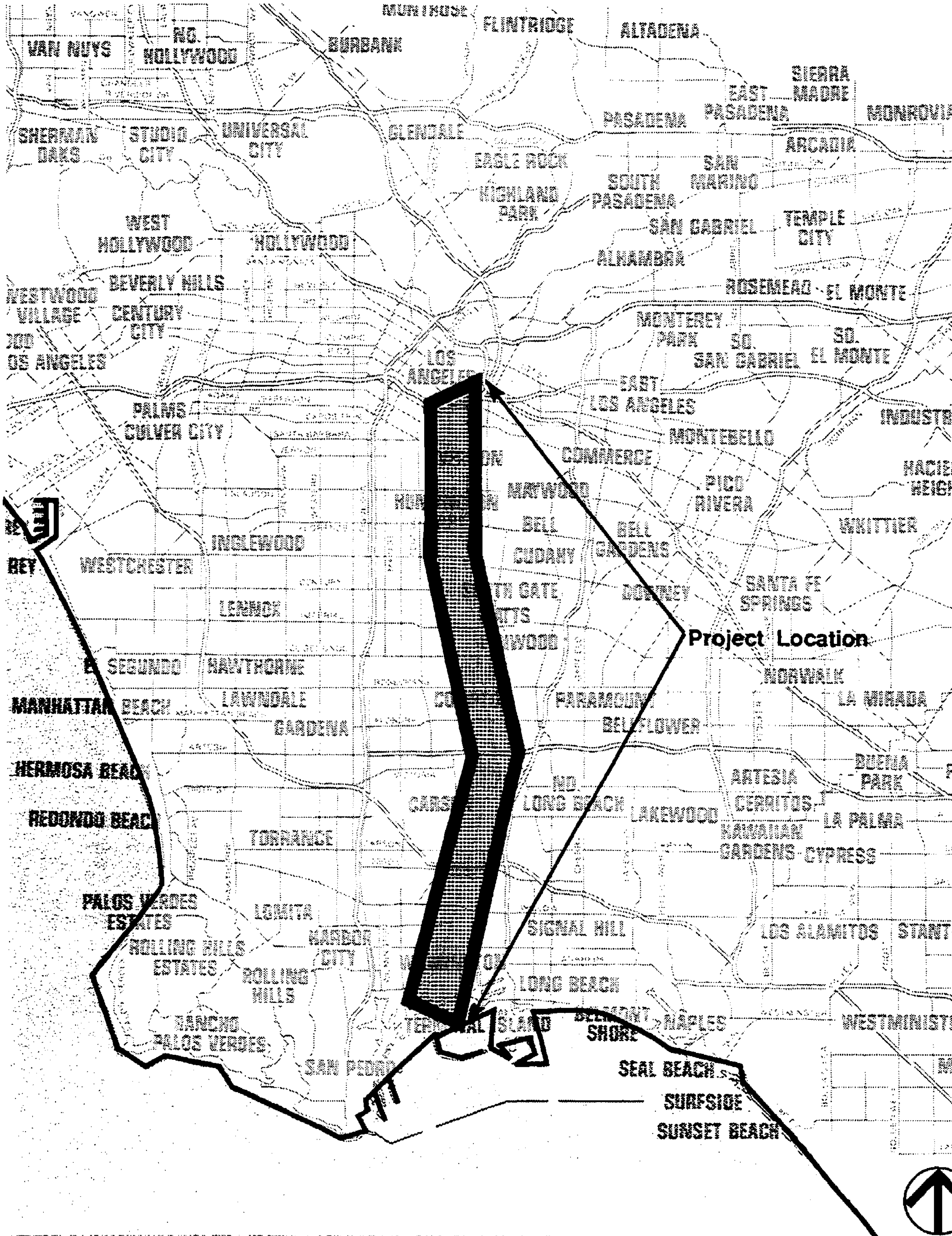
The proposed Alameda Corridor project is located in southern Los Angeles County, California, running from the ports of Long Beach and Los Angeles 20 miles north to downtown Los Angeles, primarily along Alameda Street and the Southern Pacific's San Pedro branch right-of-way. The project extends through or borders the cities of Vernon, Huntington Park, South Gate, Lynwood, Compton, Carson, Los Angeles, and the County of Los Angeles. The project location is shown in Figure S-1.

This current project's origin can be traced to the creation in October 1981 of the Ports Advisory Committee (PAC) by the Southern California Association of Governments (SCAG). This committee, whose members included local elected officials, as well as representatives of the ports of Los Angeles and Long Beach, the U.S. Navy, Army Corps of Engineers, affected railroads, trucking industry, and the Los Angeles County Transportation Commission (LACTC), was established in response to growing concerns about the ability of the ground transportation system to accommodate increasing levels of traffic in the port area.

The first phase of the PAC's study, completed in 1982, dealt with the problems of highway access to the ports. In this phase, the PAC addressed a number of problem areas and recommended a cost-effective set of highway improvements, including the widening of certain streets. The second phase, a study of rail access, was completed in 1984. As part of this second phase, additional highway improvements were also recommended; however the focus of the second phase was concern over the impacts of projected train traffic on communities north of the ports. Three routing alternatives were evaluated and the results of the analysis indicated that consolidating all trains on an up-graded Southern Pacific San Pedro Branch right-of-way would be the most cost-effective alternative.

To pursue this objective, in February 1985, SCAG created the Alameda Corridor Task Force (ACTF), whose membership was similar to that of the PAC, with the addition of the California Public Utilities Commission (CPUC) and each of the cities along the corridor. The need for the project was further confirmed by the Consolidated Rail Corridor Strategic Plan published by the two ports in November 1988. The ACTF concluded that a Joint Powers Authority should be created to have design and construction responsibility for the Alameda Corridor, and the Alameda Corridor Transportation Authority (ACTA) was created. In May 1990, ACTA contracted with Daniel, Mann, Johnson & Mendenhall/Moffatt and Nichol Engineers to develop conceptual designs, conduct highway and railroad capacity studies and prepare this Environmental Impact Report. The purpose of the project, as officially adopted by the ACTA governing board is:

> *To facilitate access to the ports through the year 2020 while mitigating potentially adverse impacts of the ports' growth, including highway traffic congestion, air pollution, vehicle delays at grade crossings, and noise in residential areas.*



Source: Myra L. Frank & Associates, Inc., 1992.

FIGURE S-1	Alameda Corridor Transportation Project Location	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

S.2 ALTERNATIVES

The ACTA governing board developed criteria for evaluating potential alternatives for the Alameda Corridor project.

- Economic goals included promoting economic development along the corridor, minimizing land devoted to port-related freight rail operations, sustaining economic growth, maintaining and improving existing businesses, promoting growth of international trade through the ports and minimizing property acquisitions.

- Traffic goals included reducing vehicle delays at grade crossings, improving north/south travel speeds, improving level-of-service at intersections, improving connections to I-105 and I-10, providing an alternative route to parallel freeways, improving emergency vehicle access, diverting truck traffic to rail, coordinating and interfacing with plans at corridor ends, and maximizing convenience to pedestrians crossing Alameda Street.

- The goals for railroad operations were to improve railroad operating flexibility and efficiency, improve railroad speeds, provide fair and equal access for all carriers and maintain service to customers.

- Environmental goals included improving the overall quality of life, minimizing projected air pollution, minimizing projected energy consumption, developing a project compatible with adjacent land uses, resolving present poor or deteriorating situations, and aesthetics and minimizing exposure to noise and vibration.

- Cost goals included maximizing cost effectiveness and maximizing coordination of the corridor project with existing projects and funding sources.

- Safety and security goals were to improve vehicular safety, improve safety for pedestrians, improve safety for operations and personnel and improve security.

- Construction goals were to minimize disruption to highway and rail users, maintain access to existing businesses and residences, minimize noise and other construction impacts and implement the project in phases.

For purposes of developing alternatives to implement a consolidated corridor, the limits of the study area for roadway improvements were from Alameda Street at the I-10 interchange on the north to the intersection of SR-47/SR-103 (Terminal Island Freeway) and Henry Ford Avenue on the south. For railroad improvements, the corridor would extend from the East L.A. Yard/Pasadena Junction on the east and north, connect with SP trackage in Alameda Street in the vicinity of 25th Street and continue southward along Alameda Street to the Badger Avenue Bridge access onto Terminal Island. A variation to this occurs in the reach between 25th Street and Randolph Street, where the rail facility could alternatively be routed to the west, along Long Beach Avenue, in the existing Southern Pacific Wilmington branch.

Two alternative trainway sections were considered: an at-grade section and a depressed (below grade) section. A range of sections for the roadway component of the project were examined, generally involving either splitting the roadway into a couplet straddling the rail tracks or placing all of the roadway lanes on one side of the train tracks. In addition, some options retained use of the existing east barrel of Alameda Street, which would then function as a frontage road. In conjunction with the alternative trainway/roadway configurations along Alameda Street, selected east-west streets along the corridor would need to be provided with separations to permit effective railroad operations and improve traffic flow. These grade separations could be configured as overcrossings or underpasses, depending upon the constraints or opportunities at any given location. All other at-grade crossings of the tracks would be closed as part of this project. Over the course of project development, the following locations were selected for consideration for east-west highway grade separation:

Santa Fe Avenue & Washington Boulevard
38th/41st Streets
Vernon Avenue
Slauson Avenue
Gage Avenue
Florence Avenue
Nadeau Street
Firestone Boulevard
92nd Street/Southern Avenue
Tweedy Boulevard
Imperial Highway
Weber Avenue (at-grade trainway only)
Martin Luther King Jr. Boulevard (depressed trainway only)
El Segundo Boulevard
Compton Boulevard
Alondra Boulevard
Greenleaf Boulevard
Sepulveda Boulevard
Pacific Coast Highway
Anaheim Street
Henry Ford Avenue and SR-47

In addition to transverse grade separations, a longitudinal roadway with elevated overcrossings along Alameda Street was also suggested.

The various roadway, trainway and grade separation options were combined to yield alternatives to be considered for the entire corridor. From Compton Creek south, all alternatives shared a common configuration. The original alternatives proposed included at-grade alternatives; depressed trainway alternatives, depressed trainway alternatives which would follow an alignment along the SP Wilmington Branch between 25th Street and Randolph Street; two modified depressed trainway alternatives, one of which would have brought the depressed trainway to an at-grade profile north of Rosecrans Avenue and the other would have brought the depressed trainway north of Firestone Boulevard; and a depressed trainway with two-way roadway alternative, and a truck expressway, which would have provided exclusive truck lanes along Alameda Street.

All of the alternative configurations were evaluated in terms of their ability to satisfy the goals and criteria. A series of technical memoranda was produced, documenting the methodology and results of the evaluation. But the evaluation demonstrated that all the alternatives performed nearly the same; thus additional factors had to be considered. Alternatives providing only four traffic lanes were eliminated because of their inability to handle future traffic. Three alternatives remained in consideration: Alternative 1.0, an at-grade trainway with six lanes along Alameda Street; Alternative 2.1A, a depressed trainway along Alameda Street with six traffic lanes; and Alternative 2.2, a depressed trainway with the Vernon Diversion.

In addition to the configuration alternatives considered within Alameda Street, two alternative corridors were also examined, namely the Union Pacific San Pedro Branch and the Los Angeles River. The UPRR San Pedro Branch was suggested as a potential alternative corridor because it could theoretically connect the ports to downtown rail connections. The study corridor was along the UPRR line extending from the East L.A. Yard in the vicinity of Washington Boulevard and Downey Road in the City of Vernon south to Wilmington, a distance of approximately 20 miles. In addition to rail improvements, 18 grade crossings were identified for grade separations to improve traffic flow.

The river corridor would have begun at the Downey Road bridge in the north (south of Bandini Boulevard) and extend southward to the Union Pacific bridge south of Del Amo Boulevard. The length of the corridor would be approximately 15 miles. In order to complete the required rail connections at the southern end of the project, the trainway would have been required to leave the Los Angeles River route and assume an alignment along the southern reach of the UPRR route. Two alternative alignments in this corridor were identified: one beginning on the west side of the river and proceeding in an elevated configuration for much of its length; and the second running in a depressed configuration south to the UPRR bridge.

A combination corridor was also evaluated that would have combined portions of the UPRR and L.A. River alignments. Such a combination could provide the most benefits of the two alternative corridors being considered.

The alternative corridors were also evaluated extensively. Both the UPRR and L.A. River Route corridors had a higher population exposure than did the Alameda Corridor. Impacts to community facilities and residential areas were higher for the UPRR/L.A. River routes. Also, the alternative corridors had an overall negative rating along either route, with traffic, noise and local land use impacts being regarded as significant.

Based on the evaluation of the configuration alternatives and the alternative corridors, the project team recommended and the ACTA Governing Board agreed that: Alameda Corridor Alternatives 1.0, 2.1A and 2.2 would be evaluated in the environmental document; the UPRR and L.A. River routes would not be given a complete environmental analysis; and the document would also examine the effects of a sloped trench variation (referred to as Alternative 2.1S) of Alternative 2.1A for its potentially cost-saving aspects. These alternatives are described in detail in the following project description.

S.3 PROJECT DESCRIPTION

The project corridor has been divided into segments for purposes of engineering design and environmental analysis. See Chapter 3 for a description of the segments.

Alternative 1.0 (Figure S-2)

Alternative 1.0 is the first of four build alternatives to be considered for implementation. It consists of an at-grade two-track railroad main line consolidated freight rail corridor with drill track, together with a six-lane roadway section throughout. At 22 selected streets, above-grade east-west grade separation structures would be provided. The combined trainway-roadway arrangement in Alameda Street would vary from a one-way couplet with trainway in the center to the trainway on one side of a six-lane roadway. In some locations a two-lane frontage road would also be provided.

Beginning at the north end of the corridor, modifications would be made in the Redondo Junction and J Yard areas to provide room for the consolidated trainway, which would consist of two main line tracks. The separate drill track would begin from J-Yard. The trainway and drill track would be redirected in a north-south direction on approach to Alameda Street. Beginning in the vicinity of 25th Street, the trainway would be along Alameda Street, approximately centered in the existing track area.

Roadway improvements to Alameda Street would begin in the area of the I-10 freeway interchange. Alameda Street would be widened to six lanes of traffic, three in each direction, separated by a painted median with turning lanes south to 25th street. At this point, the northbound and southbound lanes would divide to form a one-way couplet, with the trainway in the center.

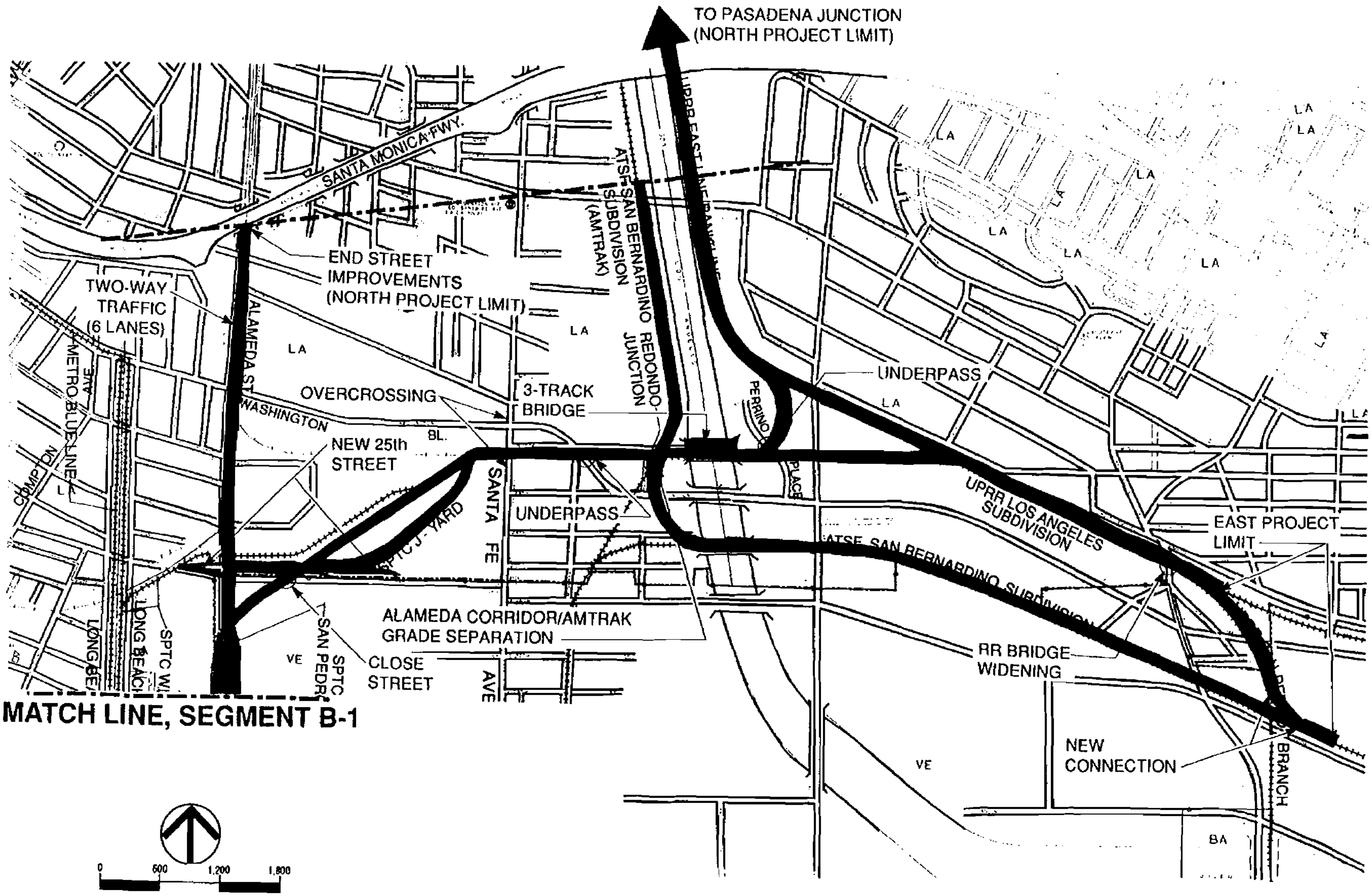
South of Nadeau Street, Alameda Street would shift to the west side of the trainway, where it would again become a two-way roadway, separated by a painted median. This configuration would continue south to the vicinity of Del Amo Boulevard. A frontage road located on the east side of the trainway would be provided between 92nd Street and SR-91.

The I-105 freeway is currently under construction. A recommended related project would provide a loop off-ramp and a diamond on-ramp for eastbound I-105 traffic. Westbound ramp connections are not possible, since Imperial Highway is proposed as an underpass at Alameda Street and grades for the ramps would have been too severe. The existing Wilmington ramps would provide substitute access for westbound I-105 traffic.

South of SR-91, improvements to Alameda Street are part of the Ports Access Demonstration projects. In the vicinity of Laurel Park Road, Alameda Street improvements would pass beneath the consolidated trainway and occupy a position on the east side of the trackage. A small segment of frontage road would be provided where this transition takes place.

The proposed roadway improvements would continue south to the intersection of Alameda Street and Henry Ford Avenue, a short distance to the north of Anaheim Street. The roadway improvements would then proceed south along Henry Ford Avenue to its intersection with SR-103 (Terminal Island Freeway), where the interchange would be reconstructed.

Rail improvements would proceed south from SR-91 (Artesia Freeway) along Alameda Street until a junction is reached between the Southern Pacific tracks in Alameda Street and the AT&SF Harbor Subdivision tracks, at which point the corridor tracks would leave Alameda Street for the AT&SF tracks proceeding south to the Dominguez Channel. The trainway would run along the



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	**SEGMENT A** **Alternative 1.0**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

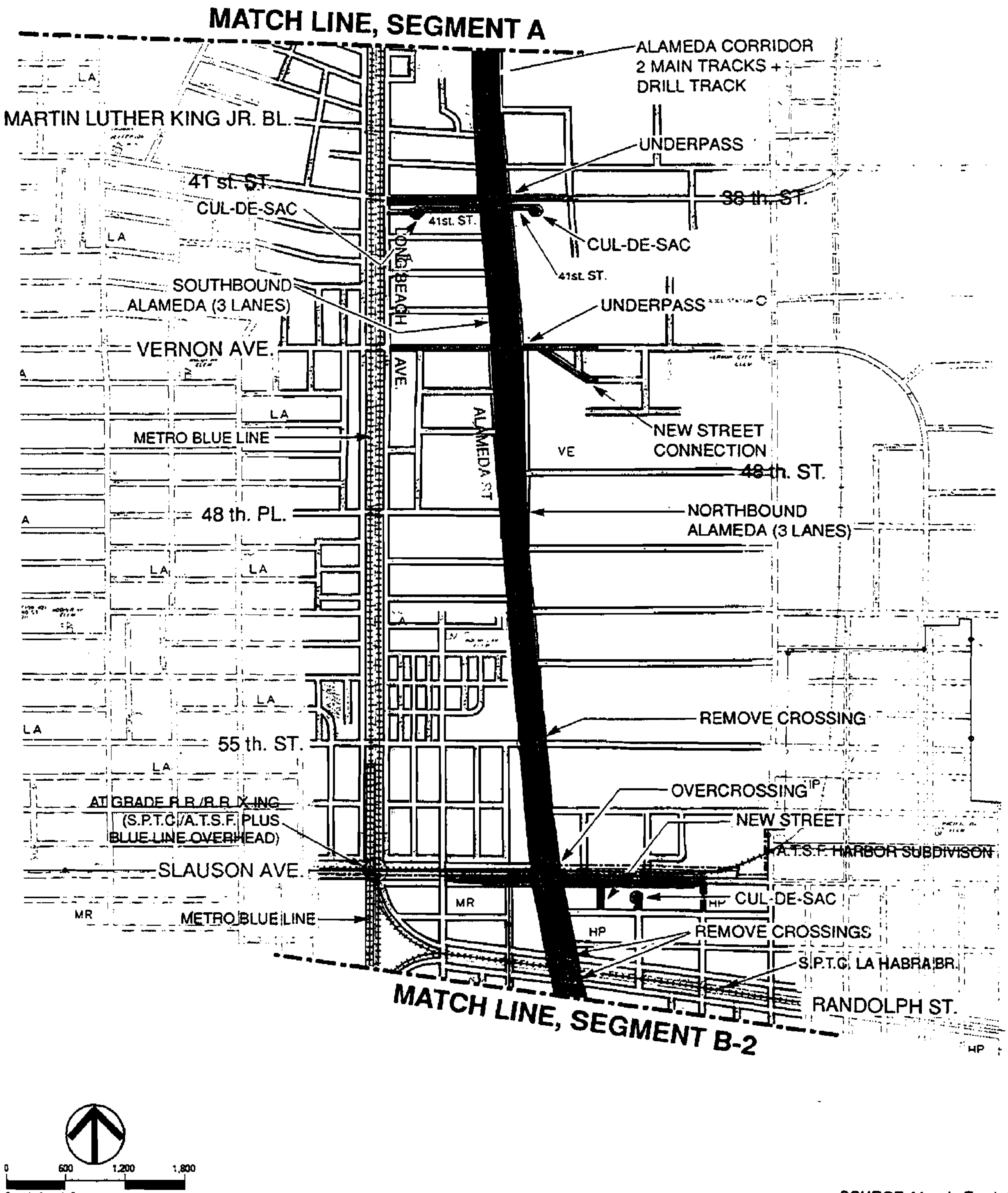
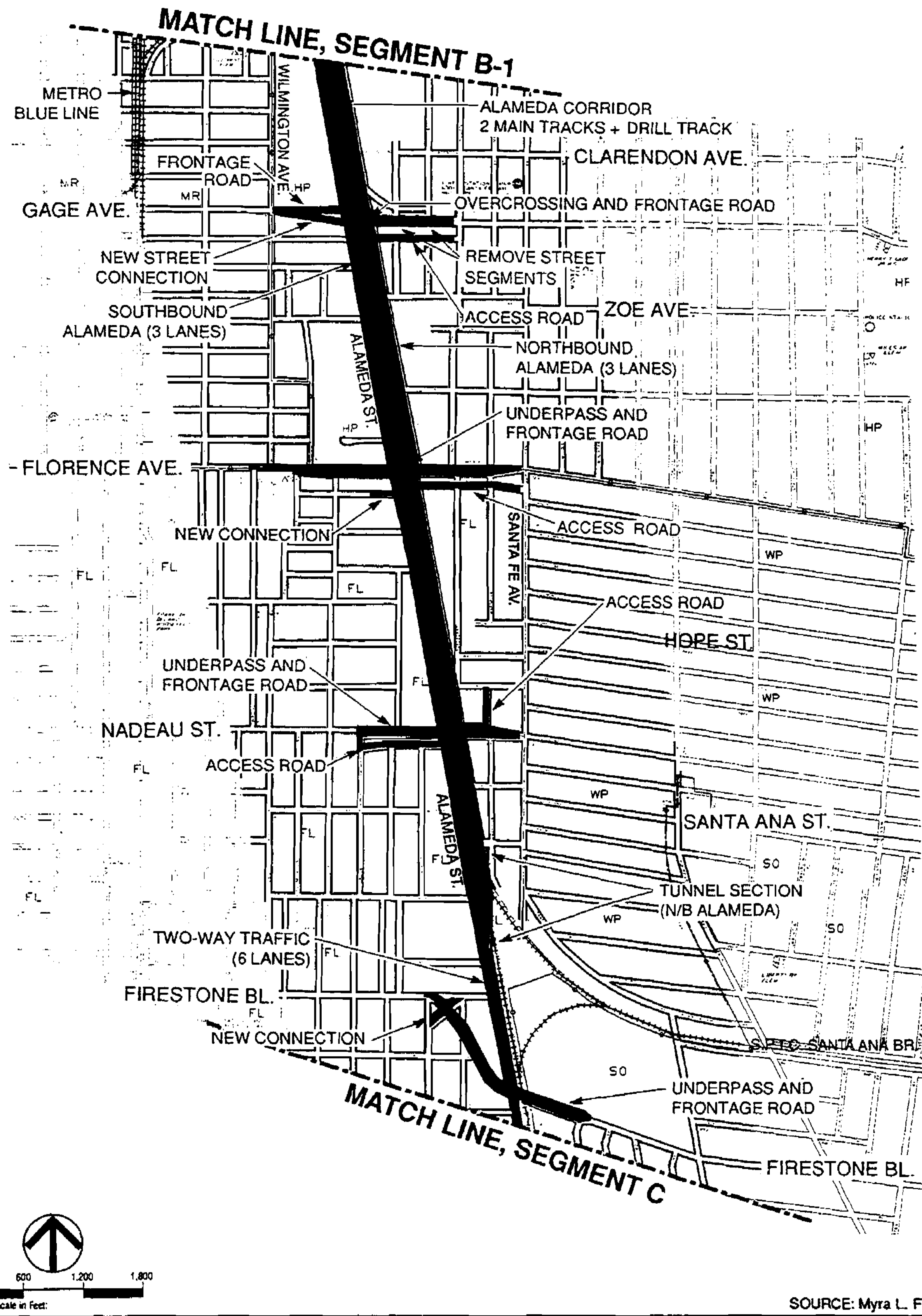
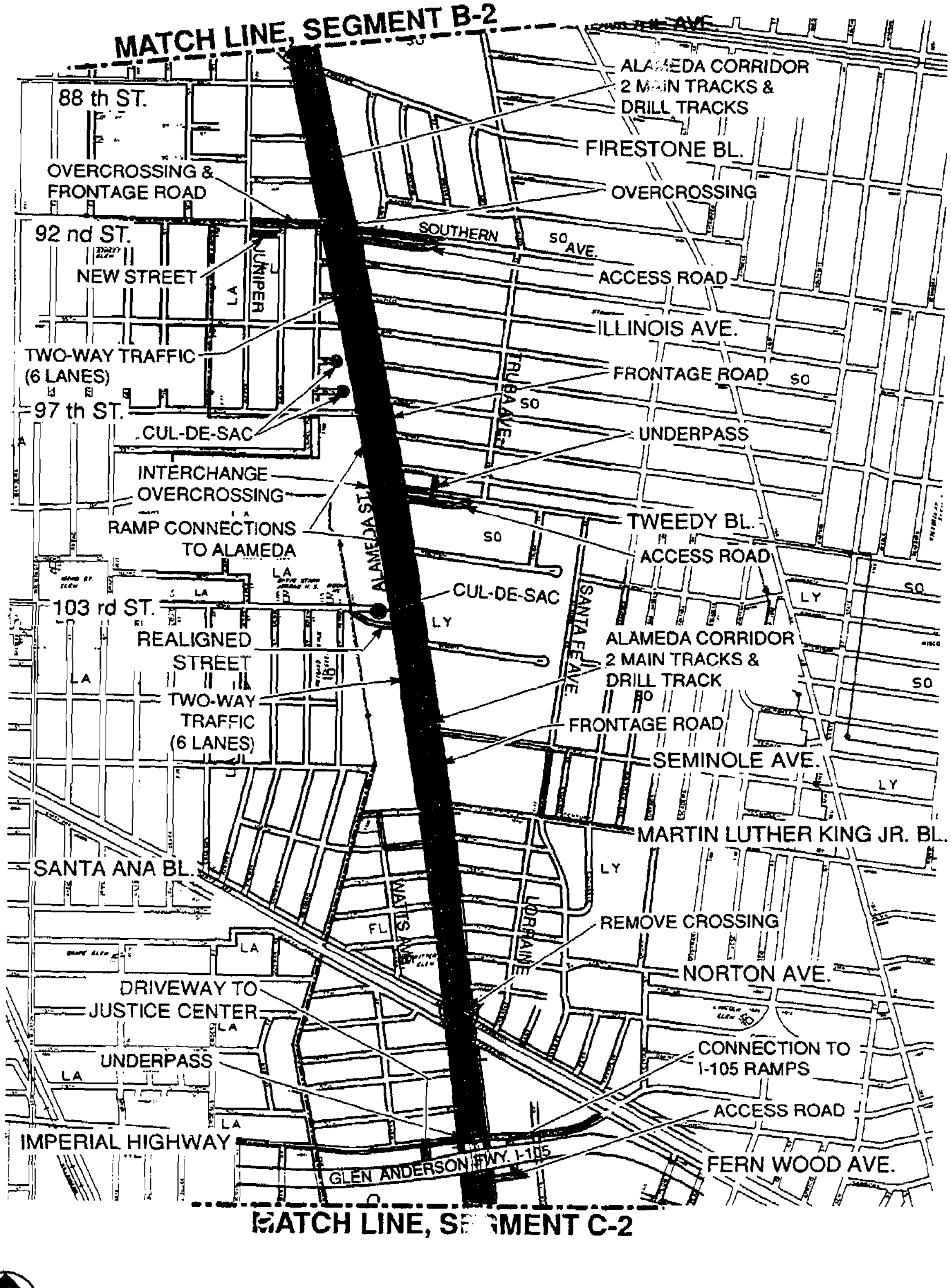


FIGURE Fig. No. S-2	**SEGMENT B-1** **Alternative 1.0**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



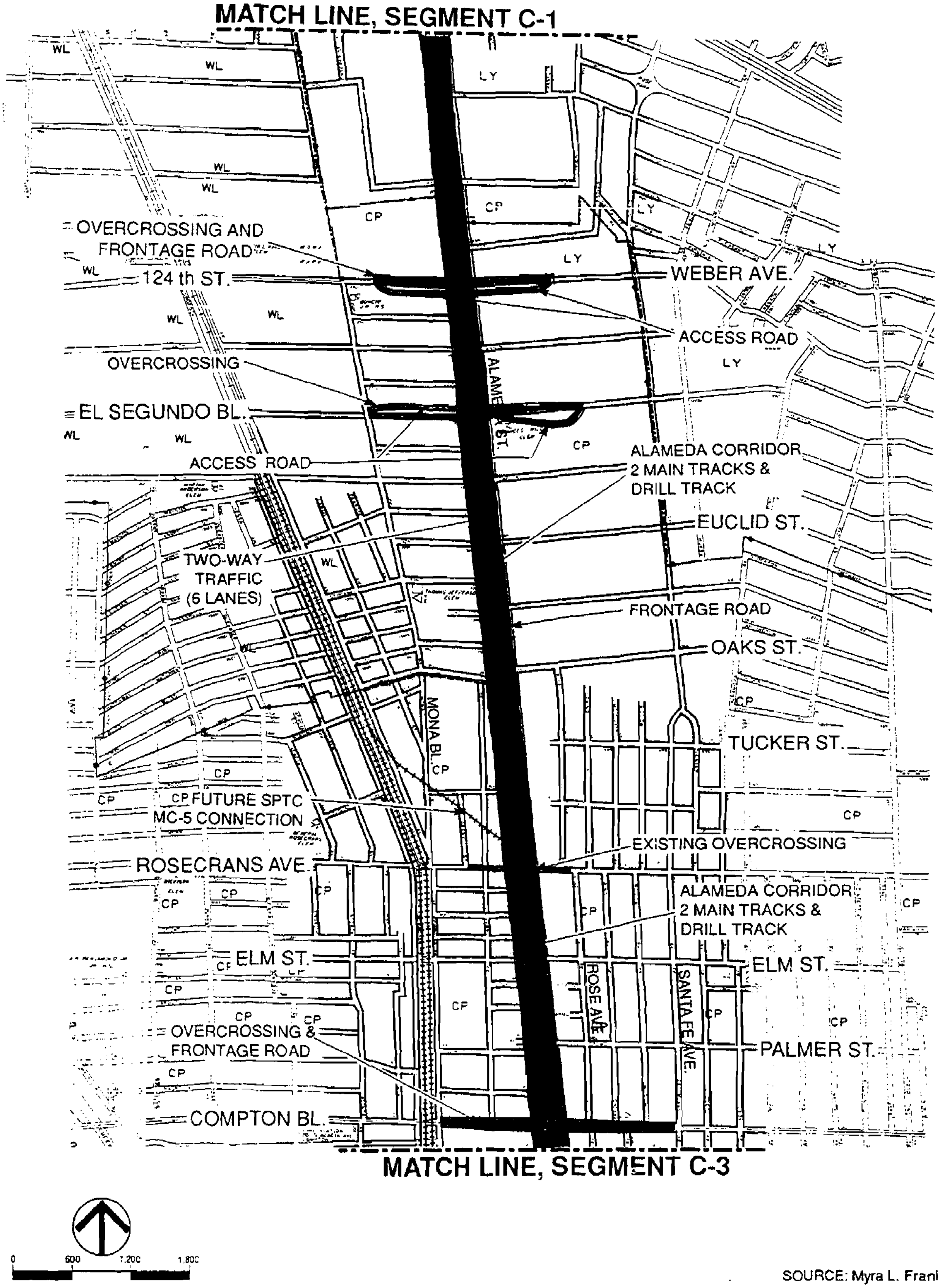
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	**SEGMENT B-2** **Alternative 1.0**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



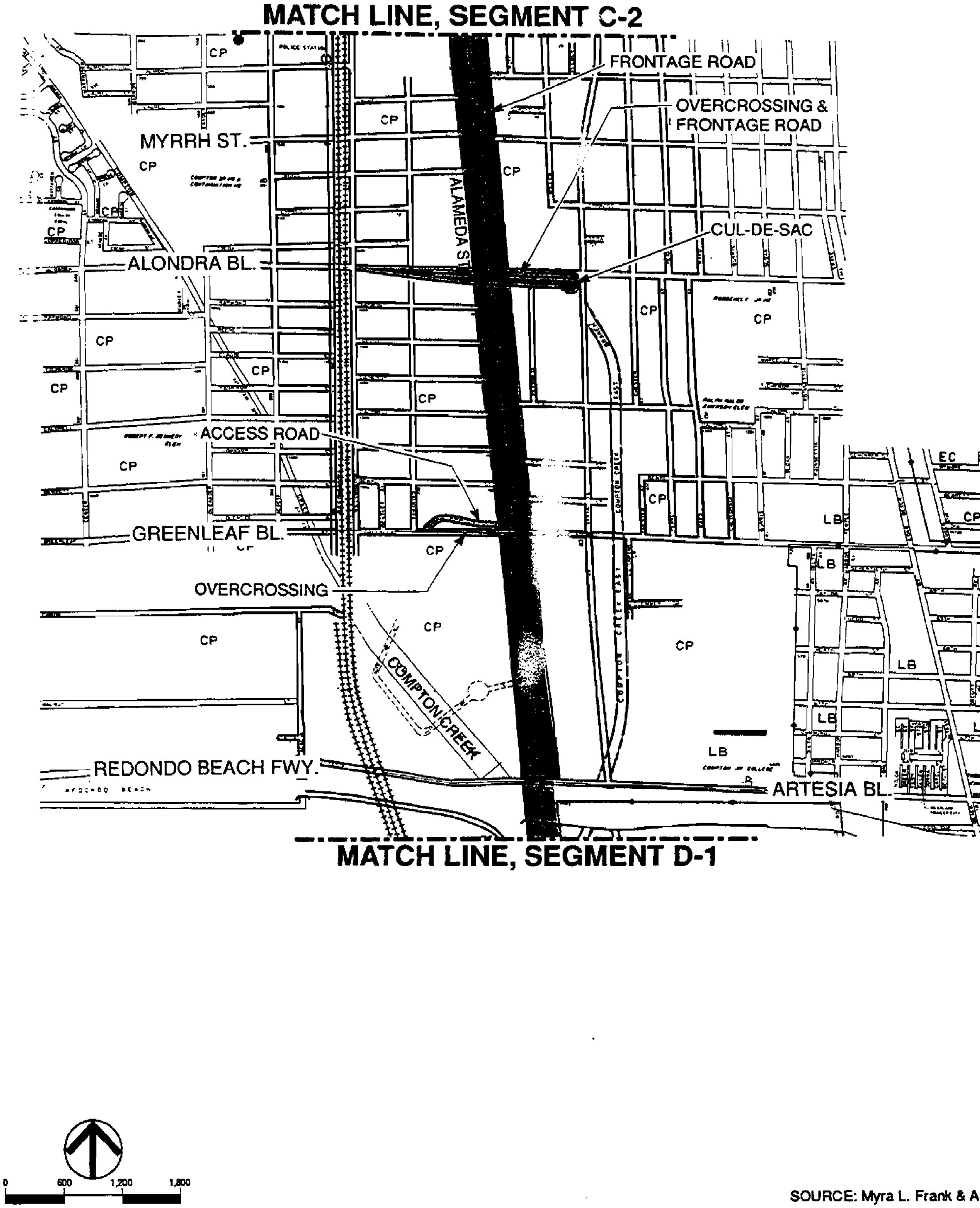
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	**SEGMENT C-1** **Alternative 1.0**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



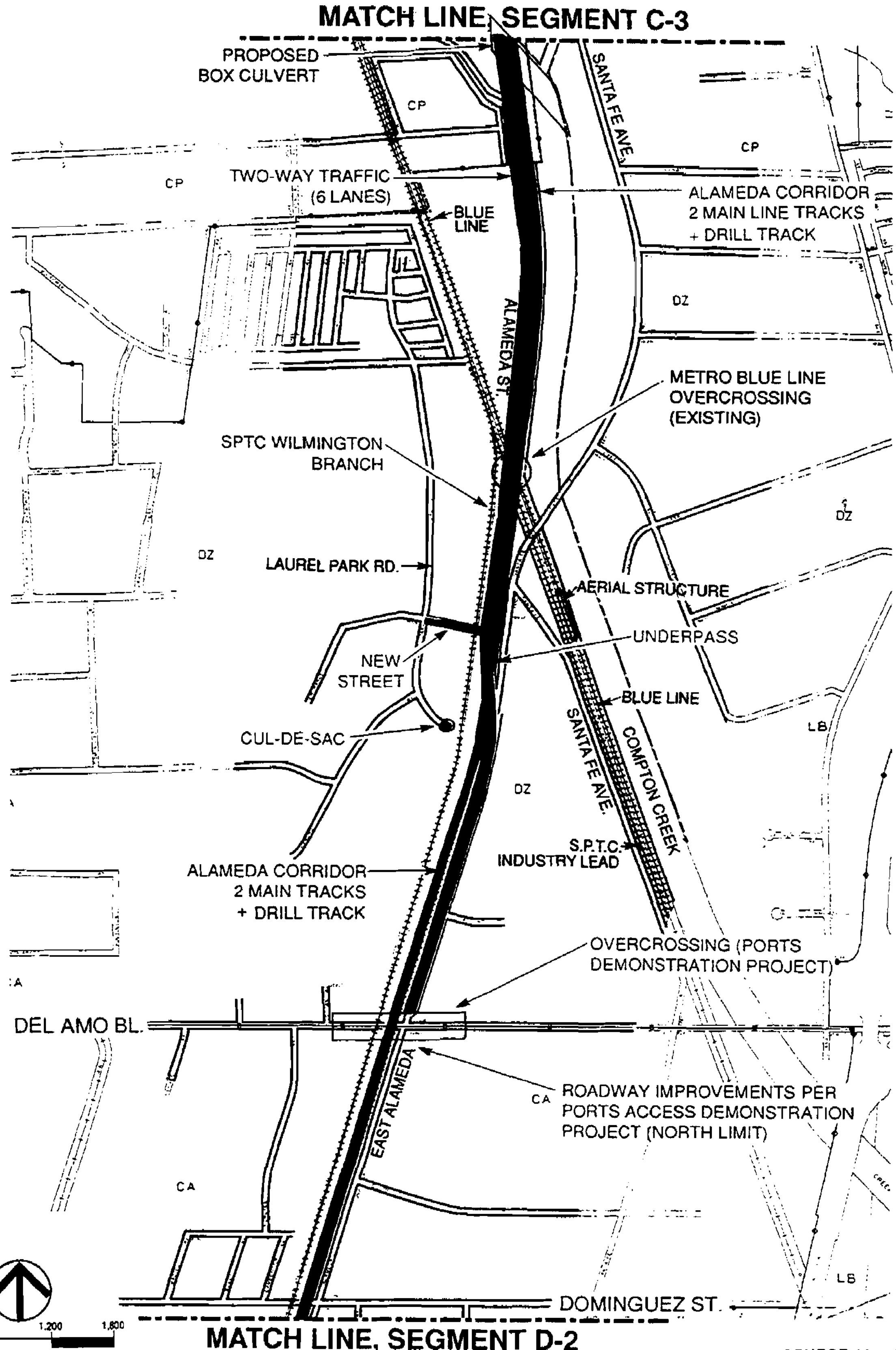
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	SEGMENT C-2 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



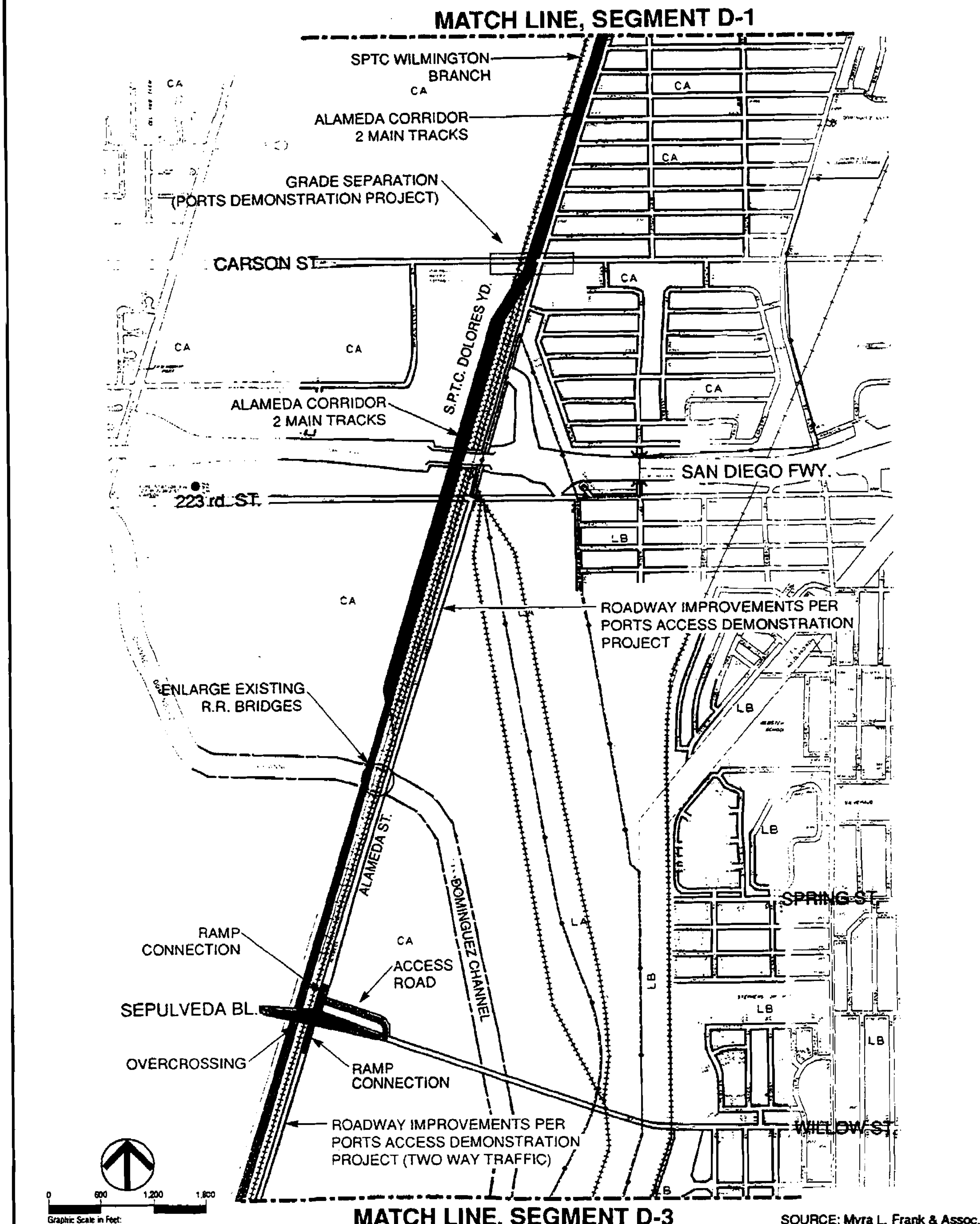
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	SEGMENT C-3 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



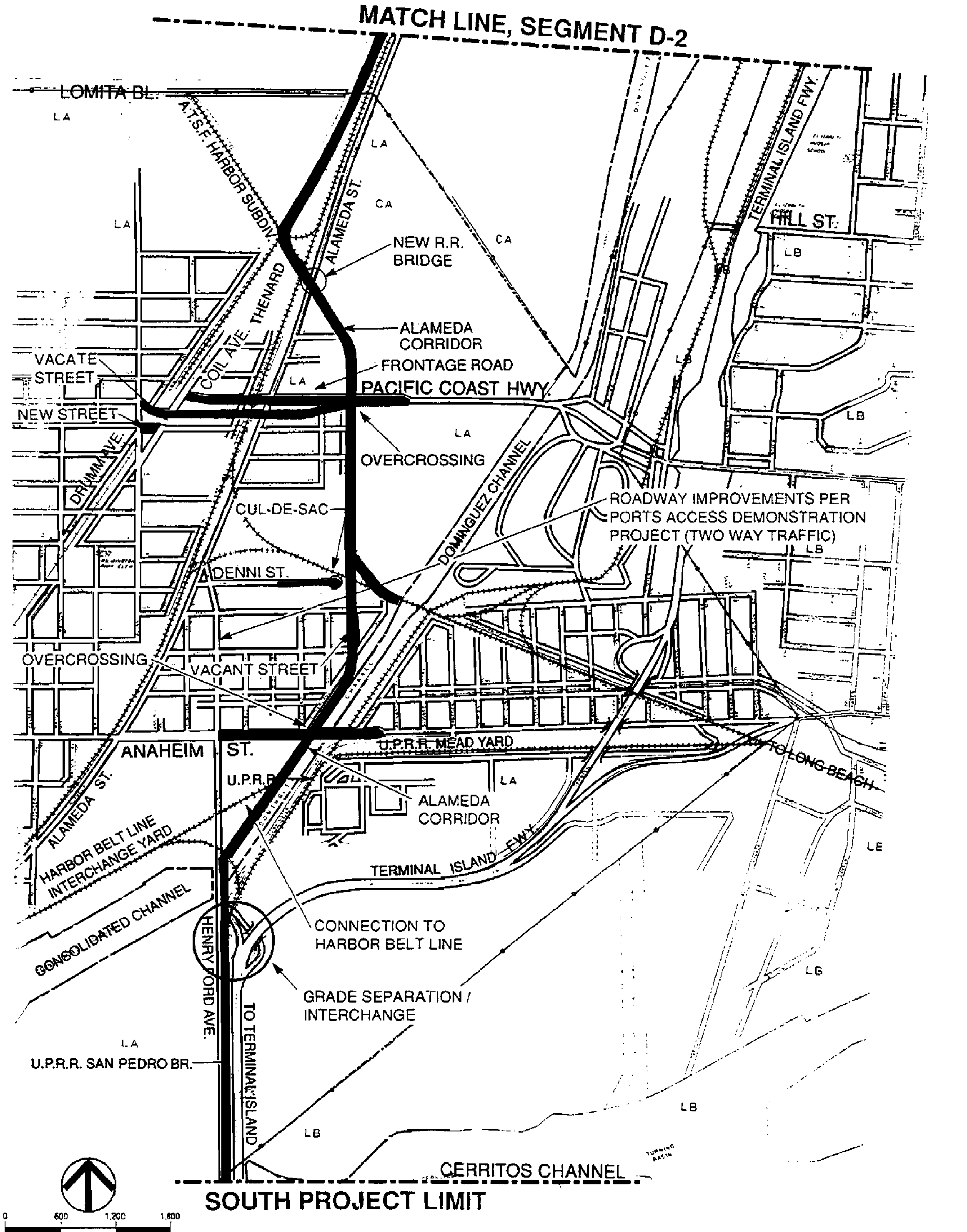
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	SEGMENT D-1 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	**SEGMENT D-2** **Alternative 1.0**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-2	SEGMENT D-3 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

west bank of the Dominguez Channel under the Anaheim Street bridge, then up and over the Dominguez Channel on a bridge toward a connection with the existing Union Pacific San Pedro Branch and the project terminus point on the north side of the Badger Avenue Bridge which spans the Cerritos Channel.

Alternative 2.1A (Figure S-3)

Alternative 2.1A is the second of the four build alternatives, and the first of three which calls for a depressed trainway configuration. This alternative was a derivative of Alternative 2.1, which would have had street and drill track overhangs over the depressed trainway. Alternative 2.1 A has no such overhangs. It consists of a depressed trainway providing for two main line consolidated freight rail tracks, together with an at-grade drill track to provide for local industrial service. Accompanying the depressed trainway would be a six-lane roadway facility, configured as a one-way couplet of three lanes in each direction. Grade separations would be provided for at grade with bridges crossing over the trainway.

From Redondo Junction, the trainway would extend through J Yard in an alignment that would traverse the yard area further north than under Alternative 1.0, in order to allow a fully depressed trainway to be achieved by the time Alameda Street is reached at 25th Street. The trainway would then proceed south in a depressed configuration along Alameda Street until south of Compton Boulevard, where it would swing to the east side of the corridor. The trainway would then continue in depressed configuration until south of Greenleaf Avenue, where it would begin to ascend to an at-grade section south of SR-91. The trainway would be at-grade at the crossing of Compton Creek. South of this point, the alignment of both the trainway and roadway improvements would be the same as in Alternative 1.0.

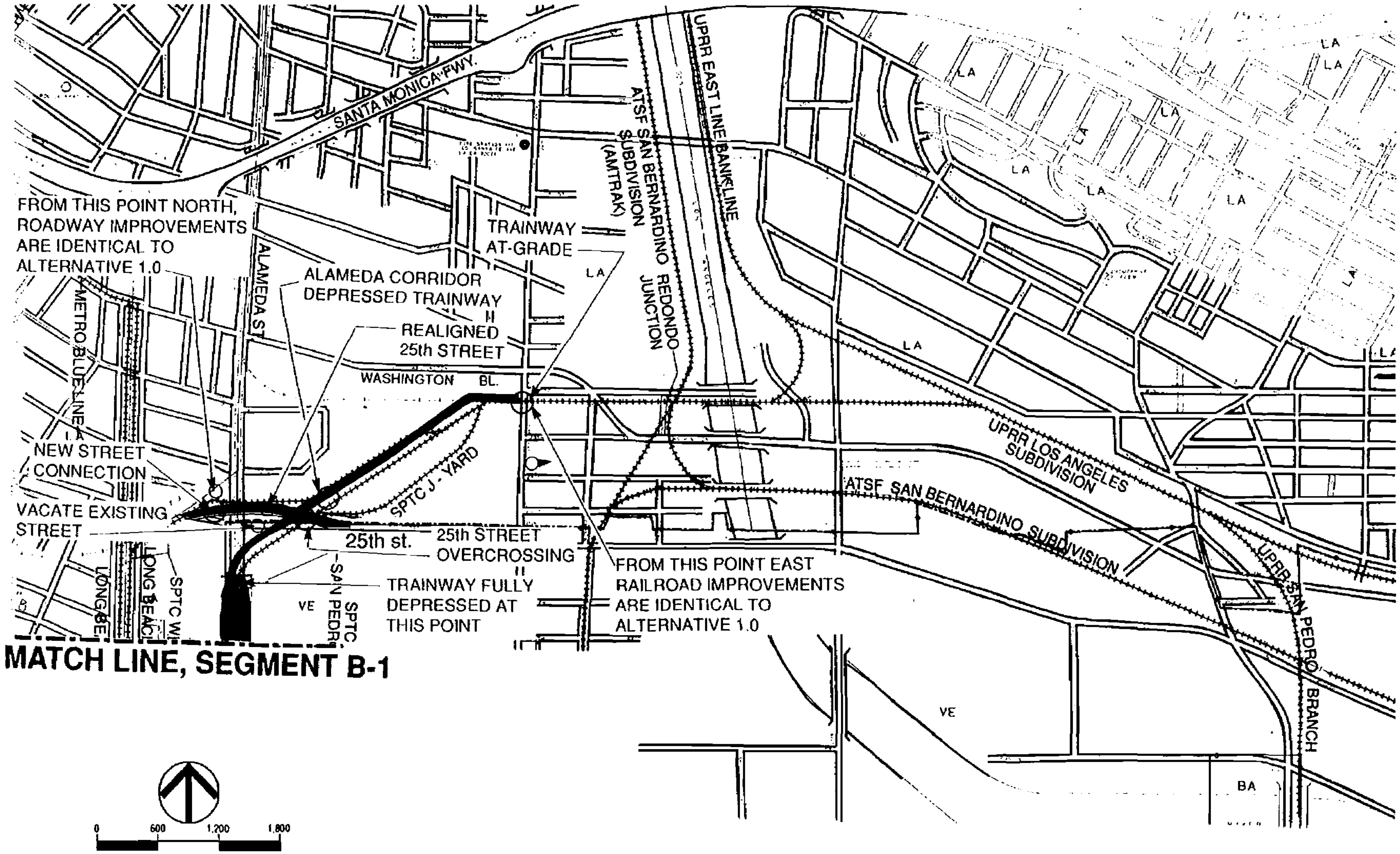
Roadway improvements for this alternative would consist of a one-way couplet straddling the trainway from I-10 to Compton Boulevard. A frontage road would be provided on the east side of the corridor between 92nd Street and El Segundo Boulevard. From Compton Boulevard until the vicinity of Del Amo Boulevard, the roadway would be on the west side of the trainway. An eastside frontage road would be provided between Compton Boulevard and south of Greenleaf Avenue. Grade crossings in these alternatives are provided in the form of at-grade bridges over the depressed trainway, with six lanes of traffic.

Alternative 2.1S

This alternative is the same as Alternative 2.1A except that the trainway trench would be modified by using sloped walls for a portion of the vertical rise. This variation of the basic trench design was offered as a means of reducing construction costs. Grade separations in this alternative would also be provided by means of at-grade bridges over the trainway.

Alternative 2.2 (Figure S-4)

This alternative would generally follow the same trainway and roadway alignments as Alternatives 2.1A and 2.1S north of 25th Street and south of Randolph Street, with the exception of small differences in railroad configuration. Between 25th and Randolph, however, the depressed trainway would follow an alignment along the SPTC Wilmington Branch, which parallels Long



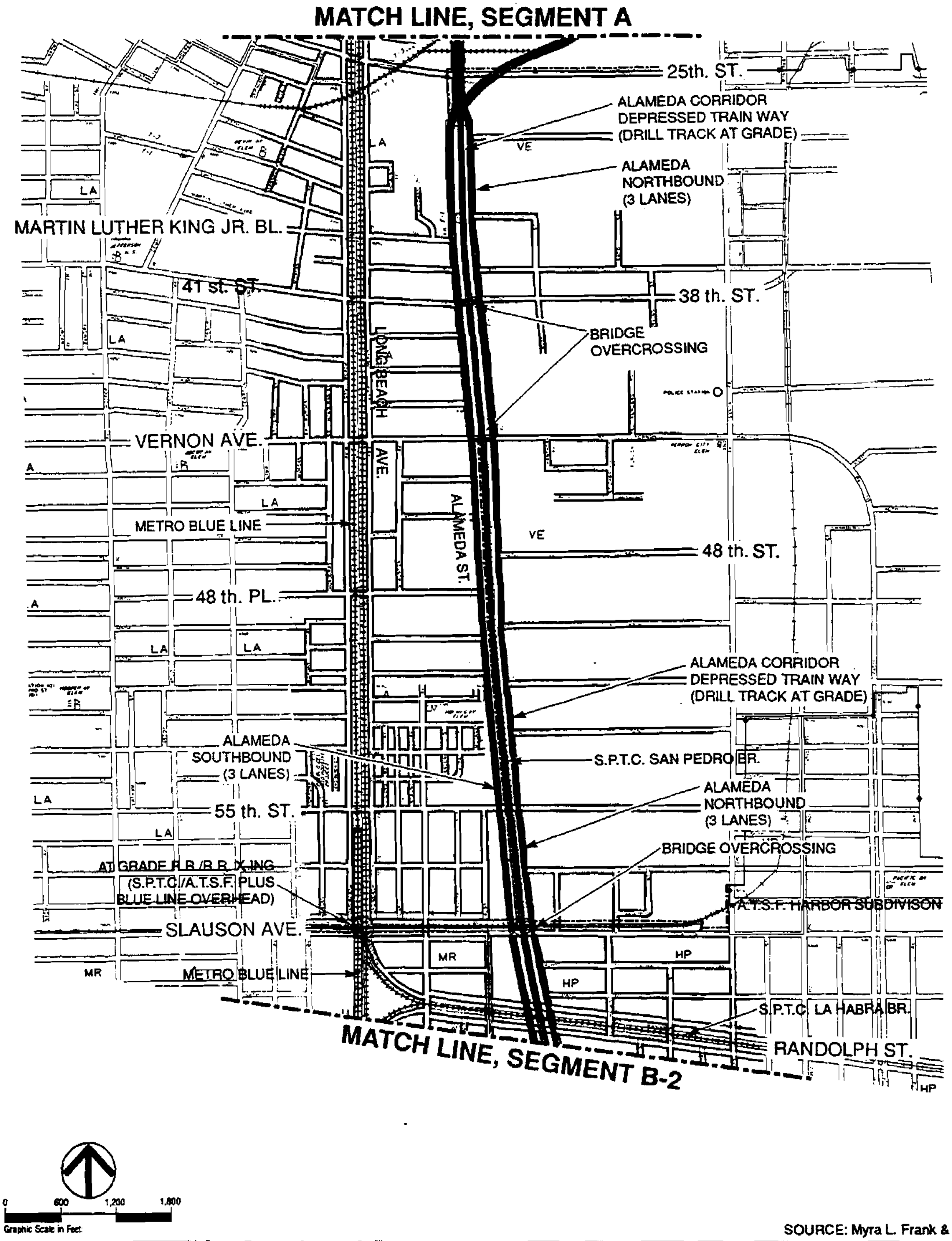
FIGURE

Fig. No. S-3

SEGMENT A

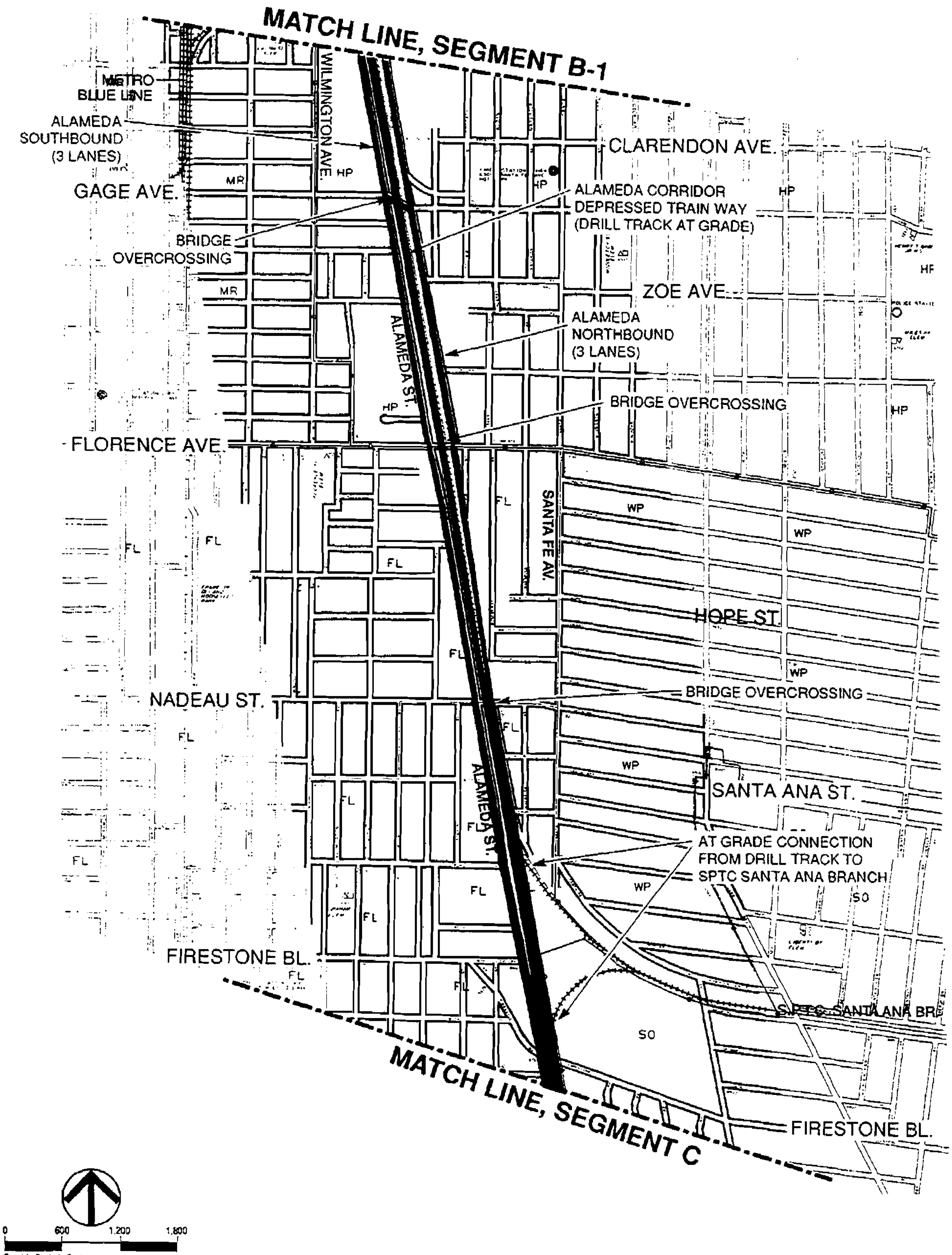
Alternative 2.1A

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



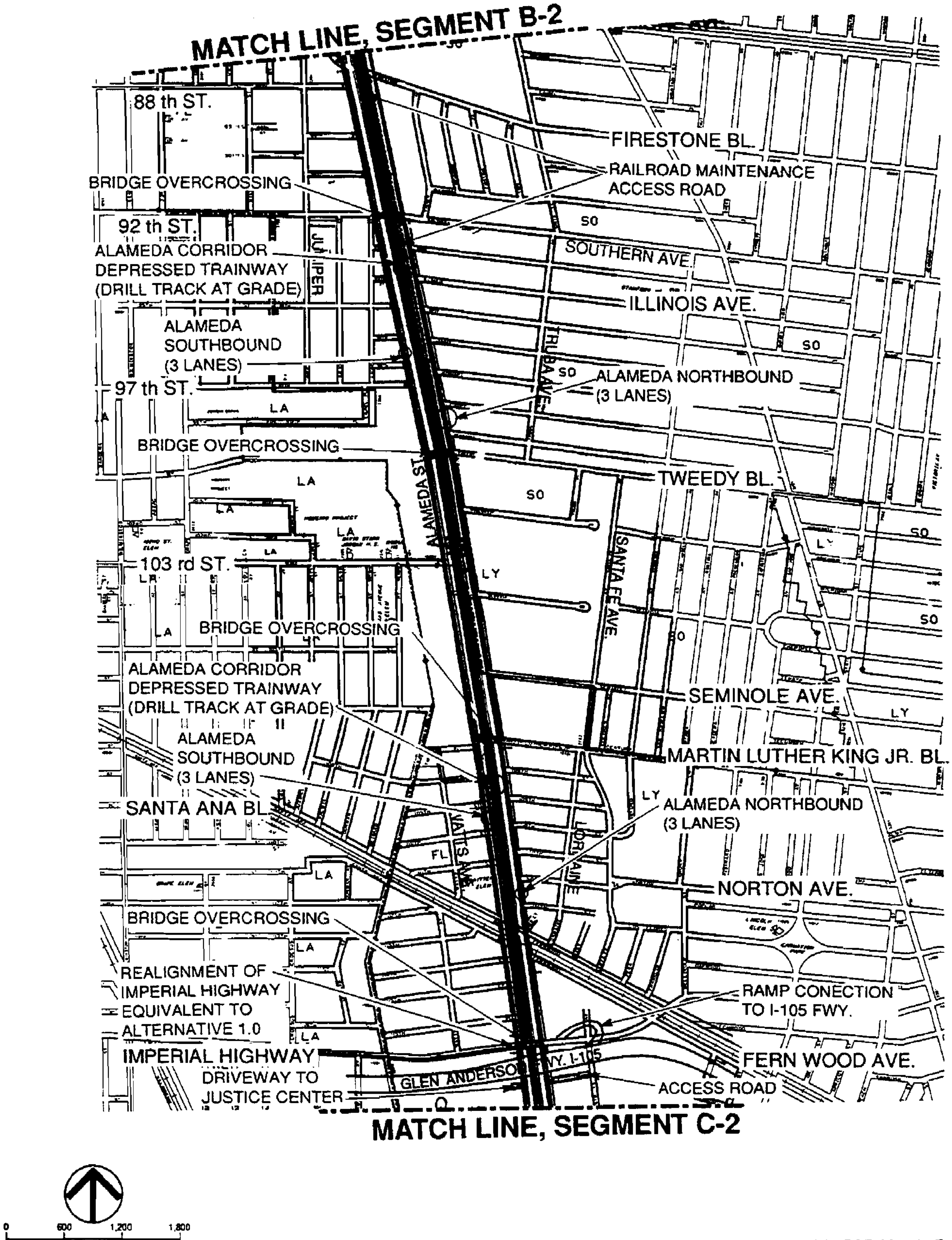
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-3	SEGMENT B-1 Alternative 2.1A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



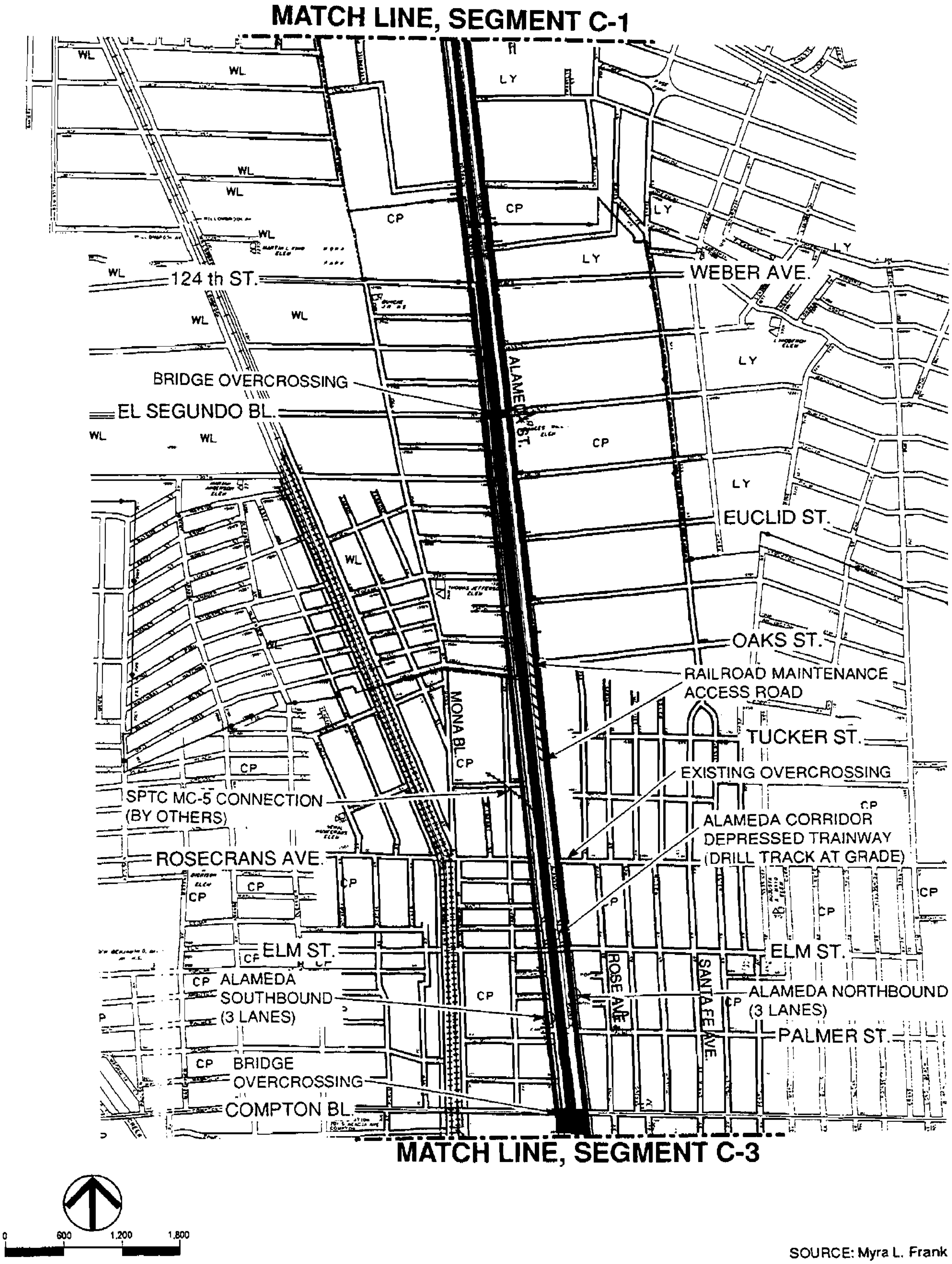
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-3	SEGMENT B-2 Alternative 2.1A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



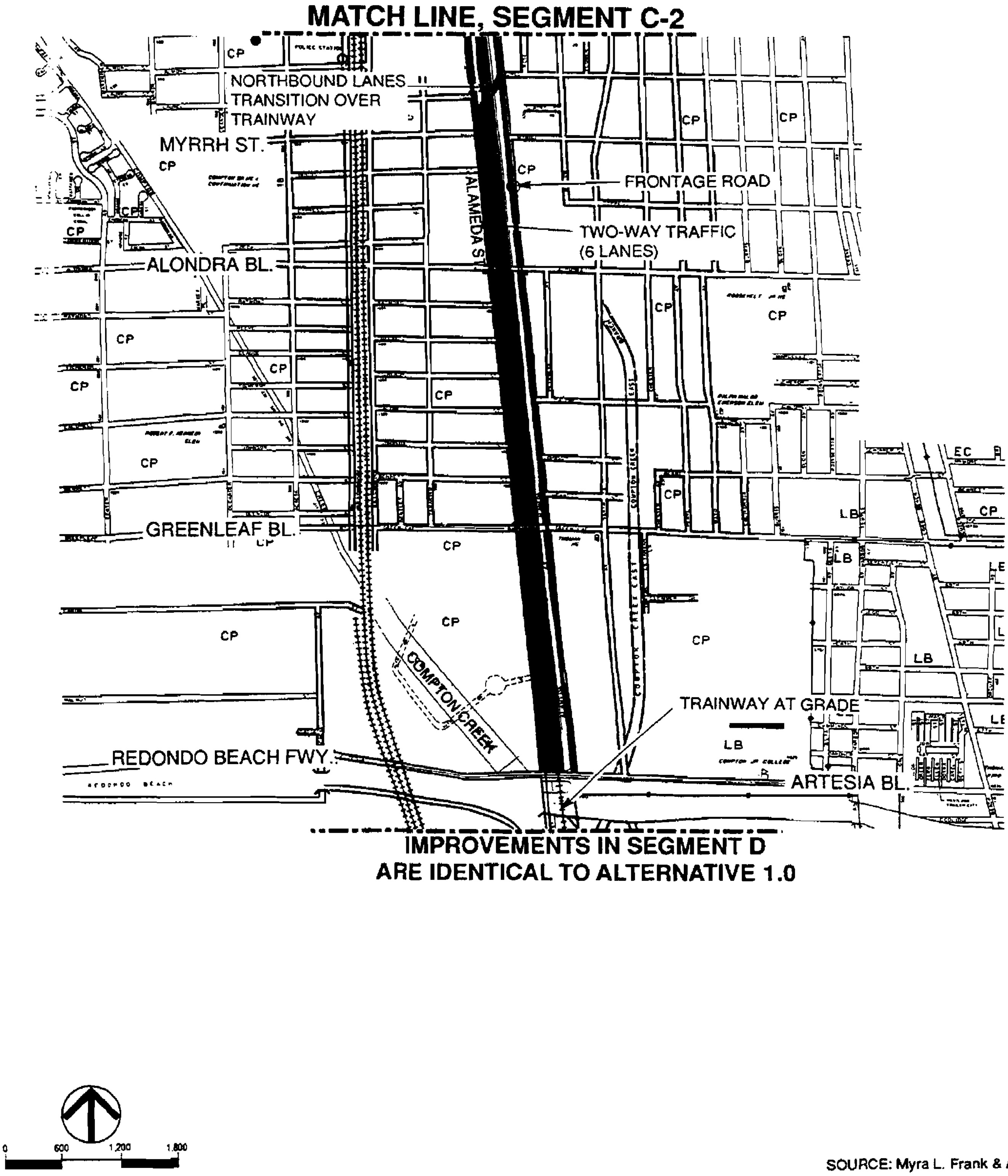
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-3	SEGMENT C-1 Alternative 2.1A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



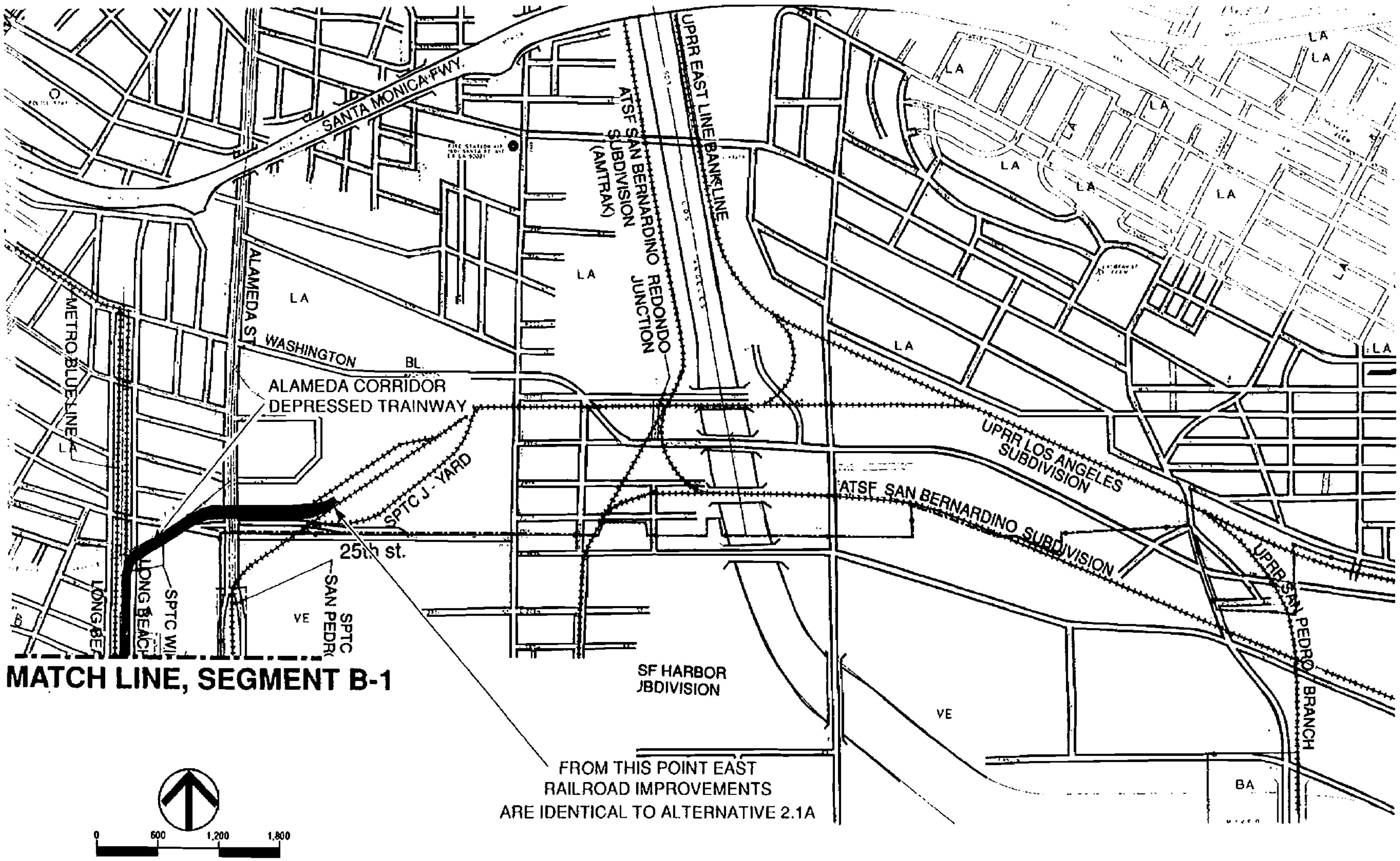
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-3	SEGMENT C-2 Alternative 2.1A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



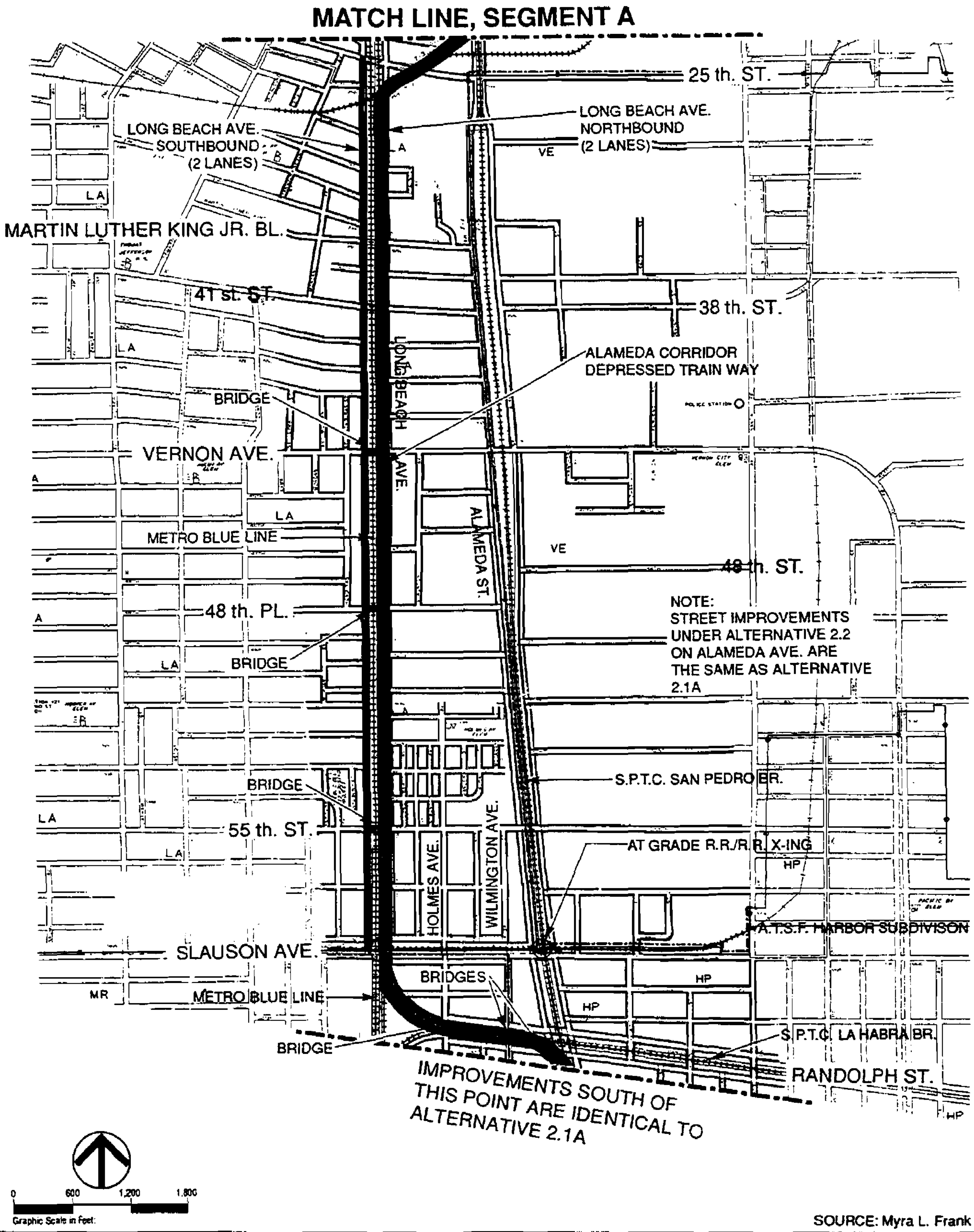
SOURCE: Myra L. Frank & Assoc.

FIGURE	SEGMENT C-3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY
Fig. No. S-3	Alternative 2.1A	



SOURCE: Myra L. Frank & Assoc.

FIGURE	SEGMENT A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY
Fig. No. S-4	Alternative 2.2	



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. S-4	SEGMENT B-1 Alternative 2.2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Beach Avenue to the west of Alameda Street. Also present in this segment are at-grade tracks of the SCRTD Blue Line passenger service and the SPTC Wilmington Branch line.

Between 25th and Randolph Street, the roadway improvements would consist of a two-way facility, separated by a paved median. Alternative 2.2 would provide for six lanes of traffic.

S.4 AREAS OF CONTROVERSY

Since the outset of concept design for the Alameda Corridor project, there have been two major issues of controversy. The first concerns whether the proposed facility should be configured at or below grade. The second concerns whether the facility should be diverted to the SP Wilmington Branch, bypassing the City of Vernon. Also, during the preparation of the EIR, mitigation measures were developed that could have become the subject of controversy. These topics are discussed in the sections following.

S.4.1 Trench vs. At-Grade Configuration

The choice between an at-grade or depressed trainway has been part of the discussion for the Alameda Corridor project since the beginning of concept engineering work. Both configurations were described in the original Request For Proposal (RFP) for the project (November, 1989), they were discussed at the September 13, 1990 Project Workshop, they were embodied in the initial set of configuration alternatives, and they have been included in the final set of alternatives examined in this EIR. In addition, the choice between these two configurations has been the subject of discussion at several ACTA Governing Board meetings and numerous meetings of its advisory committees.

Since the beginning of the project, it has generally been the opinion of the corridor cities that a depressed trainway provided superior mitigation potential for a range of impacts (primarily right-of-way, traffic and noise), as compared to the at-grade option. Some corridor cities have felt so strongly about this that they have stated that no other option would be acceptable to them. The cities prefer the depressed alternative because of reduced right-of-way acquisition, lower impacts on access to businesses, improved aesthetics, more convenient turning movements at intersections, improved pedestrian circulation, and lower noise impacts. In recognition of this strong feeling in favor of the depressed trainway configuration, and as a result of a debate that took place at the ACTA Governing Board March 12, 1992 meeting, a motion was introduced and passed that identified the depressed trainway as the preferred configuration.

The draft environmental document examined both the at-grade and depressed trainway configurations. These options are discussed more fully in Chapter 3.

During the public review period a substantial number of comments were received concerning the pros and cons of the at-grade and depressed configurations. By a significant margin, the depressed configuration was a clear preference by those who expressed a preference.

S.4.2 Vernon Diversion

A second area of controversy, also identified since the outset of the project, concerns the so-called "Vernon Diversion." The City of Vernon is located at the northern end of the project corridor. It is adjacent to the east side of Alameda Street, from 25th Street south to Slauson Avenue. To the west of Alameda Street, in the same area, is a portion of the City of Los Angeles, located within the ninth Council District.

The existing right-of-way along Alameda Street, including the railroad right-of-way in the reach between 25th Street and Slauson Avenue, is quite narrow; 125 feet in some portions. If the at-grade alternative (1.0) were implemented in this reach, the cross section required (at-grade trainway with one-way roadway couplet) would extend to a minimum of 160 feet in width. The depressed trainway has two alternative cross sections. One would construct a trainway extending approximately 33 feet below grade and would have vertical concrete retaining walls approximately 47 feet apart, and the second would construct a trench that would have sloped walls for the upper one-half of the below-grade portion. Using a one-way roadway couplet to accompany this, the first typical section would require 171 feet to construct the facilities; whereas the second would require up to 218 feet.

The City of Vernon has expressed concerns that the project might require extensive property takings within its jurisdictional boundaries, for either the at-grade or depressed trainway configurations; and further, that these takings would constitute an undue hardship on the city and the property owners affected. Also, the current design would eliminate the "Little Alameda," the eastside two-way frontage road that provides access today to the properties along Alameda Street in the City of Vernon. The city was also concerned about potential traffic congestion along Alameda Street. As a result, the City of Vernon suggested an alternative alignment which would avoid takings there, such alignment using a portion of the SPTC Wilmington Branch track alignment from 25th to Randolph streets. This shift in the alignment would place it entirely within the jurisdictional boundaries of the City of Los Angeles in this reach. The City of Los Angeles has expressed concerns that this alignment would result in substantial adverse effects on its residents. This alternative (Alternative 2.2) was examined in the draft environmental document and is described in detail in Chapter 3. Displacement impacts are discussed in Section 5.3.

Comments were received from both the City of Los Angeles and the City of Vernon during the public comment period on this subject. In addition, residents of the affected area along Alternative 2.2 commented.

S.4.3 Mitigation Measures

During the course of concept engineering for the project, the need for mitigation measures in three main areas has arisen; emergency service provisions, intersection geometric improvements and noise barrier walls. Each of these has some degree of associated controversy, as described below.

Emergency Services

As a result of extensive discussions with fire and police representatives, the provision of emergency services after project implementation has been identified is a subject of some controversy. Concerns have been raised that the trench could become a potential source of vandalism and could be used to abandon stolen vehicles. The pursuit of persons committing crimes and attempting to escape on foot could also be compromised by the presence of the corridor, particularly the at-grade alternative. Precisely how these effects could be effectively mitigated requires further discussion.

The alternative trainway configurations have been viewed as each presenting some specific challenges with regard to fire fighting or response to another type of incident requiring fire personnel. In the at-grade trainway, access to an incident would be conducted from street level, using conventional equipment and techniques. A spill or derailment could present problems of containment. The depressed trainway offers natural containment for a spill or derailment; however, it could make it more difficult for personnel to reach the source of problems, and specialized fire fighting techniques may be required. The depressed trainway alternative would likely require installation of some additional fire fighting facilities (i.e., water mains, hydrants, special accessways) that would not be required for the at-grade alternative.

Los Angeles County Fire Station 105, located adjacent to the corridor, along Santa Fe Avenue, north of Del Amo Boulevard, currently has a rear exit that allows access across the SPTC San Pedro Branch tracks to reach problems located west of Alameda Street. This access would have to be closed as a result of the project. The use of this drive would become more difficult as the trains increase in frequency, even without the project. It would be necessary to develop some special mitigation so that access to the west side of Alameda can be maintained.

The effects of the project on fire and police services are discussed in Sections 5.5 (Public Services) and 5.6 (Safety and Security).

Members of the public commented on this subject during the public review period. The project's concern for public safety was confirmed by these comments. Careful planning of the corridor insofar as emergency services is concerned will be necessary.

Intersection Improvements

The corridor roadway improvements described in this EIR would reconfigure the present six lanes (4 lanes on Alameda, 2 lanes on "Little Alameda") to provide for six lanes for through traffic along Alameda Street and complete grade separation of train from vehicular traffic. As a result, improved traffic flow and capacity should occur. For Alternative 1.0, the traffic operations along Alameda Street for through traffic would be enhanced to a greater degree than the Alternative 2 series, because no major signalized intersections and no cross traffic conflict would exist.

As part of the project, a traffic impacts analysis was conducted which recommended a number of improvements to the geometrics of the local street system surrounding the corridor as mitigation for increased traffic. The improvements to the local streets recommended for the at-grade alternative are more extensive than for the depressed trainway. Since regionwide growth in traffic is in large part the source of much of the traffic volume wishing to use the corridor, the following has been suggested for local street improvement mitigation:

(1) For the at-grade alternative, recommended local street improvements are proposed to include the east-west grade separation structures, access roads to those structures, and other project-related changes (e.g. cul-de-sacs) that may be required. Improvements beyond the immediate vicinity of the grade separations are not proposed as part of the project.

(2) For the depressed trainway alternative, the existing streets at each of the proposed grade separations would be reconstructed over the trench. Street improvements beyond the corridor are not proposed as part of the project.

(3) Signalization and signage improvements required for the functioning of the grade separations would be provided by the project.

Traffic improvements proposed as part of the project, and additional improvements that are judged to be potentially necessary to accommodate future background traffic growth, are discussed in Section 5.4. Geometric improvements are illustrated in Appendix VII.

A number of local jurisdictions commented on this subject during the public review period. generally indicating a desire for as much mitigation as could be provided.

<u>Soundwalls</u>

All project alternatives have common improvements south of SR-91. Noise barriers; would be required along certain portions of this route segment. North of SR-91, the limits of noise walls would vary by alternative. Alternative 1.0 would require the greatest amount--50,000 lineal feet, including approximately 6,700 lineal feet that would occur south of SR-91, which would be common to all alternatives. Required noise barriers would be 15 feet in height. Much of the central portion of the project would have soundwalls on at least one side of the trainway, and in some cases, both sides.

Soundwalls can be perceived as neighborhood and social barriers, as well as noise attenuation devices, because they tend to "wall off" areas due to their imposing height, and because they obstruct otherwise open views across the thoroughfare where they are located. They also provide opportunities for graffiti and vandalism, and they can have public safety implications. Given the extent and height of the soundwalls required for the project, particularly for Alternative 1.0, it is likely that these perceptions would be felt by large numbers of neighborhood residents along the affected portions of the corridor.

Resolution of the conflict between needing soundwalls for noise attenuation on the one hand and eliminating them for visibility and other reasons on the other hand is difficult. In some instances neighborhood residents may elect to tolerate increased noise in order to avoid the barrier. A detailed discussion of noise impacts and proposed mitigation is provided in Section 4.4.

A substantial number of comments from jurisdictions and members of the public were received on this subject during the public review period. These comments generally articulated the concerns already recognized regarding neighborhood barriers, aesthetics, and graffiti.

S.5 ISSUES TO BE RESOLVED

There are a number of issues that must be resolved before the project can be implemented. The following sections describe those issues.

S.5.1 Selection of the Project to be Implemented

The DEIR provided a comparative evaluation of the effects of four project alternatives: Alternative 1.0 (at-grade trainway), Alternative 2.1A (depressed trainway with vertical walls), Alternative 2.1S (depressed trainway with partially sloped walls), and Alternative 2.2 (Vernon Diversion). The ACTA Governing Board identified the depressed trainway as "preferred" for purposes of the environmental document. The environmental review process has been completed and all comments have been received and responded to.

As is noted in Section 6.3 of the EIR, Alternative 2.1A was identified as the "environmentally superior alternative." This characterization was based on the fact that among the depressed trainway options Alternative 2.1A would have a generally less intrusive effect in most impact categories. For example, when compared to Alternative 2.1S, Alternative 2.1A would require the acquisition of one half as many single-family units (20, as compared with 40) and an equivalent number of multi-family units. When commercial property acquisitions are considered, again Alternative 2.1A would have a less intrusive effect, resulting in the acquisition of 156 parcels, compared to 225 parcels under Alternative 2.1S. Similar conclusions can be drawn for other impact categories.

To be meaningful, the comparison between Alternative 2.1A and Alternative 2.2 should be restricted to Segment B1 of the corridor, for it is only in this segment that the alternatives differ. Within Segment B1 the following comparisons can be drawn:

- Noise - With mitigation, Alternative 2.2 would have a residual adverse effect on 11 residences in year 2010; and 22 residences in year 2020, whereas Alternative 2.1A would not have a residual adverse effect on residences.

- Vibration - Alternative 2.2 would adversely affect 39 residential buildings, requiring installation of 5,600 feet of ballast mat mitigation. Alternative 2.1A would not have this effect.

- Housing - Alternative 2.2 would result in effects in the Pueblo del Rio public housing project that include the acquisition of five residential units, a child care facility, a parking area and an area used as a basketball court. The Pueblo del Rio project would also be potentially divided by the trainway, which would be in close proximity to the remaining units. Alternative 2.1A would not have an effect in this complex.

- Residential Displacement - Alternative 2.2 would require the acquisition of 16 single-family units and 16 multiple-family units, whereas Alternative 2.1A would acquire none.

- Commercial Displacement - Alternative 2.2 would require acquisition of 33 commercial parcels, distributed by use as follows: 2 retail, 18 industrial, 3 parking, and 10 vacant. Alternative 2.1A would require acquisition of 15 commercial parcels, distributed by use as follows: 1 office, 1 retail, 8 industrial, 4 parking and 1 vacant.

- Traffic - Alternative 2.2 would result in 10 intersections exceeding established thresholds for mitigation by physical improvements, whereas Alternative 2.1A would result in 4 intersections requiring mitigation.

- Parking - Neither alternative would involve the removal of on-street parking spaces. Alternative 2.1A would remove 423 off-street spaces, whereas Alternative 2.2 would remove 186 off-street spaces.

- Schools - Alternative 2.2 would increase noise levels in proximity to the Lilian Street Elementary School, whereas Alternative 2.1A would not have this effect.

- Parks - Alternative 2.2 would increase noise levels in proximity to the Fred Roberts and Slauson recreation centers, whereas Alternative 2.1 A would not have these effects.

During the public review period, a substantial number of comments were received expressing a preference among the alternatives. With few exceptions, the preference stated was for Alternative 2.1A, in the context of all alternatives under consideration. Particular objection to Alternative 2.2 was voiced by residents of the Pueblo del Rio housing project, by City of Los Angeles ninth district councilwoman Rita Walters, and by several City of Los Angeles departments. The City of Vernon commented in support of Alternative 2.2.

Given that Alternative 2.1A would impose fewer impacts and has received the most prevalent support among the alternatives, it is recommended for implementation as the freight consolidation concept for the Alameda Corridor.

S.5.2 Railroad Right-of-Way Acquisition and Operating Agreements

Negotiations are under way for the purchase by the ports of various railroad rights-of-way needed for the Alameda Corridor. The project will require ownership or permanent operating rights on certain railroad properties owned by the three rail carriers: Union Pacific, Santa Fe and Southern Pacific. The ports of Los Angeles and Long Beach have tendered offers to the carriers for the necessary properties.

The ports and railroad will also need to reach a consensus on a detailed operating agreement for the completed corridor as well as interim operating plans and trackage rights arrangements while the project is being constructed.

S.5.3 Project Funding

Depending on the alternative, the project is expected to cost between $1.185 billion and $1.329 billion in 1991 dollars. These figures exclude the cost of railroad rights-of-way. ACTA will be developing a detailed financial plan that would take into account monies already committed (approximately $185 million) as well as potential new sources of funds, including revenue bond issues.

S.5.4 Project Phasing

Section 3.6 of this document provides a suggested approach to phasing project construction, for both the at-grade and depressed trainway options. The suggested phasing was developed to satisfy two objectives: (1) provide for an orderly construction process that results in usable segments as soon as possible, and (2) provide for the timely and orderly transition of railroad operations from three independent lines to one consolidated corridor.

The actual phasing of project construction will depend upon a number of factors, including: availability of overall project funding, the timing of specific projects required by certain funding arrangements, selection of the preferred alternative, local jurisdiction requirements or desires, the right-of-way acquisition process, sequencing of related projects to be constructed by others, constraints or opportunities to be revealed during final design activities and constraints or opportunities occurring during the early stages of the construction process itself.

It is the goal of the SCAQMD's 1991 Air Quality Management Plan (AQMP) to have freight rail consolidation become a reality before the year 2010. This goal will be kept in mind as overall project phasing decisions are made.

S.5.5 Grade Separation with Commuter Rail

Concurrent with Alameda Corridor Project development, the Los Angeles County Transportation Commission (LACTC) and the Los Angeles San Diego Rail Corridor (LOSSAN) are developing plans to provide a significant increase in commuter rail service in Southern California. One of the main rail routes under consideration for 80-100 commuter trips a day is the existing AT&SF line that crosses the Alameda Corridor, at-grade, in the vicinity of Santa Fe Avenue and Washington Boulevard, near the corridor track crossing of the Los Angeles River. Based on the commuter and freight rail projections by the year 2020, it would not be feasible from a stand point of maintaining schedules, nor prudent from a safety point of view, to maintain an at-grade crossing of these tracks.

As part of the Alameda Corridor concept design three alternatives were considered for elevating the commuter rail and providing the grade separation with an at-grade freight track. Due to the physical constraints, including the Los Angeles River crossing and roadway intersections in close proximity, no concept design for adjusting the profile of the consolidated freight line was considered feasible.

S.6 INTENDED USES OF THE EIR

This Draft Environmental Impact Report (DEIR) was prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code, Sections 21000 et. seq., and Guidelines for Implementation of the California Environmental Quality Act, Governor's Office of Planning and Research, 1986, as amended. The ACTA Governing Board adopted the above guidance as lead agency for this project, and therefore the document also satisfies ACTA's CEQA guidelines as well.

The primary purposes of this environmental document are two-fold. First, it is intended to identify and disclose the potential effects associated with each of the project alternatives under consideration. Second, with the inclusion of public comments regarding the effects and responses to these comments, the document will be used to decide which alternative is to be implemented.

This environmental document will be used as the basis upon which Findings (pursuant to CEQA Guidelines Section 15091) and a Statement of Overriding Considerations (pursuant to CEQA Guidelines Section 15093) will be prepared. It will also be used to prepare a Mitigation

Monitoring Program, pursuant to CEQA Section 21081.6. These documents, in conjunction with the Final EIR, will be used in the project approval process.

Some federal agencies may take actions regarding this project. In doing so, some portions of this environmental document may be used by the affected agencies in preparing the documents used in those approval processes. The U.S. Department of Transportation would provide funding for some project components. Approval of the railroad property acquisitions and operating agreement may be required from the Interstate Commerce Commission. The Federal Railway Administration may also be required to approve the proposed train signal system.

In addition to the above actions, other actions may be required to implement the project. This environmental document may be used by Responsible Agencies (pursuant to CEQA Guidelines Section 15096) and by other agencies and jurisdictions in taking those actions.

The parties that may be required to take an action or issue an approval regarding the proposed project include the following:

Agency or Jurisdiction	**Approval**
State of California	
California Transportation Commission	Potential funding for project components
Public Utilities Commission	Approval of portions of the corridor design, operating procedures and safety provisions
California Department of Transportation	Designation of Alameda Street as a component of the National Highway System (NHS); various permits
Regional Agencies	
South Coast Air Quality Management District	Review of project for consistency with AQMP
Southern California Association of Governments	Review of project for conformity with regional plans
Local Jurisdictions	
Los Angeles County Transportation Commission	Potential funding for project components; coordination regarding project operating and dispatching arrangements in relationship to passenger rail operations
Los Angeles County Flood Control District	Various permits
Los Angeles County Road Department	Various permits; approval of project design elements affecting County roads

Los Angeles County Department of Public Works	Approval of project design elements affecting County facilities
Los Angeles County Fire Department	Approvals and permits regarding fire protection
Corridor cities (Carson, Compton, Huntington Park, Los Angeles, Lynwood, South Gate, Vernon)	Approval of project for implementation within city limits; assistance to ACTA in right-of-way acquisition; approval of project design elements affecting local facilities; approvals and permits regarding fire and police services; various other permits
Private Entities	
Southern Pacific; Union Pacific; Atchison, Topeka & Santa Fe railroads	Approval of purchase and sale agreements;
	Railroad operating agreements; and agreements regarding project design elements
Utility companies	Relocation of utility lines

S.7 CUMULATIVE EFFECTS

S.7.1 Effects Associated with Ports Expansion

Activity at the ports of Los Angeles and Long Beach is projected to double by the year 2020. The Alameda Corridor project would facilitate access to the ports by providing highway and rail improvements that would mitigate the adverse effects of the projected growth in ports activity. The Alameda Corridor would permit the anticipated growth activity to take place in an orderly manner by encouraging freight rail consolidation and channeling rail movements for all carriers to a common facility.

Expansion of the ports would inevitably affect the immediate area. Street and highway improvements in the vicinity of the ports could indirectly result in expanded industrial land use near the ports. Increased truck and train movements would result from development of the ports, requiring facility improvements beyond the immediate vicinity of the ports. The Alameda Corridor, could become the primary means for accommodating these movements, although additional improvements would be required. Cumulative noise effects from growth within the ports and the Alameda Corridor project may require mitigation measures. Expanded employment opportunities would result from increased activity at the ports as well as from the Alameda Corridor project.

S.7.2 Effects Associated with Other Projects

Several projects in various stages of development may affect or be affected by the Alameda Corridor project. Among them are the Ports Access Demonstration projects, the Pacific Pipeline project and several projects in local jurisdictions. By and large, the cumulative effects of all the projects should be beneficial; however, mutual coordination is necessary to promote overall beneficial effects, reduce the potential for negative reinforcement and mitigate cumulative adverse effects.

S.7.3 Effects Associated with Regional Freight Rail Operations

The Alameda Corridor would change the routing currently used by the three common rail carriers. The Southern Pacific (SPTC) Wilmington Branch, Union Pacific (UPRR) San Pedro Branch, and the Santa Fe (ATSF) Harbor Subdivision would no longer be used for ports-related train movements. Along its La Habra and Santa Ana branches SPTC could be channeled to the corridor by means of the Alhambra main line. As a result of the routing changes that would occur, many of the effects associated with freight train operations would no longer be experienced on a regional basis. They would instead be focused along the Alameda Corridor.

Train movements throughout the region would become more efficient because of the corridor: aggregate train miles would be reduced, average operating speeds would be increased, delays between trains would be reduced, vehicular traffic would be improved and delays at grade crossings would be reduced. The result would be a substantial reduction in locomotive and motor vehicle idling emissions; however, there would be increases in pollutant concentrations at some locations along the corridor that would, in some instances, produce violations of current standards. This would be in contrast to the more widespread distribution of increased local concentrations that would occur without the project.

The corridor has the beneficial effect of consolidating train movements in one area, where the mitigation of increased noise levels can be focused. If this were not to occur, increased train movements would result in more noise intrusion into residential areas throughout the region, with noise impacts of a severe or significant nature affecting a substantial number of persons. Because train movements would be reoriented to the Alameda Corridor rather than elsewhere, noise impacts would be greater there.

Consolidated train movements would result in reductions in overall diesel fuel consumption from locomotive use, as compared with the No Build Alternative. A regionwide savings of three percent is estimated in year 2010, increasing to five percent by 2020. The corridor's highway improvements would attract more vehicular traffic. As a result, year 2010 vehicular fuel consumption in the study area would be five percent higher with the project than without; by 2020 this would decline slightly to four percent. Since the corridor would permit electrification, benefits associated with a future shift to electricity for locomotives would also accrue.

The complete grade separation of vehicular from rail traffic planned for the corridor would result in improved vehicular flow. Additionally, the consolidation concept would remove trains from a number of lines, thus greatly reducing vehicular delays at grade crossings.

The Alameda Corridor project would be designed so that close attention to safety would be maintained. The corridor would have continuously welded rail, central traffic control, centralized dispatching, and a high level of surveillance. These conditions would result in a corridor that should provide a high level of protection to the general public from risk of accidents. The greater risk of train accidents that now exists on the various rail lines exposes a wider range of people than would be exposed under consolidation.

On balance, the cumulative effects to the region resulting from the Alameda Corridor, under any of the configuration alternatives being considered, would be beneficial.

S.8 UNAVOIDABLE ADVERSE EFFECTS

S.8.1 Construction

Impacts that could be encountered during the construction of the Alameda Corridor project include soil and groundwater contamination, air emissions, fugitive dust, noise and vibration, property acquisition and disruption of the local traffic circulation system. These effects would be temporary.

The discovery of contaminated soil or groundwater is likely, due to the fact that land use in much of the corridor has historically been industrial in nature and only in the recent past have laws been enacted that would prevent the inadvertent or deliberate misuse of hazardous materials. The extent of contamination cannot be ascertained without an analysis of actual soil and water samples. The concept study identifies all known documented hazardous materials sites along the corridor. Discovering areas of existing contamination is possible with all alternatives under consideration.

Equipment and vehicles used during construction would be a source of emissions and potentially toxic pollutants, and some construction activities would release fugitive dust. Although such emissions are expected to be localized and transitory in nature, an adverse effect is unavoidable. The same can be said of noise and vibration. Most construction activity would be confined to daytime hours, and local noise ordinances would be adhered to; however increases in noise levels, and to a lesser extent, vibration, would occur. Most locations would be exposed between two and three years during the 10-12 years of construction.

Construction of the Alameda Corridor would require complete reconstruction of the combined highway facilities in Alameda Street and the SPTC San Pedro Branch. All alternatives would require the acquisition of private property. Extensive disruption to the local traffic circulatory system would occur, creating detours and affecting accessibility to businesses and residences. The effects would be temporary, but in some instances they could be severe.

S.8.2 Operation

The Alameda Corridor would result in a regionwide reduction in emissions from train and vehicular travel, as compared with the No Project condition; however, some locations which currently display local concentrations of carbon monoxide that exceed state or national standards would experience unavoidable increased emissions, once the project is completed.

Noise would increase along the corridor because of the high volume of vehicular and train traffic. In some sensitive locations noise attenuation walls would be necessary to mitigate the severe effect of increased noise. Because residual impacts would be felt by some residences even after mitigation, noise impacts must be considered adverse and unavoidable.

Alternative 2.2 would require the taking of several dwelling units in the Pueblo Del Rio public housing project, along Long Beach Avenue. In addition, a day care center located south of the Pueblo del Rio public housing project, next to the basketball court, would need to be relocated. All alternatives would require the acquisition of private property and a significant number of houses and businesses would be required to relocate. Some alternatives require less acquisition and displacement than others. Some displaced businesses may not be able to resume business for a variety of reasons. While all displaced residents and businesses would be compensated in accordance with state law, a residual hardship may still be felt by some for which compensation would not be available. The extent to which this may occur is not known, although it should be limited. This adverse effect would be unavoidable.

Despite the roadway improvements proposed under the various project alternatives, there would be residual adverse effects at intersections, due to background growth in regional traffic and the fact that the improved facility would be an attractor. The project provides mitigation; however, additional needed improvements should be provided to local streets beyond the limits of the project by local jurisdictions in order to avoid adverse effects.

Soundwalls required under all alternatives would attenuate project-related noise, however, they would also be visually intrusive, subject to graffiti and be perceived by adjacent neighborhoods as social barriers. Soundwalls required by the recommended alternative (Alternative 2.1A) would be far less extensive than those required under the at-grade trainway option (Alternative 1.0).

S.9 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

All of the depressed trainway alternatives examined in this document have fewer adverse effects than the at-grade trainway. Accordingly, the ACTA Board identified the depressed trainway as its preferred option at the beginning of the environmental documentation phase of the project. In the final analysis, Alternative 2.1A has a generally less intrusive effect in most impact categories. This is especially important in the categories of property acquisition and vibration. Alternative 2.1A is hereby identified as the "environmentally superior alternative," pursuant to CEQA Guidelines Section 15126.

S.10 IMPACTS AND PROPOSED MITIGATION

Table S-1 provides a summary of the impacts which have been found for the Alameda Corridor project and the mitigation measures which have been proposed to reduce the level of their significance. The table is organized to follow the order in which the topics are discussed in the body of the document. In some instances, significant impacts would occur under the No Build Alternative; these are so identified in the table. All impacts should be regarded as adverse unless indicated as beneficial in the table. The No-Build Alternative is not described if no impact is anticipated.

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Topography, Geology & Soils					
Construction[1]	All Build Alternatives	Some construction activities could disturb previously abandoned oil wells. This could result in the inadvertent release of hydrogen sulfide gas and could have other consequences.	Potentially Significant	Undocumented and/or improperly abandoned wells would be abandoned according to state guidelines.	Not Significant
		Construction along the corridor may encounter sites with contaminated soils and groundwater.	Potentially Significant	Sites known to be contaminated would have to be cleaned prior to or during construction. Clean-up activities would be conducted in accordance with applicable regulations. Responsibility for clean up has not been established.	Not Significant
Seismicity	All Build Alternatives	A moderate to major earthquake during the lifetime of the proposed project would subject the project to strong groundshaking. This could result in the failure of structures and could disrupt service along the corridor.	Potentially Significant	Careful testing of soil and correction of weakness in soil strength, coupled with state-of-the-art seismic design. The project would be designed in accordance with applicable codes and regulations.	Not Significant
		Some areas along the corridor, such as between Del Amo and Sepulveda boulevards and in the vicinity of Imperial Highway, may be subject to liquefaction.	Potentially Significant	All areas of high or perched ground water should be analyzed for potential liquefaction. Site specific engineering techniques should be implemented.	Not Significant

[1] Construction impacts are temporary and are therefore significant only during the construction period.

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Flooding	All Build Alternatives	Portions of the corridor are located in areas that have the potential for periodic inundation.	Not Significant	Adherence to building codes and other applicable regulations.	Not Significant
Hydrology and Water Quality					
Construction	All Build Alternatives	Construction activities would expose soil to erosion and result in surface runoff.	Not Significant	Standard erosion and drainage control. Proper removal and disposal of contaminated soil or water.	Not Significant
		Dewatering may be required in some portions of the corridor. Potential for encountering contaminated material.	Not Significant	Identify areas subject to potential dewatering. Contaminated material handled according to accepted regulations.	Not Significant
Operation	All Build Alternatives	Train derailment or other incident could result in surface water contamination. (See also Safety and Security.)	Not Significant	Emergency procedures will be developed and implemented.	Not Significant
Air Quality					
Construction	All build Alternatives	SCAQMD daily significance threshold exceeded for Nitrogen Oxides. Emissions of other criteria pollutants produced, but do not exceed SCAQMD thresholds.	Significant to not significant	Equipment and vehicle use restrictions.	Not Significant
		Fugitive dust produced in amounts substantially higher than SCAQMD threshold.	Significant	Site watering, equipment and vehicle washing and other measures should be employed.	Potentially Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Regional Criteria Emissions	No Build	Locomotive emissions increase substantially. Vehicular emissions improved by ARB emissions standards.	Significant	None proposed under this alternative.	Significant
	All Build Alternatives	Locomotive emissions would be substantially reduced by all project alternatives, for all criteria pollutants. Overall reduction in criteria emissions, taking into account cars and trucks.	Beneficial	Project is mitigation. Rail electrification produces additional benefits.	Beneficial
Local Criteria Emissions	No Build	Carbon monoxide concentrations are higher in future years at sensitive receptor locations, but state and federal standards are not exceeded.	Not Significant	None proposed under this alternative.	Not Significant
	All Build Alternatives	Carbon monoxide concentrations would be higher or lower than under the No Build Alternative, depending on receptor location and alternative. State and federal standards may be exceeded at some locations.	Potentially Significant to Beneficial	Roadway geometry and signalization should be provided to promote smooth flow of traffic.	Potentially Significant to Beneficial
Air Toxics	No Build	Air toxics would be emitted in increased amounts, in proportion to increased use of mobile sources, such as vehicles and locomotives.	Not Significant	None proposed under this alternative.	Not Significant
	All Build Alternatives	Project results in reductions of regional air toxics.	Beneficial	Project is mitigation.	Beneficial

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Noise					
Construction	All Build Alternatives	Construction activities would produce noise that could be intrusive at some locations. Alternative 1.0 would produce the most extensive effects.	Potentially Significant	Manage construction practices and equipment usage to reduce intrusion where possible. Schedule high-noise activities for daytime periods.	Potentially Significant
Effects in Year 2010	No Build	53 residences experience severe impact. No increase along Alameda Street compared with 1992. (A severe impact has a project CNEL greater than 72 dBA). No residences experience a significant impact. (A significant impact has a project CNEL that exceeds 67 dBA, and it either exceeds the No Build condition by 3 dBA or existing conditions by 5 dBA).	Significant	None proposed under this alternative.	Significant
	1.0	117 residences experience severe impact. 936 residences experience significant impact.	Significant	Noise barriers.	18 residences severely affected. 47 residences have significant impact.
	2.1A	57 residences experiences severe impact. 47 residences experience significant impact.	Significant	Noise barriers	25 residences severely affected. 13 residences have significant impact.

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Effects in Year 2010 (cont'd)	2.1S	60 residences experience severe impact. 66 residences experience significant impact.	Significant	Noise barriers.	59 residences severely affected. 32 residences have significant impact.
	2.2	58 residences experience severe impact. 70 residences experience significant impact.	Significant	Noise barriers.	25 residences severely affected. 24 residences have significant impact.
Effects in Year 2020	No Build	Severe impact on 69 residences. Significant impact on 113 residences.	Significant	None proposed.	Significant
	1.0	Severe impact on 281 residences. Significant impact on 1155 residences.	Significant	Noise barriers.	Severe impact on 77 residences. Significant impact on 275 residences.
	2.1A	Severe impact on 85 residences. Significant impact on 461 residences.	Significant	Noise barriers.	Severe impact on 54 residences. Significant impact on 365 residences.
	2.1S	Sever impact on 80 residences. Significant impact on 412 residences.	Significant	Noise barriers.	Severe impact on 79 residences. Significant impact on 363 residences.
	2.2	Severe impact on 86 residences. Significant impact on 500 residences.	Significant	Noise barriers. Trench modifications.	Severe impact on 53 residences. Significant impact on 384 residences.

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Vibration					
Construction	All Build Alternatives	Construction activities have potential for low levels of vibration.	Not Significant	Isolate activities from sensitive receptors as much as possible. Use non-vibration construction techniques where feasible.	Not Significant.
Operation	1.0	Potential for considerable adverse effects on residences located between Southern Avenue and Tweedy Boulevard.	Significant	Various engineering and operating approaches such as reduce train speeds, relocation of special track work, ballast mats, moveable points frogs.	Not Significant
	2.1A	Possible effects at Alameda/Santa Ana and at Racket Club Villas.	Potentially Significant		
	2.2	Potential effects at 58 residences along Long Beach Avenue (M.L.K Boulevard to 42nd Street, 43rd Street to Randolph).	Potentially Significant		
Energy					
Construction	All Build Alternatives	Minor amounts of fossil fuel and electricity consumed during construction process.	Not Significant	Standard construction practices to promote efficient fuel use.	Not Significant
Operation	No Build	Growth in train and vehicular traffic results in increased fuel consumption.	Not Significant	Federal fuel economy standards.	Not Significant
	All Build Alternatives	Study area vehicular fuel consumption increased slightly over No Build.	Not Significant	Corridor provides for more efficient traffic flow.	Not Significant

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Operation (cont'd)	All Build Alternatives (cont'd)	Locomotive fuel consumption reduced, compared to No Build, due to reduced train-miles traveled.	Beneficial	None required.	Beneficial
Vegetation and Wildlife					
Effects on Plants and Animals	All Build Alternatives	No species of concern are known to exist in the corridor.	Not applicable	None required. Landscaping should incorporate drought-resistant native plants where feasible.	Not applicable.
Land Use					
Land Use compatibility	No Build	Increased train volumes could result in incompatibility with some adjacent land uses.	Potentially Significant	See All Build Alternatives below.	Potentially Significant
	All Build Alternatives	The project could remove some improved parcels that currently buffer residential and other sensitive uses.	Potentially Significant	Maintain buffer uses where possible. Provide landscaping or physical buffering.	Not Significant
		The project could remove all or part of some parcels that are intended for redevelopment projects.	Potentially Significant	Work with local jurisdictions to develop specific mitigation, such as excess land returned to the local jurisdiction.	Not Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Property Takings	All Build Alternatives	Full and partial takings of industrial property. See Acquisition and Displacement section.	Significant	Industrial uses subject to partial takes should be reconfigured to remain operational where possible. Industrial uses subject to full takes should be relocated on available industrially designated land.	Not Significant
		Full take of residences. Direct exposure of corridor to adjacent residential uses. See Acquisition and Displacement section.	Significant	Residential uses subject for full takes should be relocated. Sound walls to reduce noise to acceptable levels.	Not Significant
		Full and partial takes affecting community-serving retail commercial uses and parking areas. See Acquisition and Displacement section.	Significant	Neighborhood serving retail commercial uses should be relocated within the vicinity of the communities which they serve. Maintain use of remainder parcel if possible.	Not Significant
	2.2	Taking of units, parking and playground space at Pueblo Del Rio public housing project.	Significant	Affected residents from the Pueblo Del Rio Housing Project would be relocated. The project should erect sound walls to buffer newly exposed residential areas.	Not Significant.

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Population and Housing					
Effects on Local Population	All Build Alternatives	Minority and low income people displaced under all Alternatives.	Significant	Uniform Relocation Procedures and Real Property Acquisition Act would be followed, providing monetary compensation and relocation assistance. In addition, each jurisdiction should be coordinated with.	Not Significant
Effects on Housing Stock	All Build Alternatives	Very minor amounts of housing removed in the context of overall housing stock.	Not Significant	None Required	Not Significant
Effect on Public Housing	1.0, 2.1A, 2.1S	No Effect	Not Applicable	None Required	Not Applicable
	2.2	Approximately five units of the Pueblo del Rio Housing Project would be displaced as well as a child care center south of the housing project.	Significant	Selection of an alternative other than Alt. 2.2 would avoid this displacement. If Alt. 2.2 is chosen, consultation with the Los Angeles Housing Authority should be conducted to identify appropriate relocation measures.	Not Significant
Effects on Mobile Homes	1.0	A small portion of Deluxe Trailer Lot on El Segundo Boulevard would be acquired, possibly displacing three mobile homes.	Not Significant	If possible, the mobile homes should be relocated elsewhere on the lot. If relocation is not possible, the affected parties should be relocated to another park.	Not Significant
	2.1A, 2.1S, 2.2	No Effect	Not Applicable		Not Applicable

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Barriers to Existing Neighborhoods	1.0	Overpasses could separate existing residential neighborhoods. Sound walls could be perceived as barriers.	Significant	Selection of another alternative would avoid these potential impacts. If the alternative is selected, efforts should be undertaken to reduce the barrier effect as much as possible.	Potentially Significant
	2.1A, 2.1S	Railway tracks and associated fencing could be perceived as barriers.	Potentially Significant	Efforts, such as open fencing and, possibly, landscaping, should be undertaken to reduce the potential barrier effect.	Potentially Significant
	2.2	The project could divide the east and west sections of the Pueblo del Rio Housing Project on Long Beach Avenue.	Potentially Significant	Selection of another alternative would avoid these potential impacts. If the alternative is selected, efforts should be undertaken to reduce the barrier effect as much as possible.	Potentially Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Acquisition and Displacement					
Residential Displacement	All Build Alternatives	Residential units would be displaced as follows: Alternative 1.0 = 327 2.1A = 13 2.1S = 17 2.2 = 44 Estimated displacement of residents would be as follows: Alternative 1.0 = 1,373 2.1A = 48 2.1S = 65 2.2 = 190	Significant	Displaced residents would receive relocation assistance in accordance with the Uniform Relocation and Real Properties Acquisition Act. Benefits include fair market compensation for owners, monetary payments to renters, moving expenses and other benefits.	Not Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Commercial Displacement	All Build Alternatives	Non-residential properties subject to displacement would be as follows: Alternative 1.0 = 341 2.1A = 139 2.1S = 208 2.2 = 158 Estimated displacement of employees would be as follows: Alternative 1.0 = 3,525 2.1A = 1,755 2.1S = 2,558 2.2= 1,241 Some businesses may have substantial difficulty in relocating.	Significant	Businesses would be given relocation assistance and monetary payments for relocation expenses. Some businesses may choose lump sum payment and cease operation.	Not Significant
Transportation and Circulation					
Construction	All Build Alternatives	Traffic disruption would occur at various locations throughout the construction period. Potential effects include temporary inconveniences, delays, detours, reduced on-street parking, and restricted access to homes and businesses. The expected exposure of any one location to these effects could be up to 3 years.	Potentially significant to significant, depending upon location and uses involved.	Construction management plan. Minimize lane closures, provide workable detours, provide signage. Implement an extensive public information program to disseminate construction information and respond to local concerns.	Potentially Significant

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Overall Traffic Handling Capacity	No Build	Increased train volumes and deteriorated roadway conditions would result in increasing delays, slower speeds, and less capacity to handle future demands.	Significant	None proposed under this alternative.	Significant
	All Build Alternatives	Corridor provides enhanced capacity, higher speeds, and fewer delays. Operations along Alameda Street would be significantly better under Alternative 1 than other alternatives	Beneficial	Project is mitigation.	Beneficial
Traffic Capacity at Intersections	No Build	3 study intersections at Los E&F in 2010; 65 intersections at Los E&F in 2020.	Significant	None proposed under this alternative.	Significant
	1.0	21 study intersections at Los E&F in 2010; 65 intersections at Los E&F in 2020. 49 intersections meet criteria for additional improvements in 2020.	Significant	Various intersection improvements, (e.g., turning lanes, through lanes).	Not significant to significant. 46 intersections still exceed criteria for additional improvements.
	2.1A, 2.1S	7 study intersections at Los E&F in 2010; 55 intersections at Los E&F in 2020. 35 intersections meet criteria for additional improvements in 2020.	Significant	Various intersection improvements.	Not significant to significant. 35 intersections still exceed criteria for additional improve-ments.

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	**ALTERNATIVE**	**POTENTIAL ENVIRONMENTAL IMPACTS**	**SIGNIFICANCE**	**MITIGATION**	**RESIDUAL IMPACT**
Traffic capacity at intersections (cont'd)	2.2	5 study intersections at Los E&F in 2010; 46 intersections at Los E&F in 2020. 40 intersections meet criteria for additional improvements in 2020.	Significant	Various intersection improvements.	Not significant to significant. 31 intersections still exceed criteria for additional improvements.
Corridor Access & Local Circulation	All Build Alternatives	9 streets to be closed. 4-6 streets would no longer have direct access to the corridor. Traffic rerouting would affect local streets. Rerouting along local streets predicted to be of some significance under Alternative 1.	Potentially Significant	None proposed	Potentially Significant
Pedestrian Circulation	All Build Alternatives	Circulation patterns would become more circuitous, especially along Alternative 1, but improved pedestrian safety would also result.	Beneficial to adverse, depending on location.	Localized pedestrian accommodations where warranted. Fence corridor to prevent track crossing by pedestrians.	Not Significant
Parking	All Build Alternatives	On-street and off-street parking would be removed in amounts ranging from 1400-2600 spaces.	Potentially significant depending on location.	Retain parking where possible. Develop parking plans.	Potentially Significant
Mass Transit	All Build	Potential for light/commuter rail increased on other branch lines.	Beneficial	None required	Beneficial
	1.0	Route modifications required for two SCRTD routes, and bus stops must be relocated at 14 locations.	Not Significant	Relocate portions of routes and stop locations as appropriate.	Not Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Mass Transit (cont'd)	1.0, 2.1A, 2.1S	SCRTD Line 107 would need to be rerouted due to closure of 55th Street.	Not Significant	Relocate portion of route.	Not Significant
	2.2	Could reduce potential for express service on Metro Blue Line.	Adverse	Obtain more right-of-way but this would have severe adverse effects.	Significant
Public Services					
Construction	All Build Alternatives	Temporary inconveniences affecting access to community facilities and impaired emergency access response.	Not Significant	Construction management plan.	Not Significant
Corridor Accessibility	All Build Alternatives	The number of corridor crossings would be reduced from the 'No Build' condition. New crossings would be faster and safer.	Beneficial overall. Potentially Significant Adverse at some locations	Location-specific design provisions.	Not Significant
Effects on Law Enforcement	No Build	Increased train and vehicular traffic volumes result in significant delays for cross-corridor travel.	Significant	None proposed under this alternative.	Significant
	1.0	Above-grade corridor crossings could cause increased response time from some locations.	Not Significant	None available.	Not Significant
	2.1A, 2.1S, 2.2	At-grade bridges have a minimal effect on response time.	Not Significant	None available.	Not Significant
Effects on Fire Service	No Build	Increased train and vehicular traffic volumes result in significant delays for cross-corridor travel.	Significant	None proposed under this alternative.	Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Effects on Fire Service (cont'd)	All Build Alternatives	Reduced number of crossing opportunities may add to response time.	Potentially Significant for some locations	Modify response routes.	Not Significant
		L.A. County Fire Station 105 would have access across corridor eliminated for responses using rear gate.	Potentially Significant	Provide alternative access.	Not Significant
	1.0	Added distance to reach corridor crossings could increase response time to some areas; however, increased speed and lack of at-grade intersections along Alameda Street will provide more direct response route.	Not Significant	None available.	Not Significant
	2.1A, 2.1S, 2.2	Depressed trainway provides containment of spilled materials in the event of an incident, but access by fire personnel would be compromised.	Potentially Significant	Provide fire fighting support (e.g. water lines, hydrants) in trench. Provide additional means of access into trench.	Not Significant
Effects on Schools	All Build Alternatives	Increased noise and traffic effects at all schools located along corridor.	Potentially Significant	Sound walls; local traffic improvements.	Potentially Significant
	1.0	Partial right-of-way takings at Florence Avenue Elementary, Bunche Middle School, and Jordan High School. Pedestrian and vehicular access to Jordan High School impaired.	Potentially Significant	Local design modifications.	Not Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Effects on Schools (cont'd)	2.1S	Partial right-of-way taking at Ritter Elementary and Jordan High Schools.	Adverse Not Significant	Local design modifications.	Not Significant
	2.2	Lilian Street Elementary School affected by noise from increased train volume.	Significant	Sound walls.	Potentially Significant
Effects on Libraries, Churches, Hospitals, and Parks	1.0	Property acquisition required from several churches and from Wilson Park. Impaired access to Wilson Park.	Potentially Significant	Local design modifications. Relocation policies.	Not Significant
	2.1A, 2.1S, 2.2	Property acquisition required from Wilson Park.	Not Significant	Local design modifications.	Not Significant
Safety and Security					
Construction	All Build Alternatives	Construction activities and traffic detours produce impaired access; utility lines may rupture; and contaminated soil may be exposed.	Potentially Significant	Safe construction practices to be developed and implemented. Traffic management plan to be developed.	Not Significant
Auto/Train Conflicts	No Build	At-grade railroad crossings remain unchanged. Auto/train conflicts increase dramatically in the future, due to growth in freight train activity. Effects extend to all rail lines serving the ports.	Significant	See All Build Alternatives below.	Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Auto/Train Conflicts (cont'd)	All Build Alternatives	Conflicts eliminated along consolidated corridor, with the exception of the drill track (local service) in the depressed alternative. Train volumes reduced on other rail lines serving the ports.	Beneficial	Project is mitigation.	Beneficial
Train Derailments and Spills	No Build	Trains on all lines serving the ports would be subject to a potential derailment. Release of hazardous materials would be expected on a rare basis.	Potentially Significant	Federal and state laws and regulations to ensure safe rail practices. Railroad operating policies and procedures (e.g., employee training, response to incidents). Emergency response by local fire and police.	Potentially Significant
	All Build Alternatives	Increased train volumes on consolidated corridor; corresponding decreases on other lines serving the ports. Potential for accidents still exists but likelihood of injuries or property damage would be substantially reduced. Potential for spills of hazardous materials in transport.	Potentially Significant	The project will incorporate infrastructure improvements (e.g., complete signalization and centralized traffic control, continuously-welded track) and 24-hour active surveillance. A corridor Emergency Response Plan will be prepared in accordance with applicable guidelines and regulations, and it will be approved by all appropriate agencies.	Potentially Significant
	1.0	Emergency access would be unimpeded. Containment would not be improved.	Potentially Significant	Emergency response plan.	Potentially Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Train derailment and spills (cont'd)	2.A, 2.1S, 2.2	Containment would be improved. Emergency access could be impeded.	Potentially Significant	Emergency response plan	Potentially Significant
Aesthetics					
Construction Effects	All Build Alternatives	Disorderly appearance of construction sites and materials storage areas.	Not Significant	Screen sites from view in areas of particular sensitivity.	Not Significant
		Construction activity could cause light and glare impacts to residences located adjacent to the corridor	Not Significant	Conduct construction activities during day time hours whenever possible. Shield construction lighting from residential areas.	Not Significant
Operational Effects	All Build Alternatives	Landscaping, portions of structures and signage would be removed or relocated at various locations along the corridor.	Not Significant	Replace or relocate as appropriate.	Not Significant
		Soundwalls offer opportunity for graffiti.	Not Significant	Consider anti-graffiti paint and landscaping.	Not Significant
	1.0	Corporate building with roof-mounted fire truck would be taken in the City of Vernon.	Significant	Avoid taking the building, if feasible, or relocate structure and fire truck to a location acceptable to the City of Vernon.	Not Significant
		Overpass and underpass structures would visually intrude on residential areas at various locations along the corridor.	Significant	Investigate special design and architectural treatment options during final design. Provide buffer landscaping.	Potentially Significant

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Operational Effects (cont'd)	1.0 (cont'd)	Compton Blvd. overpass would adversely affect a shopping center.	Not Significant	Provide landscaping or other buffer.	Not Significant
	2.1A; 2.1S	Landscape removal and other minor effects, as identified under All Build alternatives above.	Not Significant	Replace or relocate as appropriate.	Not Significant
	2.2	Improvements would place the northbound lane of Long Beach Avenue within 25 feet of some remaining residential units.	Significant	Provide a visual buffer between the project and the affected areas.	Potentially Significant
		Proximity of corridor to residences and Fred Roberts Park on the west side of Long Beach Avenue.	Significant	Proved a visual buffer between the corridor and the affected area.	Potentially Significant
		Playground area on the grounds of the Pueblo Del Rio housing project would be removed.	Significant	Relocate the playground to another appropriate location on the grounds of the Pueblo Del Rio housing project.	Not Significant
Cultural Resources					
Archaeological Resources	All Build Alternatives	No anticipated effects. Area between 109th and 111th streets considered sensitive.	Probable Not Significant	Monitoring recommended between 109th and 111th streets during construction.	No anticipated effects
Historic Resources	1.0, 2.1A, 2.1S, 2.2	Partial right-of-way takings and other potential effects affecting Jordan High School, Firestone Rubber Co. Administration Building, Macy Street Viaduct, & 2500 Nebraska Avenue.	Not Significant	None required.	Not Significant

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Historic Resources (cont'd)	1.0	Construction of the Gage Avenue overpass would necessitate demolition of the architecturally significant Craftsman residence at 6407 Cottage Street.	Significant	Possible relocation of overpass to other side of Gage Avenue. Structure could be moved.	Potentially Significant
		Construction of the Tweedy Boulevard, overcrossing would necessitate demolition of the architecturally significant Colonial Revival residence at 2564 Nebraska Avenue.	Significant	Possible relocation of overcrossing to south side of Tweedy. Structure could be moved.	Potentially Significant
	2.2	Several units taken (5 of 1320) and increased noise exposure at the historically and architecturally significant Pueblo del Rio public housing project. Vibration effects potentially felt at 58 additional units.	Significant	Acoustical and vibration treatment.	Potentially Significant
Economics					
Construction	All Build Alternatives	Businesses along the corridor would experience reduced vehicular and pedestrian access, traffic detours, noise and other inconveniences. Some businesses could have substantial difficulty in relocating and some jobs could be lost as a result.	Significant	Construction management plan; specific measures targeted to individual businesses; public information program.	Potentially Significant

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Construction (cont'd)	All Build Alternatives (cont'd)	Construction jobs created as follows: Alt. 1.0 = 6,900 Alt. 2.1A = 9,000 Alt. 2.1S = 9,000 Alt. 2.2 = 9,200	Beneficial	None Required	Beneficial
		Direct and indirect expenditures in the local economy: Alt. 1.0 = $ 1.097 billion Alt. 2.1A = $ 1.427 billion Alt. 2.1S = $ 1.427 billion Alt. 2.2 = $ 1.452 billion	Beneficial	None Required	Beneficial
Ports-Related Economic Development	No Build	Does not support long-term growth at the ports. Long-term growth in train volumes produce widespread impacts that may constrain growth.	Significant	None proposed under this alternative.	Significant
	All Build Alternatives	Provides support for growth of ports activity to the year 2020. Provides a mechanism for focusing and mitigating impacts.	Beneficial	Project is mitigation.	Beneficial
Business Relocation	All Build Alternatives	Acquisition of commercial properties would be as follows: Alt. 1.0 = 341 Alt. 2.1A = 139 Alt. 2.1S = 208 Alt. 2.2 = 158	Significant	Relocation assistance as per Uniform Relocation and Real Properties Acquisition Act.	Not Significant

TABLE S-1 ALAMEDA CORRIDOR SUMMARY OF IMPACTS					
IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Revenue Losses	All Build Alternatives	Annual property tax losses, resulting from property acquisitions as follows: Alt. 1.0 = $ 1,407,000 Alt. 2.1A = $ 651,000 Alt 2.1S = $ 893,000 Alt. 2.2 = $ 444,000	Significant	Reparcelization of excess land may partially restore some revenues.	Not Significant
		All alternatives would result in some losses in local sales tax and business license revenues.	Not Significant	Reparcelization of excess land may partially restore some revenues.	Not Significant
Corridor Economic Development	All Build Alternatives	All alternatives would enhance economic development opportunities along the corridor for businesses supporting industrial and transportation functions.	Beneficial	None required.	Beneficial
Cumulative Effects					
Effects Related to Ports Expansion	No Build	Collective impacts of increased train and truck volumes become more pervasive and could inhibit growth.	Significant	None proposed under this alternative.	Significant
	All Build Alternatives	Project permits ports expansion to take place in an orderly manner, focusing mitigations to one corridor.	Beneficial	Project is mitigation	Beneficial
Effects Related to Ports Access Projects and Other Local Projects	No Build	These projects provide partial mitigation of some effects related to ports expansion.	Beneficial	Projects are mitigation	Beneficial

TABLE S-1
ALAMEDA CORRIDOR SUMMARY OF IMPACTS

IMPACTS	ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACTS	SIGNIFICANCE	MITIGATION	RESIDUAL IMPACT
Effects Related to Ports Access Projects and Other Local Projects (cont'd)	All Build Alternatives	Alameda Corridor provides for enhanced mitigation resulting from these projects. Overlapping construction schedules could exacerbate some inconveniences. The Pacific Pipeline Project could extend the corridor construction process, if it were to be constructed first.	Beneficial	Project is mitigation.	Beneficial
Effects Related to Regional Freight Operations	No Build	Locomotive delays and operational difficulties would increase over time. Vehicular delays at grade crossings would increase. Goods movement would become less efficient over time.	Significant	None proposed under this alternative.	Significant
	All Build Alternatives	Overall locomotive and vehicular delays at grade crossings would be improved, although delays at some grade crossings could be worse, east of the corridor. Goods movement in the region would be substantially more efficient. The consolidated corridor focuses impacts to one corridor.	Beneficial	Project is mitigation.	Beneficial

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.0 INTRODUCTION AND BACKGROUND

1.1 PROJECT BACKGROUND AND PURPOSE

1.1.1 Project Location

The project is located in southern Los Angeles County, California. Approximately 20 miles in length, the Alameda Corridor extends from the ports of Long Beach and Los Angeles on the south to downtown Los Angeles on the north, running primarily along Alameda Street and Southern Pacific's San Pedro branch right-of-way.

The corridor travels through or borders the following jurisdictions: the cities of Vernon, Huntington Park, South Gate, Lynwood, Compton, Carson, and Los Angeles, and the County of Los Angeles. The project location is shown in Figure 1-1.

1.1.2 Purpose of the Project

A regional consensus has emerged that the Alameda Corridor should be developed into a high-capacity truck/train corridor to serve the long-term, port access needs of the Los Angeles and Long Beach Harbors. As officially adopted by the ACTA governing board, the purpose of the project is:

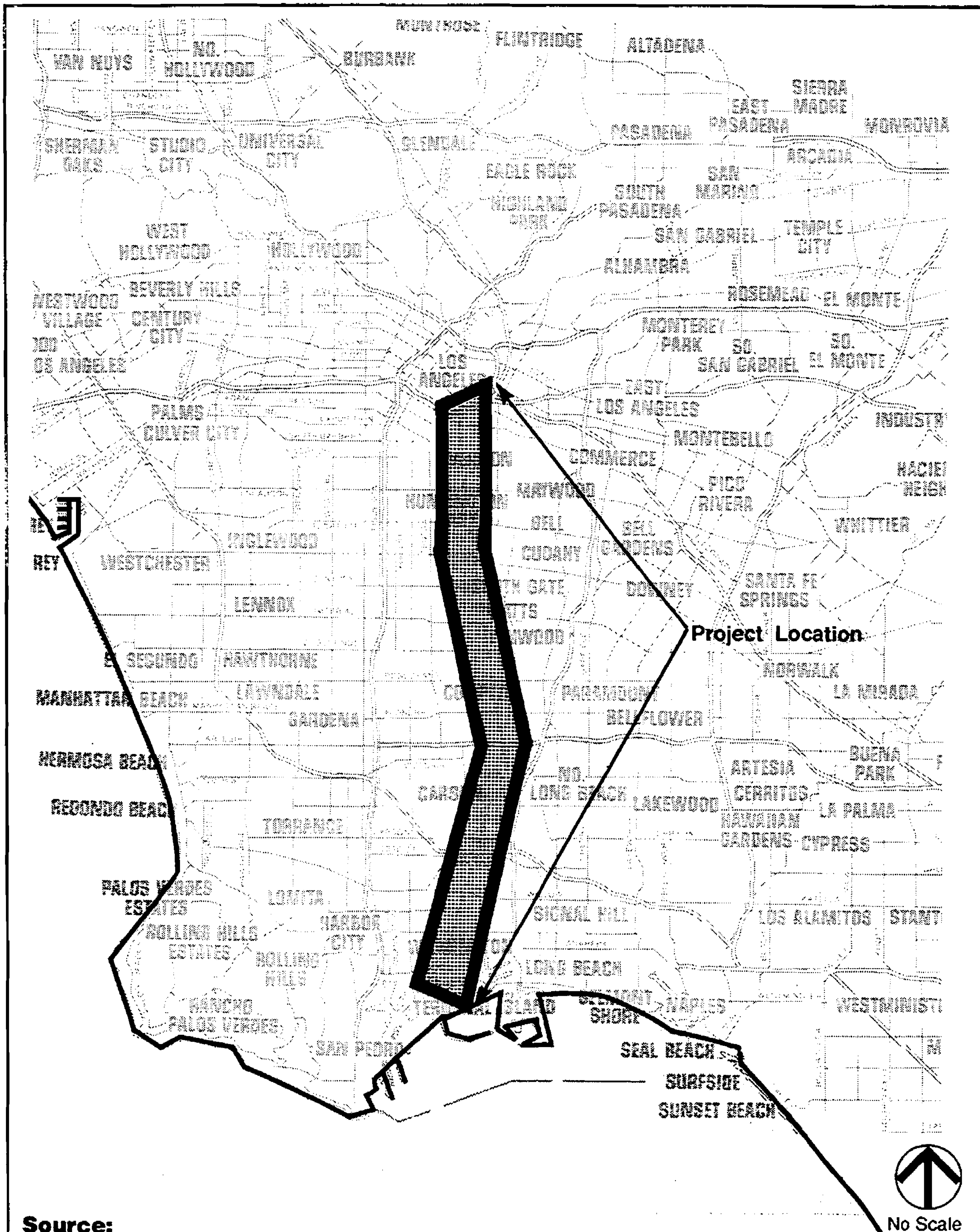
> *To facilitate access to the ports through the year 2020 while mitigating potentially adverse impacts of the ports' growth, including highway traffic congestion, air pollution, vehicle delays at grade crossings, and noise in residential areas.*

The corridor would connect the ports with major rail facilities in downtown Los Angeles. One element of this transportation system is Southern Pacific's San Pedro Branch. This rail route runs along Alameda Street in predominantly industrial zones, making it compatible with heavy truck and train traffic. In contrast, there is more residential land use along the other railroad branch lines to the ports. All port-related trains of the Southern Pacific, Union Pacific and Santa Fe railroads will operate over the improved San Pedro Branch right-of-way. Mitigation measures will be concentrated along this one corridor.

The reconstruction of Alameda Street will also provide an alternative to the Long Beach and Harbor Freeways for port-related truck traffic. Developing an adequate relief valve for truck traffic has become more and more critical as these freeways grow increasingly congested.

1.1.3 Planning Activities

Beginning in the early 1980s, a series of investigations and studies were initiated by local and regional agencies that has led to the proposed project. The following sections outline planning activities that have culminated in the Alameda Corridor.



Source:

FIGURE 1-1	Alameda Corridor Transportation Project Location	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

SCAG Ports Advisory Committee

In October of 1981, the Southern California Association of Governments (SCAG) created the Ports Advisory Committee (PAC). This committee was established in response to growing concerns about the ability of the ground transportation system to accommodate increasing levels of traffic in the port area. The committee had broad representation, including local elected officials, officials from the ports of Los Angeles and Long Beach, Caltrans, the U.S. Navy, the U.S. Army Corps of Engineers, the affected railroads (Southern Pacific; Union Pacific;, Atchison, Topeka & Santa Fe), the trucking industry, the Los Angeles County Transportation Commission, and representatives from the offices of California Assemblyman David Elder, State Senator Robert Beverly, and U.S. Congressman Glenn Anderson.

The PAC agreed to make the problems of highway access to the ports the first phase in the study of land-side transportation. The first phase effort was completed in 1982. The second phase, a study of rail access, was completed in 1984.

In Phase I, the PAC addressed the following highway problems facing the port area:

- Existing and projected traffic congestion resulting from port activities, urban redevelopment, and the reestablishment of Long Beach as a "home port" for the U.S. Navy's Pacific Fleet.
- Environmental impacts of truck traffic on residential streets.
- High levels of truck traffic on the Long Beach Freeway.
- Potential conflict between the proposed extension of the Terminal Island Freeway and the Intermodal Container Transfer Facility (ICTF).

The purpose of the highway study was to resolve these issues and to recommend the most cost-effective set of highway improvements to meet the area's needs through the year 2000. After evaluating eleven different alternatives, the PAC recommended a package of "Phase I" improvements which included:

- Widening of Seaside Avenue and Ocean Boulevard on Terminal Island
- Improvements to the signalization and channelization at the Vincent Thomas Bridge toll plaza
- Providing an interchange at Harbor Scenic Drive/Ocean Boulevard with Route 710
- Widening of Anaheim Street between "I" Street and the Long Beach Freeway (I-710)
- Widening of Henry Ford Avenue from the Terminal Island Freeway to Alameda Street
- Widening of Alameda Street from Henry Ford Avenue to the San Diego Freeway (I-405).

It was estimated that these Phase I improvements would cost approximately $58 million.

A series of "Phase II" highway improvements were also recommended, including the widening of Anaheim Street from "I" Street to Alameda Street, a grade separation at Seaside Avenue and Navy Way, an interchange at the Terminal Island Freeway/Ocean Boulevard, widening of the Gerald Desmond Bridge, improvement of "B" Street and Alameda Street between Avalon Boulevard and Henry Ford Avenue, and the extension of the widening of Alameda Street north to the Artesia Freeway (Route 91).

Results of this study are documented in SCAG's San Pedro Bay Ports Access Study, Phase 1 Report: Highway Access, July 1982.

In May of 1982 SCAG began its investigation of railroad access issues. This study was prompted by concern over the impacts of projected train traffic on communities north of the ports. In 1982 the Port of Long Beach had announced its intention to build a coal export terminal with an annual throughput of 15 million tons. The focus of the SCAG study was an evaluation of alternative train routes from downtown Los Angeles to the ports.

The PAC evaluated a number of routing alternatives, including:

- "Status Quo": rail companies would use their own tracks to reach the ports.
- "One Way Loop": from Hobart Tower, Union Pacific and Santa Fe trains would use the Union Pacific track southbound and the Santa Fe track northbound.
- "Consolidation": All trains would use an up-graded Southern Pacific San Pedro Branch right-of-way.

The PAC analyzed the impacts of projected rail traffic to the year 2010. Principal evaluation criteria were projected delays to vehicles waiting at railroad grade crossings, noise and vibration impacts in the residential areas, and the costs of upgrading the rail line and the costs of grade separations.

In October of 1984 SCAG published the San Pedro Bay Ports Access Study, Phase 2 Report: Railroad Access. The results of the analysis indicated that the consolidated route would be more cost-effective and have fewer environmental impacts than the other routing options. Accordingly, on December 6, 1984, the SCAG Executive Committee adopted a series of "Rail Access Policies":

- *Long-Term Goal: It is the long-term goal for rail access to the Ports of Los Angeles and Long Beach to develop a Consolidated Rail Corridor along the Southern Pacific San Pedro Branch that avoids major disruption to existing communities. To the extent possible, public and private investments in grade separations, track and signal improvements, and public works should be consistent with eventual consolidation of through freight traffic along this corridor.*
- *Mitigations: Mitigation of adverse economic and environmental impacts attendant to the consolidated Corridor shall be vigorously pursued. Mitigation will be accomplished through grade separations and through appropriate planning and design (including but not limited to sound walls, aesthetic treatment, utility location, and access).*

Engineering solutions will take into account design standards and concerns of local jurisdictions, with regard to noise, emissions, aesthetics, vehicle and pedestrian access to existing and proposed commercial, industrial, residential, institutional, and recreational areas. Engineering solutions will also take into consideration design standards and concerns of affected railroads and local industries with regard to railroad operations and service.

- *Task Force: A task force — composed of affected railroads, affected jurisdictions, public agencies, and other interest groups — shall be created to resolve issues of financing, institutional arrangements, legislation, physical design, engineering, coordination with related projects, and mitigation of adverse impacts. A lead agency responsible for coordinating the work of the task force shall be named.*

  In consultation with affected jurisdictions, the task force shall analyze alternative designs for grade separations and other improvements along the Corridor, and shall investigate the feasibility of a grade-separated trainway within the City of Compton.

- *Staging: Implementation should occur in increments, defined by changes in the level of train traffic. Mitigations should be designed to match anticipated growth in railroad activity. The task force will seek consensus on improvements at each stage, recognizing that long-term needs for mitigation will be more extensive than short-term needs.*

SCAG Alameda Corridor Task Force

In pursuit of the rail access policies that were adopted in late 1984, SCAG created the Alameda Corridor Task Force (ACTF) in February of 1985. The membership of ACTF was similar to that of the PAC, except that the California Public Utilities Commission (CPUC) and each of the cities along the corridor were accorded membership.

Between February 1985 and July 1989, the ACTF focused on bridging the gap between planning and implementation. The Task Force analyzed the distribution of the project's benefits, reviewed potential sources of funds, developed alternative funding and phasing plans and evaluated alternative institutional arrangements for the implementation phase.

The ACTF concluded that a Joint Powers Authority should be created that would have design and construction responsibility for the Alameda Corridor.

Strategic Plan

The need for the Alameda Corridor was further confirmed by the Consolidated Rail Corridor Strategic Plan, published by the two Ports in November of 1988. This study took into account the latest developments in international trade and freight handling, including containerization and the development of on-dock and near-dock railroad yards. The opening of the Intermodal Container Transfer Facility (ICTF) in 1986 significantly reduced truck traffic on the freeways, but at the same time it demonstrated an increased need for grade separations and other mitigations associated with railroad traffic. Plans for on-dock rail yards at both ports generated additional demands for action on the Alameda Corridor.

The Strategic Plan recommended that the ports conduct rail capacity, preliminary engineering and environmental studies for the corridor. The study also advised the ports to purchase the railroad rights-of-way needed for the corridor in order to assure public control and impartial dispatching of trains. The study also recommended that valuation studies be conducted for the properties in question.

Alameda Corridor Transportation Authority

In August of 1989, the Consolidated Transportation Corridor Joint Powers Authority was created, as a logical outgrowth of prior planning work by SCAG and recommendations embodied in the Port's Strategic Plan. The first meeting of the new agency was held on August 31, 1989. By amendment to the Joint Powers Agreement, the agency's name was changed to the Alameda Corridor Transportation Authority (ACTA) in November of 1990. The two ports have provided the funding for the agency's management staff and for the engineering, environmental and valuation studies.

ACTA has a Governing Board of 16 members, representing the cities of Los Angeles, Long Beach, the Los Angeles County Transportation Commission, the Los Angeles County Board of Supervisors, the two ports (with two representatives each), Caltrans, the Southern California Association of Governments (an ex officio member)and each of the six cities along the corridor: Vernon, Huntington Park, South Gate, Lynwood, Compton and Carson.

In May of 1990, ACTA contracted with Daniel, Mann, Johnson & Mendenhall/Moffatt and Nichol Engineers to develop conceptual designs, conduct highway and railroad capacity studies and prepare this Environmental Impact Report. Reports documenting the results of the conceptual design and capacity studies are published separately.

ACTA also contracted with Transportation Marketing Services, Inc. (TMS) to conduct confidential valuation studies of railroad rights-of-way and with Robert L. Banks, Inc. to develop a confidential railroad negotiations strategy.

1.1.4 Ports Access Demonstration Projects

During the nearly ten years of planning for the Alameda Corridor, three federal transportation reauthorization bills have become law:

- Surface Transportation Assistance Act (STAA) of 1982
- Surface Transportation and Uniform Relocation Assistance Act (STURAA) of 1987
- Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991

The Alameda Corridor and other ports access improvements in the Los Angeles/Long Beach port area have received federal funding in all three reauthorizations. In 1982 the STAA included $58 million for Phase I of the Port Access Demonstration Project (PADP), representing funding for the highway improvements recommended by SCAG's Phase I Ports Access Study. The STURAA of 1987 provided $59 million in federal assistance for Phase II of the PADP, and the ISTEA of 1991 authorized $56.7 million for Phase III.

The PADP is administered by Caltrans, LACTC and the individual jurisdictions in which the projects are located. Caltrans coordinates the engineering for the PADP and makes sure that those projects on state highways are designed to state standards. LACTC, through its Ports Highway Improvements Financial Plan Committee, coordinates financial matters for the PADP. LACTC also administers a matching fund account for Phase II projects. Each jurisdiction is responsible for design and construction of the projects located within its boundaries.

Phase I

Construction has been completed for the following Phase I projects: (1) improvement of Anaheim Street from "I" Street to the Long Beach Freeway, (2) reconstruction of "I" Street from Anaheim Street to the Terminal Island Freeway, (3) an interchange at Harbor Scenic Drive and Ocean Boulevard, (4) widening of Seaside Avenue on Terminal Island, (5) intersection and channelization improvements near the Vincent Thomas Bridge Toll Plaza, (6) reconstruction of the on/off ramps to the Terminal Island Freeway at Henry Ford Avenue and (7) realignment and repavement of Harbor Scenic Drive from Ocean Boulevard to Pacific Coast Highway.

The following Phase I projects are still in the engineering stage: (8) resurfacing of Henry Ford Avenue from the north end of the Dominguez Bridge, (9) widening of Alameda Street from Henry Ford Avenue to Del Amo Boulevard and (10) widening of Ocean Boulevard on Terminal Island.

Phase II

All of the Phase II projects are still in the engineering stage: (1) a grade separation at the intersection of Alameda Street and Carson Street, (2) a grade separation at the intersection of Alameda Street and Del Amo Boulevard, (3) widening of Alameda Street from Del Amo Boulevard to Route 91, (4) widening of Alameda Street at the Santa Fe railroad bridge north of Pacific Coast Highway, (5) widening of the Gerald Desmond Bridge to five lanes, (6) additional connectors at Ocean Boulevard/Harbor Scenic Drive and (7) a grade separation for eastbound Seaside Avenue near the Vincent Thomas Bridge toll plaza.

Also funded in the STURAA of 1987 under a separate demonstration project is a grade separation at the intersection of Alameda Street and Rosecrans Avenue. This project has been completed.

Phase III

Conceptual design work has been completed for the following four projects included in Phase III: (1) widening of Alameda Street from Del Amo Boulevard to Route 91 including a grade separation (underpass) connecting west and east Alameda Street near Laurel Park Road, (2) a grade separation at the intersection of Alameda Street and Sepulveda Boulevard, (3) widening and raising of the Anaheim Street bridge over the Dominguez Channel, and (4) a grade separation of Pacific Coast Highway at the Santa Fe railroad crossing. Design work for a fifth project, an interchange at Ocean Boulevard and the Terminal Island Freeway, is in progress.

1.2 HISTORICAL DEVELOPMENT OF THE ALAMEDA CORRIDOR

The Alameda Corridor has been a primary transportation route for freight between the harbor area and downtown Los Angeles from as early as 1852. It continues to be an important transportation route for reasons that are identical to those which inspired its original construction first as a wagon road and then as a combination road and railroad in 1869. The corridor is the shortest and most level route on solid ground between downtown Los Angeles and the harbor area. Following connection with the Southern Pacific Railroad (SPRR) in 1876, the flow of goods along this corridor was opened to the rest of the continental United States. The types of goods which have been transported along this corridor are directly and inextricably related to the historical development of the greater Los Angeles metropolitan area. In the pueblo days, cattle hides were the predominant merchandise traded. Later citrus fruit, other agricultural produce, silver ore and oil all became major components of a world-wide trading network via the Alameda Corridor. Because of its geographic advantages and historical association with established shipping and railroad routes, the continuing and future role of the Alameda Corridor as the region's primary freight route is assured.

1.2.1 Early Linkages Between Los Angeles and the Harbor

Land Grants

Juan Jose Dominguez, a member of the Gaspar de Portola expedition of 1769, received a Spanish land grant to the 74,000 acre Rancho San Pedro in 1784. It was one of the first great California ranchos. The rancho extended from Redondo to the Palos Verdes peninsula and included the present-day Palos Verdes Estates, Rancho Palos Verdes, Rolling Hills Estates, San Pedro, Torrance, Gardena, Compton, Redondo Beach, Wilmington, Lomita, Harbor City and Carson. Upon his death at the age of 90 in 1809, Dominguez left Rancho San Pedro to his nephew Cristobal and a life estate in the rancho to Manuel Gutierrez, executor of the will.

In 1822 Jose Dolorez Sepulveda, a Spaniard who fought for Mexico in the revolution, received permission from Manuel Gutierrez to keep horses and cattle on a part of Rancho San Pedro. Eventually Sepulveda laid claim to a large portion of Rancho San Pedro and renamed the land Rancho Los Palos Verdes. Governor Pio Pico officially granted Rancho Los Palos Verdes to the Sepulveda family in 1842. Later, Diego Sepulveda, son of Jose Sepulveda, was instrumental in developing San Pedro and in building the first wharf at San Pedro.

Early Trading Years

During the rancho years El Pueblo de Los Angeles became a thriving cattle center, and San Pedro became the largest and busiest hide-trading post on the California coast. Southern California remained a vast cattle range until the Great Drought of 1863-1864. Debt incurred from the drought, and increased taxes forced cattle barons to subdivide and sell their land to real estate speculators. Eventually many former cattle barons turned to farming short term commodities such as oranges, grain, grapes and wool.

As the Los Angeles Valley became a spreading "patchwork of fields and vineyards," the "Queen of the Cow Counties" was transformed into the center of a farming empire (Nadeau 1977). Soon immigrant groups were buying large tracts of land and laying out townsites on former ranchos.

Los Angeles was entering a new era. The transcontinental railroad was undergoing construction; farming was replacing cattle herding. Still, Los Angeles only ranked eighth in population among California cities by the 1860s.

1.2.2 Alameda Corridor as an Early Railroad/Transportation Route

The First Roads

In the early days of El Pueblo, the transportation system from the city to San Pedro Bay consisted of rutted dirt roads. Wooden carts and teams of mules loaded with hides would labor down the rutted roadway to the bluffs above the beach. The hides were then tossed off the cliffs, loaded onto longboats and rowed out to the waiting ships (Robinson 1978). In 1847 the Sepulveda family established freight and passenger service between Los Angeles and San Pedro Bay, along the route known in the early days as San Pedro Road or Sepulveda's Stage Road. In those days the old stage road was "abominably poor, really more of a rutted cowpath than a highway" (Robinson 1978). Nevertheless, as the population grew and Los Angeles became a commercial center, the Stage Road became a major roadway. Figure 1-2 illustrates the route of the old stage road.

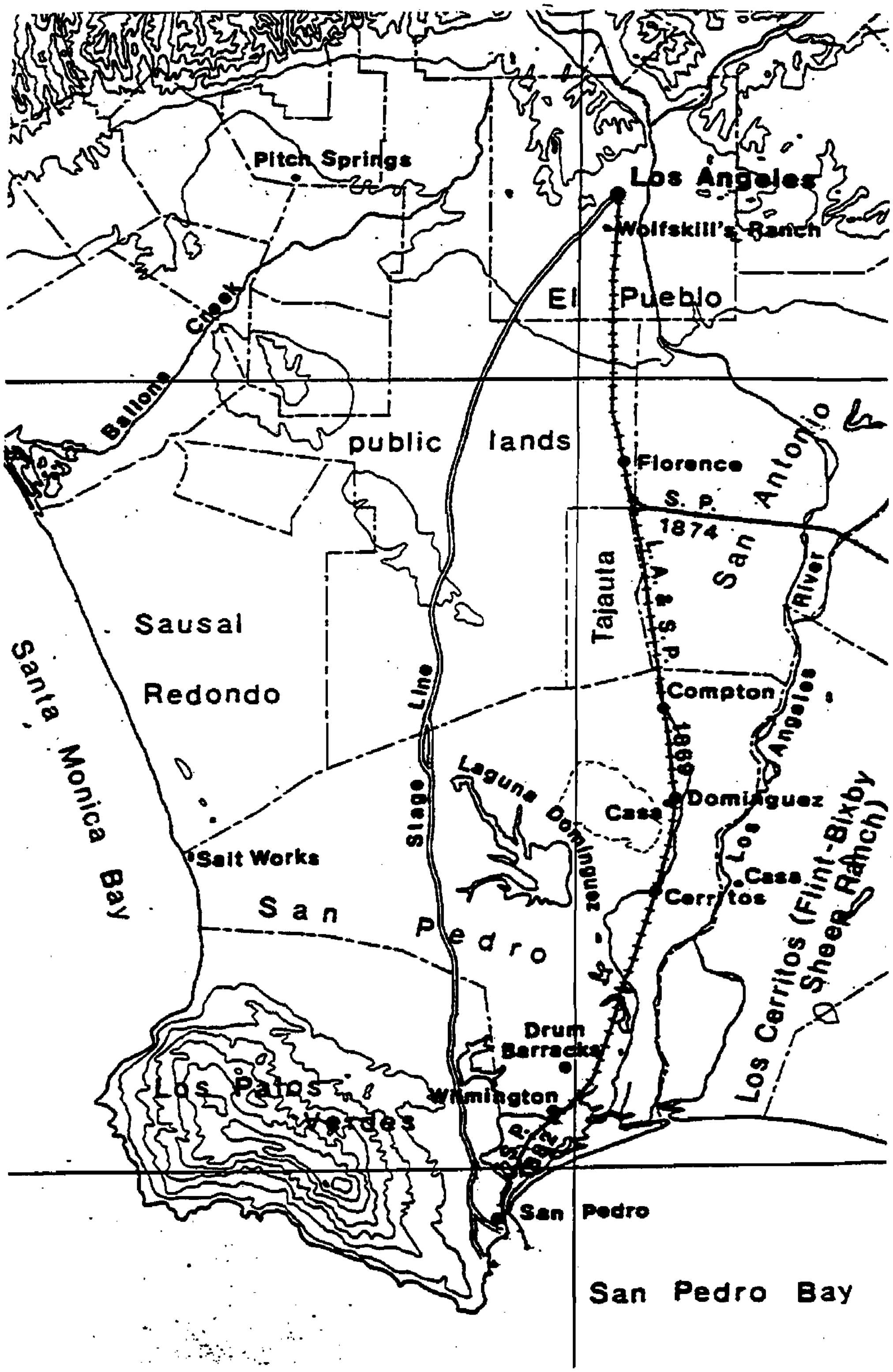
As new immigrants arrived and harbor traffic at San Pedro grew, several city fathers began to recognize the need to improve transportation between the harbor and Los Angeles. In 1848 John Temple and his business partner Juan Alexander acquired two acres of Rancho Los Palos Verdes waterfront. By 1849 they had established a land shipping business transporting goods by cart and oxen between San Pedro and Los Angeles.

Phineas Banning's Railroad

Phineas Banning purchased John Temple's share of the Temple & Alexander freighting and staging firm in 1852, and he eventually expanded it to include 500 mules, 40 horses, 15 stagecoaches and more than 30 freight wagons. Banning also incorporated a fleet of flat-bottomed barges into his business and small shallow-draft steamers to transport passengers and freight to ships docked at his wharf in San Pedro.

Shortly before a storm destroyed his wharf in San Pedro in 1857, Banning built a dock near what is presently Avalon Boulevard in Wilmington, on part of 2,400 acres of land he had purchased from Manuel Dominguez, five miles up the channel on the former Rancho San Pedro (see Figure 1-3). The dock served as the southern terminus of his wagon road. Banning believed that a landing closer to Los Angeles would reduce overland travel and give him a competitive advantage over his rivals. The new town, which Banning named New San Pedro, centered around activity on the wharf and handled most harbor traffic in hides, tallow, lumber, wire, grapes, and whale and shark oil. The site was later renamed Wilmington after Banning's hometown in Delaware.

Banning was a state senator in 1867 when he introduced California's first railroad bill authorizing the city and county to charter a company to build a railroad from Los Angeles to Wilmington. Banning believed the "railroad meant progress - a way to move freight and passengers easier, faster and more efficiently" than horses, mules, wagons, and stagecoaches (Queenan 1983).



Source: Southern California's First Railroad, 1978

FIGURE 1-2	Map of Stage Line; Los Angeles & San Pedro Railroad (1869); and Southern Pacific Railroad (1882)	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Source: Security-First National Bank, Godfrey Photo, 1870

FIGURE 1-3	**Phineas Banning's wharf at Wilmington, c. 1870**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

He was aware that a railroad over the 21-mile route from the city to the bay was essential to the growth of the port and would lower freights, increase traffic and perhaps attract Southern Pacific's transcontinental line. The bill passed in 1868 and Banning obtained a charter for the Los Angeles & San Pedro Railroad. The contract required Banning to build the line, construct depots and warehouses at both ends, provide the railroad with two engines, two coaches, two baggage cars, freight cars and hand cars (Robinson 1978). The city and county of Los Angeles voted bonds to help finance the construction.

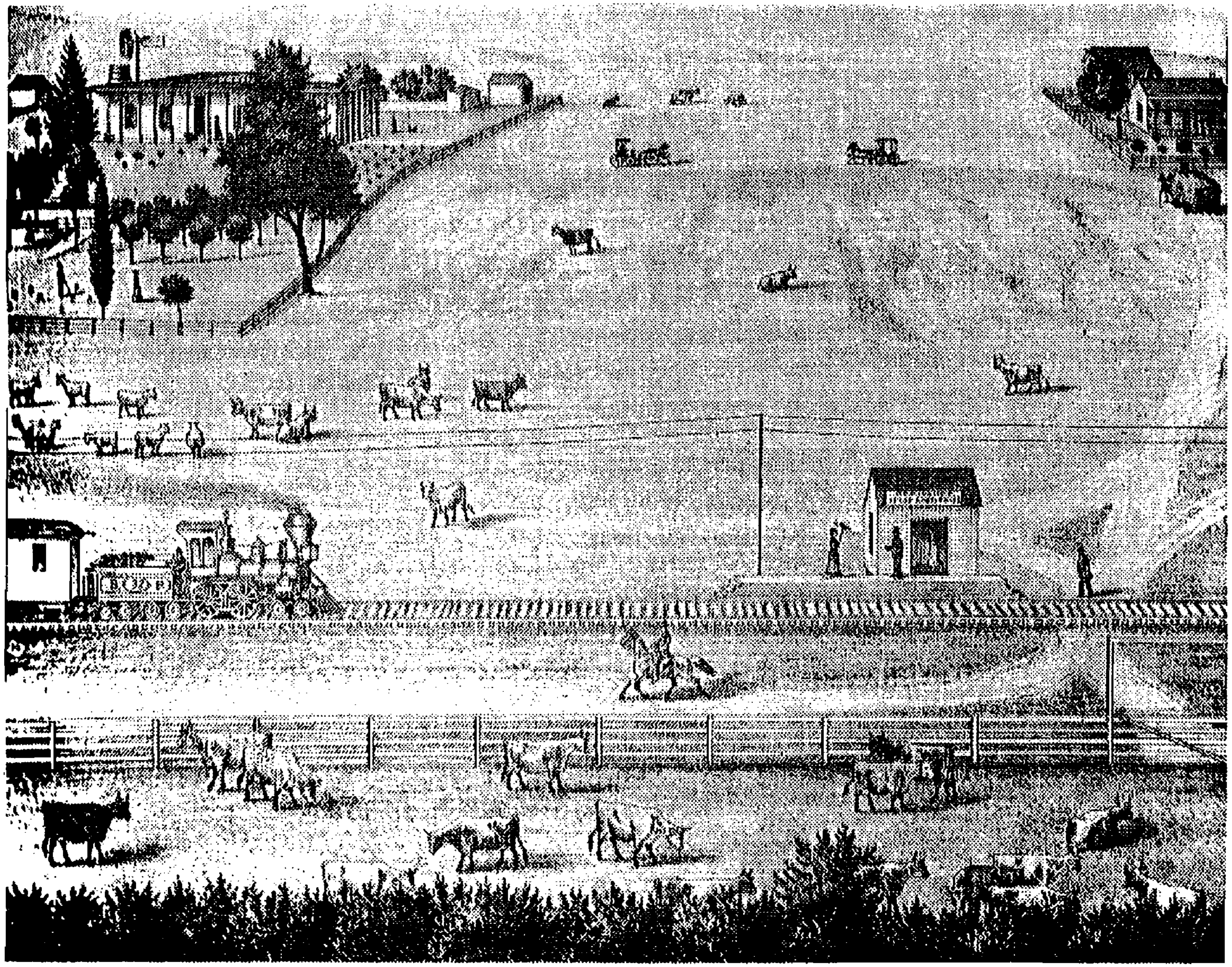
Construction of Southern California's first major railroad began in 1868 with track layers following the line of present-day Alameda Street. The route was located east of the old wagon and stage line. Chief Engineer Colonel Edward Flint recommended Alameda Street over the old San Pedro Road because the route, which became known as the Dominguez Route, was drier and had a maximum grade of 26 feet to the mile, whereas the old San Pedro Road, which was twice as steep and passed through marshland, would have required extensive trestling (Robinson 1978).

In the wake of construction, the Los Angeles News commented that Los Angeles never decided "to be any thing more than a county town, until work was commenced on the Los Angeles and San Pedro Railroad . . . " (Nadeau 1977). Banning completed the line extending from the railroad depot at the southwest corner of Alameda and Commercial streets in Los Angeles to Banning's wharf in Wilmington on September 7, 1869 (see Figure 1-4). The route offered both a sheltered harbor and a shortened stage road. On October 26, 1969, the new full-sized locomotive, the Los Angeles, pulled out of the barnlike depot on Alameda Street in Los Angeles on an excursion trip marking the official opening of the line. Banning had obtained control over inland shipping through ownership of both the railroad and wharf. For his efforts in improving the transportation system between El Pueblo and the harbor and in turning San Pedro into one of the great modern seaports, Banning is remembered as the "Transportation King" of the southwest and the "Father of the Los Angeles Harbor."

<u>Alameda Street as a Transportation Corridor</u>

A 1984 City of Los Angeles report entitled "Los Angeles City Streets" shows that the route followed by present-day Alameda Street was in existence by 1852. Alameda Street from Spring Street to 21st Street had been constructed by 1852, although this portion of the route remained unnamed until later. The book <u>Sixty Years in Southern California 1853-1913</u> indicates that prior to the construction of the Los Angeles & San Pedro Railroad, Alameda Street, then referred to as "The Lane," was used to transport passengers and freight from the harbor to El Pueblo. Further indicating that the road was in existence prior to the railroad, the book mentions that even after the railroad, "many resorters still patronized the old service; and frequently the regular stages, racing all the way up from the steamer, would actually reach the city half an hour earlier than those transferring the passengers from the railway terminus . . ." (Newmark 1984).

While sources do not mention the name of the wagon road Banning used to haul freight inland, the road could have been Alameda Street, since it had been constructed by 1852 and would have offered the shorter route Banning sought between the port and Los Angeles. Alameda Street would have also been the logical choice for Banning to transport military supplies from the Drum Barracks north of Wilmington to points inland since the Stage Road was located further to the west.



Source: Panorama, 1953.

FIGURE 1-4	**Dominguez Station on the Los Angeles & San Pedro Railroad line between Wilmington and Los Angeles. Drawing shows the still extant home of Don Manuel Dominguez, owner of Rancho San Pedro across which the railroad passed (1880).**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

By 1870 the silver trade relied heavily on the Los Angeles and San Pedro Railroad along Alameda Street to transport the bullion from blast furnaces in Los Angeles, where it arrived by mule trains from the mines at Cerro Gordo, Mexico, to the harbor. The commodity was loaded at San Pedro onto steamers and shipped to San Francisco. Gold from mines in Soledad and San Gabriel was also loaded onto the railroad in Los Angeles and shipped to Wilmington for export. At the same time, industry was developing around Alameda Street. Commercial Street, near the railroad depot, became the industrial center, featuring an iron foundry, machine shop, carriage factory and two lumber yards. Further south in Wilmington, workshops were manufacturing locally-built freight and passenger cars.

<u>Southern Pacific acquires the Los Angeles & San Pedro Railroad</u>

A railroad bill which would establish the SPRR route from San Francisco to Fort Yuma, Arizona was debated in Congress in February 1871. The people of Los Angeles waited anxiously for the outcome because they believed the legislation would decide the city's destiny. Not wanting to be bypassed by the railroad, the city sought a stipulation requiring the SPRR tracks to run through Los Angeles rather than along the shorter Cajon Pass route 30 miles to the east. Before passage of the legislation, California State Legislator Benjamin Wilson traveled to Capitol Hill to persuade Congress to insert the phrase "by way of Los Angeles" into the bill. He also requested appropriations for improvements at Wilmington Harbor and language designating Wilmington Harbor as an official "port of entry." The bill passed with the provisions Los Angeles sought. Nevertheless, Southern Pacific found a loophole in the law claiming "by way of Los Angeles" did not necessarily mean the City of Los Angeles. Before agreeing to bring the SPRR through the city, Southern Pacific wanted approximately half a million dollars in subsidies, the necessary right-of-way, 60 acres of downtown property for a railroad depot and ownership of the Los Angeles & San Pedro Railroad.

A year of spirited negotiations ensued between Los Angeles and Southern Pacific before the issue was placed before the voters of Los Angeles County. Encouraging Los Angeles to vote for the SPRR, Judge Robert Widney wrote "It is in the interest of Los Angeles to be on the main transcontinental line . . . The Southern Pacific line . . . would open the entire nation to Los Angeles agriculture . . ." (Nadeau 1977). The *Los Angeles Star* wrote, "The vote of the people tomorrow on the railroad question will determine whether Los Angles shall remain as she is - a mere shire town, doing the business of a small scope of territory, or become a great commercial emporium, with a trade reaching to all parts of the world" (Nadeau 1977). Although Banning considered the coveted route his own, "no one saw more clearly than he the importance of outside rail links to the continued growth of Los Angeles at almost any price" (Queenan 1983). Other Los Angelenos realized, too, that the city's transportation system had to keep pace with the growing population and only a ready-made railroad line from Los Angeles to the harbor would bring the SPRR to the city. On November 5, 1872, Los Angeles County voted in favor of Southern Pacific's requests, giving the SPRR almost complete control over all shipping in and out of Los Angeles, including ownership of the Los Angeles & San Pedro Railroad.

1.2.3 Alameda Corridor and the Development of the Ports

Improvements and Creation of the Harbor

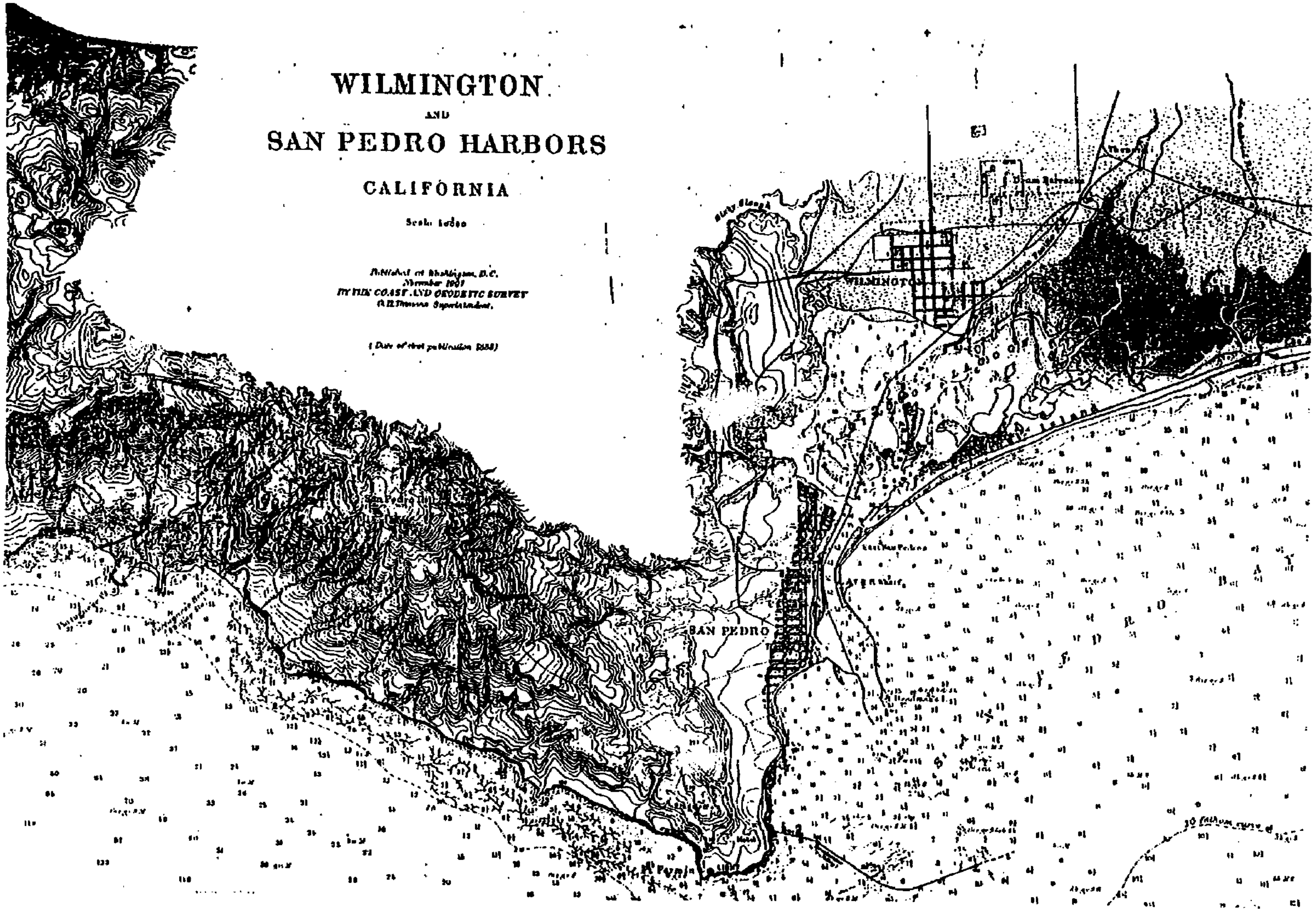
From the very beginning, the harbor and railroad were inextricably linked in the commercial development of Los Angeles and the communities located along the Alameda Corridor. This ship-to-railroad service was viewed as essential to the movement of goods from origin to destination. In the early 1850s, goods were transferred from ships docked at San Pedro Harbor to long boats and shallow-draft lighters and transported to waiting wagons destined for Los Angeles. Eventually, improvement of the harbor was viewed as essential to accommodating the increasing cargo being transported over the inland route. In fact, before construction began on the Los Angeles & San Pedro Railroad, the San Diego Union warned that "Banning would need to 'build a harbor at San Pedro or clear out the bar to his goose pond at Wilmington' before the enterprise could be of any value" (Robinson 1978). (See Figure 1-5.)

Recorded history of the Los Angeles Harbor is considered to begin with the reported sighting of San Pedro Bay in 1542 by the Spanish explorer Juan Cabrillo. In 1805, *Leila Byrd* from Boston, Massachusetts was the first commercial ship to arrive in San Pedro Bay. One of the first improvements to the harbor was the construction of Timms Landing in 1852. Convinced that the sloughs and channels could be converted into a first class harbor, Banning began dredging the channel for shallow-draft lighters to navigate to his new wharf at Wilmington in 1854. When storms destroyed Banning's old wharf at San Pedro, the Wilmington terminal became the center of activity, capturing business from Timms Landing. During the 1860s the harbor was an essential link in the enormous lumber trade as logs unloaded at the port were transferred to freight wagons and hauled inland.

The connection between the harbor and railroad was apparent in the minds of the founders of the transportation network. When Banning ran for State Senate in 1865, his platform included not only railroad legislation, but also the promise to persuade Congress to appropriate funds for harbor improvements. Banning built a small fleet of lighters at the same time he was constructing the Los Angeles & San Pedro Railroad because he viewed the boats as essential to integrating the ship-to-railroad service. In fact, the railroad contract between Los Angeles and Banning paid Banning for four lighters, five boats and skiffs and three small steamers.

Banning launched the steamer *Los Angeles* in 1869. It was the first steamer built at Banning's shipyard for the railroad company. Now goods could be conveyed from ship to wharf to railroad track laid down on the dock. Advertisements promoting the Los Angeles and San Pedro Railroad carried bold print stating that the railroad was connected by steamer to San Francisco, San Diego and other ports. Further symbolizing the connection between the railroad and the harbor, Southern Pacific operated the wharf, lighterage and tug business for a time after acquiring the Los Angeles & San Pedro Railroad, before selling the business back to Banning.

The 1870s and 1880s marked the arrival of, and subsequent dramatic increase in, railroad service to the Los Angeles Harbor area by the Los Angeles and San Pedro Railroad. In 1871, Banning secured Congressional appropriations for creating a deep water harbor in San Pedro Bay. The legislation authorized the Army Corps of Engineers to construct the harbor's first breakwater and dredge a channel from the outer harbor into Wilmington to allow large ships to navigate the Main



Source: Coast and Geodetic Survey, Washington, D.C., 1907

FIGURE 1-5	Map of Wilmington and San Pedro Harbors, c. 1888	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Channel. The main channel was subsequently dredged to 10 feet in 1871, to 15 feet in 1881, and again to 18 feet in 1888. Southern Pacific extended the SPRR to San Pedro in 1882 and then in 1888 to Timms Landing when construction on the long railroad wharf began. (See Figure 1-5.)

<u>The Push for Santa Monica as Los Angeles' Harbor</u>

In 1877 Collis Huntington purchased the rival Los Angeles and Independence Railroad, which ran from downtown Los Angeles to Santa Monica. Huntington soon turned his attention away from Wilmington and began to promote Santa Monica as the area's deep-water port. When Huntington became president of the SPRR in 1890, work on the Southern Pacific wharf in San Pedro was stopped. Despite Congressional engineering studies favoring San Pedro because of its better natural protection from storms, Huntington announced that the SPRR would build a one-mile long wharf in Santa Monica. When Congress, at Huntington's urging, defeated an appropriations bill for harbor improvements in San Pedro, an eight year battle ensued between Los Angeles and the SPRR. Ultimately, Congress passed the River and Harbor Bill, which led to appropriations for the harbor at San Pedro over Santa Monica in March 1897. Construction of the deep-water port and breakwater at San Pedro commenced in April 1899 and SPRR resumed its interest once again in San Pedro without benefit of a harbor monopoly, and then proceeded to abandon the port project in Santa Monica.

Once the Los Angeles & San Pedro Railroad terminal had been relocated from Wilmington to San Pedro and harbor improvements had been completed, San Pedro reemerged as the focus of shipping activity. Further improvements to the harbor took place in 1909 to accommodate the increase in port traffic expected once the Panama Canal opened. That same year, construction of a new highway (Wilmington Boulevard) accompanied the harbor improvements, symbolizing the historic connection between the inland transportation network and the harbor.

Up to this time, Long Beach viewed itself primarily as a resort town, however, a series of events began to unfold which would result in the development of the Long Beach Harbor. In 1903 the Long Beach Land and Navigation Company purchased 800 acres of lowland west of Long Beach from the Seaside Water Company for industrial use. In 1905 Henry Barbour and Dana Burk began formulating plans to create a deep water harbor which would transform Long Beach into a major seaport city. The two organized the Los Angeles Dock and Terminal Company which purchased the 800 acres of westside flats from the Long Beach Land and Navigation Company. Dredging of the harbor began in 1906.

The fishing and canning industries rapidly increased in the harbor area after 1903. Shipbuilding became established in 1907 by the arrival of Craig Shipbuilding Company in Long Beach. The port played an important role in the development of the oil industry beginning in 1921 by providing a distribution point for the oil drilled in oil fields west of the Alameda Corridor. The Port of Los Angeles became one of the busiest harbors in the world during World War II, when the U.S. Navy held temporary control of shipping operations. As the fishing, canning, petroleum and lumber industries continued to use the harbor at an increasing rate, Los Angeles Harbor surpassed San Francisco Harbor in tonnage in 1923. By 1929 Los Angeles had become the world's largest fishing industry center.

The Ports of Los Angeles and Long Beach engaged in several cooperative efforts over the years, although each remained independent. Both were involved in the dredging that turned Cerritos Slough from a shallow ditch into the Cerritos Channel, making navigation between the two harbors possible (Queenan 1983). Both ports supported the creation of the Harbor Belt Line Railroad in 1929, merging the Southern Pacific, Union Pacific, Santa Fe and Pacific Electric Railway in the Port of Los Angeles. During World War II all harbor construction ceased except for the building of facilities in the Port of Long Beach by the U. S. military. Since the war, both ports have undergone continued improvements, establishing them among the largest port facilities in the world.

1.2.4 Communities along the Alameda Corridor

The development of several individual communities has been historically related to the activities along the Alameda Corridor. Brief historical overviews of each of these communities is presented below, listed in a north to south geographical order, ending at the harbor area. Figure 1-6 is a map illustrating communities along the corridor.

Vernon

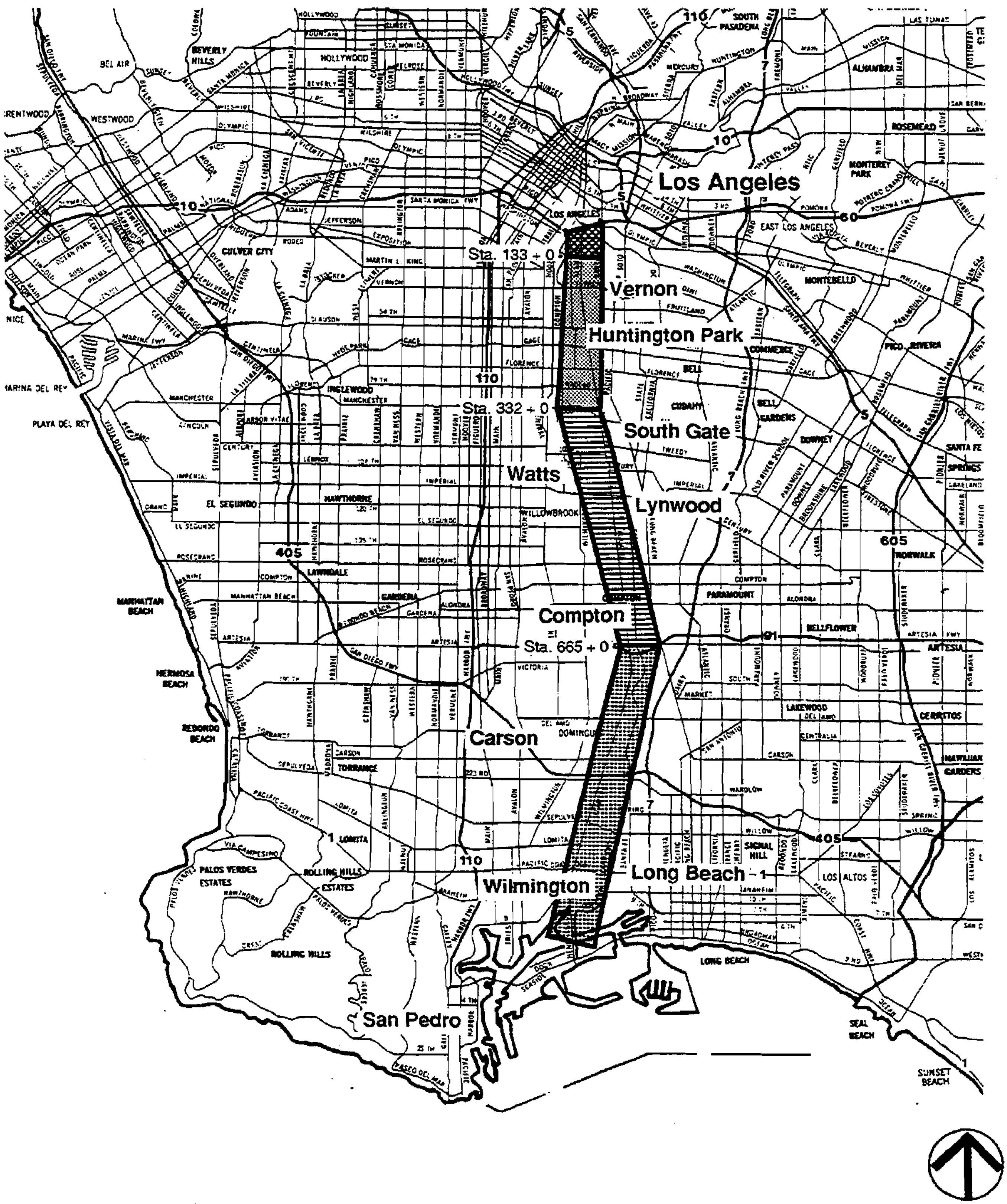
The proximity of Vernon to Los Angeles, as well as its position along the railroad corridor, made it an excellent investment for real estate speculators, who advertised it as a beautiful garden spot with every assortment of fruit crop available toward the end of the nineteenth century. The creation and construction in 1887 of the Los Angeles and Vernon Street Railway Company for passengers further emphasized the link between Vernon and Los Angeles. As subdivisions became more common, industries began to move in, and by 1914 Vernon had become a factory suburb of Los Angeles. In 1963 more than ten percent (some 80,000 workers) of the employed population of metropolitan Los Angeles worked in Vernon.

Vernon was originally known as Vernondale for Captain George R. Vernon, who became a settler of the district after the Civil War. At the time the city was incorporated on September 16, 1905, its name was shortened to Vernon.

Industry flourished in Vernon, due in large part to a rail service that made Vernon accessible to any part of California as well as the east and other parts of the west. In addition, Vernon had low water costs and deliberately maintained a low cost of government in order to attract industry. By 1959, Vernon, a town of 4.9 square miles, had 949 factories, warehouses, meat packing plants and other industrial facilities; twenty-eight miles of public thoroughfares and four times as many miles of railroad tracks. Seventy-six truck lines serving the nation had terminal or warehouse facilities in Vernon.

Huntington Park

Huntington Park grew out of that part of California prairie land that was Rancho San Antonio, awarded to Antonio Maria Lugo in 1810. Cattle grazed the land, and the Los Angeles River yearly carved a new river bed in its headlong rush to the sea, until subdividers such as Burbank and Baker created business and residential lots for sale in 1900. On August 31, 1906, the City



Source: DMJM/M & N, 1992

FIGURE 1-6	Communities Located Along the Alameda Corridor	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

of Huntington Park was incorporated. The city was named Huntington Park in an unveiled attempt to convince Henry E. Huntington to extend the Los Angeles Street Car Line to the city and to become the first "suburban" community with a five cent street car fare.

By the late 1950s the "Big Red Cars" were fading from the scene, and the new freeway routes bypassed Huntington Park. Huntington Park is virtually a museum of Art Deco and Streamline Moderne commercial buildings. In addition, among the residences of Huntington Park there exist fine examples of Craftsman, Spanish Colonial Revival and English Cottage-style houses.

South Gate

The land grant Don Antonio Maria Lugo received from the king of Spain covered 29,514 acres. Eventually several communities were carved out of Rancho San Antonio, including the City of South Gate. The Southern Extension Company bought the land in 1893 that was later to become the City of South Gate.

"South Gate Gardens--Gateway to the Sea" read advertisements run by the Southern Extension Company in 1917. Although there was no water system or streets or sewers, thirty-two families bought tracts that year, and the nucleus of a city was formed. It was a planned city, with the townsite for business placed away from the residential area in order to avoid conflict.

The presence of the Southern Pacific and Union Pacific railroads helped establish South Gate, and by 1922 several small industrial plants were located in the area. Larger companies followed, among them were General Motors, Firestone Tire and Rubber Company, Purex Corporation and A.R. Mass Chemical Company. The City of South Gate was incorporated in 1923.

South Gate experienced a rapid rise in housing starts after World War II, population increased and industries were so attracted to the city that by 1976 the City of South Gate could boast of more than 350 industries within city limits.

Watts

The community of Watts grew out of a Spanish land grant awarded to Anastacio Avila in 1820. Used at first as grazing land for cattle, Rancho La Tajauta was ultimately divided into smaller allotments that were used primarily as farmland.

Shortly after the turn of the century, the railroads and the Pacific Electric system spurred the growth of communities such as Watts. Pacific Electric lines traveling south on four tracks along Long Beach and Graham avenues to Long Beach, Santa Ana and Redondo/El Segundo/Torrance split into separate lines at Watts Junction.

Evolving as it had from farming community to key junction for the region's electric railway system, Watts became a magnet for Los Angeles' immigrant and minority communities. Greeks, Italians, blacks, Mexicans, Chinese and Japanese all had a portion of Watts for themselves. By the date of its incorporation in 1907, Watts was known for its cultural diversity. It became a working man's city where laborers, domestic servants and factory workers could own their own homes.

In the 1920s Watts attracted the lumber industry and door and sash manufacturing companies. One of the largest lumber yards in the area was located near the railway depot in Watts.

The citizens of Watts, dissatisfied with local politics and a persistent water shortage, voted for annexation to the City of Los Angeles in 1926.

Lynwood

The City of Lynwood also was developed out of the land of Rancho San Antonio. In 1869, when the Los Angeles-Wilmington Railroad opened for business, trains ran from Los Angeles down the west side of the boundaries of present-day Lynwood and then through Rancho San Pedro to the harbor. Stations in Lynwood were located at Lynwood Road and along the present railroad route.

C.H. Sessions, who had acquired large portions of the land comprising the city in 1902, named the city after his wife Lynne, whose maiden name was Wood. The construction in 1904 of a line of the Pacific Electric Railroad from Los Angeles to Santa Ana stimulated vigorous subdivision activity and caused an influx of new residents. By 1921 the citizens of Lynwood had ascertained the advantages of forming their own city government and sought and received incorporation.

Compton

The City of Compton was originally part of Rancho San Pedro, a land grant awarded to Juan Jose Dominguez by the Spanish crown in 1784. A small band of Methodist-Episcopal Church families was led to the area in 1867 by Griffith Dickenson Compton and William Henry Morton, and named the new community Comptonville. When a post office was opened in the town on July 6, 1869, postal officials decided to shorten the name to Compton to avoid confusion with a Comptonville post office in northern California. The community was generously serviced first by Banning's Los Angeles and San Pedro Railroad, which built a depot in Compton in 1876, and later by Henry Huntington's Pacific Electric Railway.

Compton was incorporated as a city on May 11, 1888; however, financial difficulties and wrangling over taxes soon resulted in a vote for disincorporation, and the city government was inactive for nearly fifteen years thereafter, until the State Supreme Court ruled in 1906 that the City of Compton was still in existence. Like so many other cities, Compton experienced a major period of expansion that was stimulated by new industrial development growing out of World War II. Construction rose and the population increased almost 200 percent, from 16,198 in 1940 to 47,991 in 1950.

Carson

The City of Carson lies at the heart of the original Rancho San Pedro. In 1857 George Henry Carson wed Victoria Dominguez and assumed management of the Rancho. The City of Carson, which was formed from consolidation of the small towns of Avalon Village, Keystone, Nestoria and Julian City, was named for him.

Sheepherding, farming and dairying were major enterprises in the city's early days. The Dominguez Water Company was formed in 1911 and provided water for the farmers of the area and built a reservoir at Alameda and Carson streets. After oil was struck on Dominguez Hill, farmers continued to raise their crop in the shade of the oil derricks.

The Shell Oil Company discovered oil on Signal Hill in 1921 and built a refinery on the east side of Dominguez Hill. Over time, their Carson plant was expanded and became part of the largest Shell Oil facility west of the Rockies. Union Oil Company struck oil on Dominguez Hill in 1923.

The City of Carson was incorporated in 1968.

<u>Wilmington</u>

Wilmington was established as a farming and ranching area and traces its roots back to Rancho San Pedro. Phineas Banning, who named Wilmington after his hometown in Delaware after having first called it New San Pedro, chose the site as the ocean terminus of his freight and stage line to Los Angeles. The first landing of passengers and freight at this point occurred on September 25, 1858. Wilmington became a legal port-of-entry in 1874.

As the site of Banning's wharf and the southern terminus of the Los Angeles & San Pedro Railroad, the town had been devoted to the building of the railroad. The largest industries in Wilmington during the 1860s were workshops for passenger and freight trains and restaurants and saloons for the workers. Once the railroad was built, land values in Wilmington soared, since two trains daily and a reasonable fare put Wilmington within easy commute to the City of Los Angeles.

Wilmington was incorporated in 1871, the same year the U.S. Congress signed a bill confirming that the Southern Pacific would run through Los Angeles and connect with the Los Angeles and San Pedro Railroad. As a result, industry began to boom at Wilmington harbor until San Pedro Harbor improvements occurred in the late 1880s. The City of Los Angeles, recognizing the value of the harbor to its own growth, annexed the cities of Wilmington and San Pedro on August 28, 1909.

CHAPTER 2

ALTERNATIVES

2.0 ALTERNATIVES

The purpose of this chapter is to describe the development of alternatives that have been considered, discuss the process that was used to evaluate those alternatives, and present the results of the evaluation process.

2.1 PROJECT GOALS AND CRITERIA

The purpose of the project, formally stated in Chapter 1, is to facilitate ports access through the development of a transportation corridor that addresses issues associated with the movement of both highway and train traffic. This purpose was further articulated as a set of project goals at a workshop held on September 13, 1990, which was attended by the members of the Alameda Corridor Transportation Authority Governing Board and other interested parties. Goal statements were presented to the ACTA Board at that workshop and as a result of discussion, were refined into goals which would be used for subsequent evaluation. Goals were developed in the following seven subject areas: (1) economic considerations, (2) traffic, (3) railroad operations, (4) the environment, (5) costs, (6) safety and security and (7) construction.

Subsequent to defining the project goals, a number of criteria were developed against which achievement of the goals could be measured. These criteria were presented to the ACTA Board and its supporting committees for approval. Also developed during this process were weights that were assigned to each of the project goals for purposes of alternatives evaluation. The purpose of the weights was to establish the relative importance of the goals. The following sections discuss the project goals and their associated evaluation criteria.

2.1.1 Economic Considerations

Economic considerations were given a weight of 10 percent and included six goal statements and associated criteria, defined as follows:

(1) *Promote economic development near and along the Alameda Corridor.* The measurement criterion for this goal was established as a subjective rating. It was determined that this goal could best be used to differentiate between the "no project" and "project" alternatives, and that it did not effectively distinguish among the various project alternatives.

(2) *Minimize land devoted to Port-related rail freight operations (throughout the basin).* The measurement criterion for this goal was train route miles from Redondo Junction to the ports.

(3) *Sustain economic growth.* No measurement criterion was established for this goal. It was determined that the goal reflected a desire to foster improved local level economic activity and that this was embodied in goal statement (1).

(4) *Maintain/improve access to existing businesses.* The measurement criterion for this goal was the number of parcels affected by the various project alternatives. Effects to be taken into account were either direct reductions in or indirect diminution of access, as compared with current conditions.

(5) *Promote growth of international trade through the ports.* It was determined that the alternatives could not be differentiated by this goal and therefore no measurement criterion was established.

(6) *Minimize property acquisitions.* This goal was to be measured by the estimated number of parcels that would be taken under each of the alternatives and the associated cost of land and improvements.

2.1.2 Traffic

Traffic was given a weight of 17 percent and included the following nine goal statements:

(1) *Reduce vehicle delays at grade crossings on all Port access lines.* Reduction in vehicle hours of delay was established as the measurement criterion for this goal. It was determined that this goal could best be used to differentiate between no project and the project, but that it did not readily distinguish among the alternatives.

(2) *Improve north/south travel speeds.* Average travel speed (in miles per hour) along Alameda Street was selected as the measurement criterion.

(3) *Improve level-of-service at intersections.* Minutes of time delay was chosen as the measurement criterion for this goal.

(4) *Improve connections to I-105 and I-10.* Minutes of travel time from Alameda Street to the respective freeways was used as the measurement criterion.

(5) *Provide alternative route to parallel freeways (emphasize trucks).* The measurement criterion for this goal was reduced miles of travel by ports trucks. Expected reductions occur as the net effect of increased miles of travel along Alameda Street and a correspondingly greater reduction in miles of travel on parallel freeways (I-110 and I-710).

(6) *Improve emergency vehicle access.* The measurement criterion for this goal was defined as the additive minutes of additional travel time required by emergency vehicles (police and fire vehicles, ambulances) to reach comparable destinations, by the various alternatives.

(7) *Diversion of truck traffic to rail.* It was determined that this goal would not distinguish among the alternatives and therefore no measurement criterion was established.

(8) *Coordinate and interface with plans at corridor ends.* It was determined that all alternatives would benefit equally in this regard and therefore no measurement criterion was established.

(9) *Maximize convenience to pedestrians crossing Alameda Street.* This goal, which was added at the request of the ACTA Technical Review Committee near the end of the evaluation process, was to be measured in terms of walking time between two points across Alameda Street.

2.1.3 Railroad Operations

Railroad operations was given a weight of 20 percent and the following four goal statements were included:

(1) *Improve railroad operating flexibility and efficiency.* A series of route efficiency criteria were established for this goal. These included length of line, special trackwork, and geometric configuration. Taken together, these various measures were used to arrive at a numerical rating, which was regarded as the measurement criterion.

(2) *Improve railroad speeds.* Average operating speed (in miles per hour) was established as the measurement criterion.

(3) *Provide fair and equal access for all carriers.* It was determined that all alternatives would be required to satisfy this goal and therefore no measurement criterion was established.

(4) *Maintain service to customers.* Similar to goal (3) above, this goal did not have a measurement criterion established for it. All alternatives were viewed equally in terms of achieving the goal.

2.1.4 Environmental Considerations

Environmental considerations were given a weight of 15 percent. The following seven goal statements were included:

(1) *Improve overall quality of life.* It was determined that this goal was embodied in other environmental goals and therefore no measurement criterion was established.

(2) *Minimize projected air pollution.* The measurement criterion for this goal was tons per day of criteria pollutants produced under each of the alternatives.

(3) *Minimize projected energy consumption.* Daily consumption of diesel and gasoline fuel was selected as the measurement criterion.

(4) *Develop a project compatible with adjacent land uses.* It was determined that this goal was embodied in other goals, such as noise and vibration, access and right of way. As a result, no measurement criterion was identified for this goal.

(5) *Resolve present poor or deteriorating situations.* This goal, which was meant to reflect deteriorating physical conditions in some areas, was determined to be included in other goals and therefore no measurement criterion was established.

(6) *Aesthetics.* This goal was to be measured by means of a subjective rating. It was intended to examine the visual effects of above grade structures on the surrounding environment.

(7) *Minimize exposure to noise and vibration.* The purpose of this goal was to measure exposure of adjacent receptors to noise and vibration in terms of daily operations. For noise, criteria were defined for significant impact, and these criteria were used to establish noise contours for the physical configurations to be implemented under each of the alternatives. The noise contours then led to an enumeration of sensitive receptors, which included residences, schools, hospitals, churches and parks. It was determined that vibration would not differ among the alternatives to a significant extent and therefore no measurement criterion was established.

2.1.5 Cost

Cost was given a weight of 25 percent and included the following two goal statements:

(1) *Maximize cost effectiveness.* Absolute cost was established as the measurement criterion for this goal.

(2) *Maximize coordination of the corridor project with existing projects and funding sources.* It was determined that all project alternatives would strive to satisfy this goal equally and therefore no measurement criterion was established.

2.1.6 Safety and Security

Safety and security was given a weight of 8 percent and included four goal statements, as follows:

(1) *Improve vehicular safety.* This goal was intended to promote reduced conflicts between trains and motor vehicles. As a result, the selected measurement criterion was a numerical index that multiplied the number of trains per day by average daily vehicular traffic.

(2) *Improve safety for pedestrians.* The measurement criterion identified was exposure to accidents at grade crossings, and this was measured by the reduction in the number of at-grade railroad crossings times the number of trains expected to cross at those locations per day.

(3) *Improve safety for operations and personnel.* This goal was intended to reflect concerns regarding the safety of railroad personnel. It was determined that the above two goals adequately include those concerns.

(4) *Improve security.* This goal was intended to reflect concerns such as crimes against persons. It was determined that this could not be readily measured and hence no measurement criterion was established.

2.1.7 Construction Considerations

Construction considerations were given a weight of 5 percent. The following three goal statements were included:

(1) *Minimize disruption to highway and rail users.* The measurement criterion was selected to be years of construction activity per construction component involved.

(2) *Maintain access to existing businesses and residences.* This goal was determined to be included in the one above and therefore no measurement criterion was established.

(3) *Minimize noise and other construction impacts.* The selected measurement criterion was the number of sensitive receptors adjacent to areas of construction. Sensitive receptors were defined to include single and multiple family residential units, schools, hospitals and medical centers, churches and parks.

(4) *Ability to implement in phases.* This goal was intended to help select a project that could be flexible in its implementation. As a result, the measurement criterion chosen was the number of discrete separate construction components that could be identified.

2.2 DEVELOPMENT OF ALTERNATIVE CORRIDOR CONFIGURATIONS

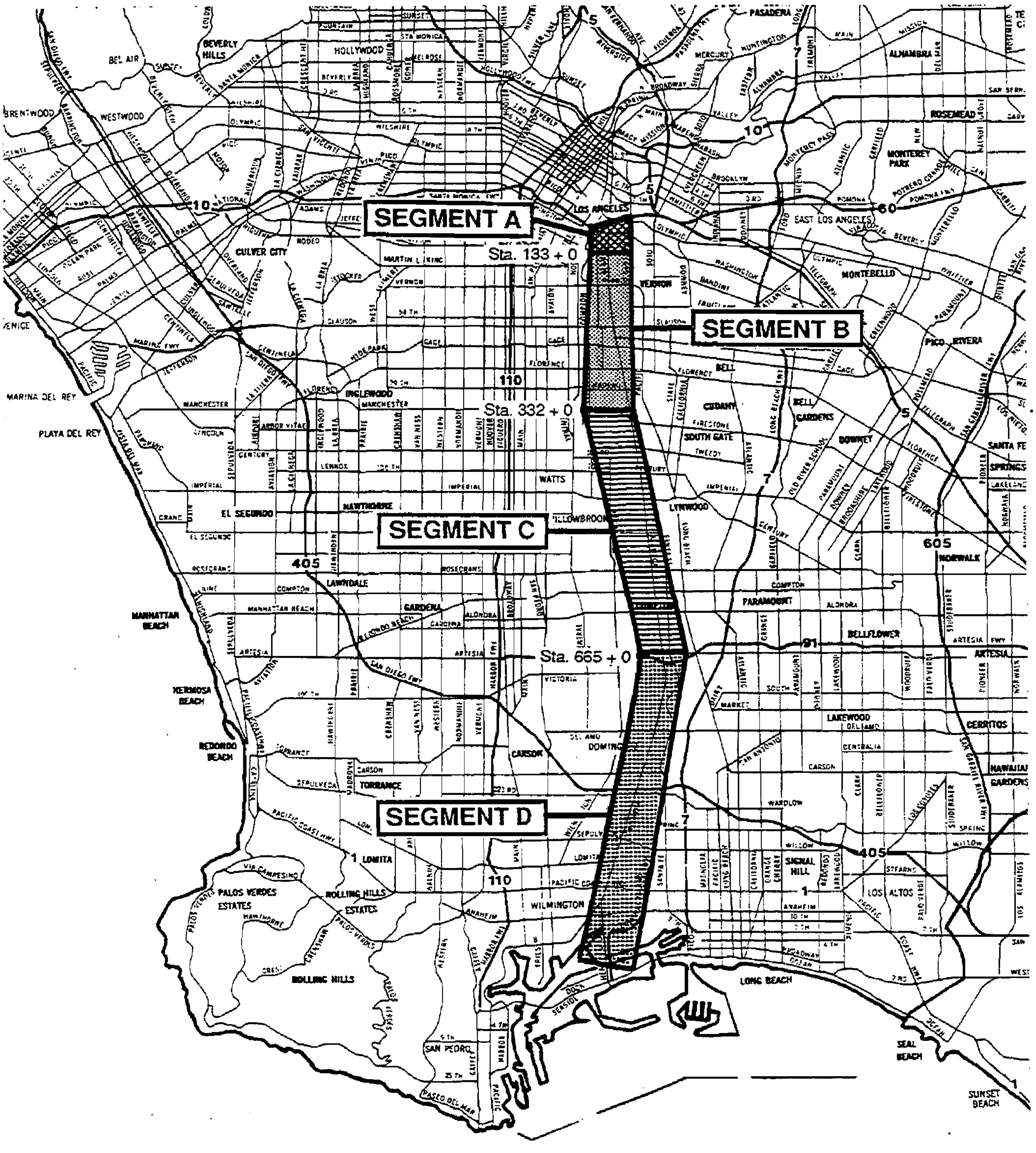
2.2.1 Alameda Corridor Study Area

For the analysis of alternatives along the Alameda Corridor, the limits of the study area were defined as follows. For roadway improvements, the corridor would extend along Alameda Street from its interchange with the I-10 freeway in the north to the intersection of State Route 47 (Terminal Island Freeway) and Henry Ford Avenue in the south. For railroad improvements, the corridor would extend from East L.A. Yard/Pasadena Junction in the east and north, make connections with Southern Pacific trackage at Alameda Street in the vicinity of 25th Street and continue southerly along Alameda Street to the Badger Avenue bridge access onto Terminal Island. A variation to this (the Vernon Diversion) occurs in the reach between 25th Street and Randolph Street, where the rail facility could alternatively be routed to the west, along Long Beach Avenue, along the existing Southern Pacific Wilmington Branch right-of-way.

In order to facilitate the preparation of cost estimates and consider differing engineering solutions, the study corridor was further divided into four major segments. Segment A extends from I-10 to 25th Street, along Alameda Street. Segment B extends from 25th Street south to the vicinity of Firestone Boulevard. It also includes the railroad improvements in the northeastern portion of the study area (J Yard to East L.A./Pasadena Junction). Segment C extends from the vicinity of Firestone Boulevard south to State Route 91 (the Artesia Freeway). Segment D continues south from State Route 91 to the southerly terminus at the ports of Los Angeles and Long Beach. The study area is shown in Figure 2-1.

2.2.2 Trainway and Roadway Configurations

A wide range of configurations were considered for the trainway and roadway elements of the project. Also considered were several alternative concepts for grade separations between rail



Source: DMJM/M & N, 1991

No Scale

FIGURE 2-1	Alameda Corridor Transportation Project Study Area	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

and auto traffic at major street crossings. The following describes the various configurations. The options are discussed in more detail in the Concept Study of Railroad and Highway Improvements for the Development of the Alameda Corridor.

Typical Trainway Sections

Three alternative sections were considered for the trainway: an at-grade section, a depressed (below grade) section and an elevated section.

- At-Grade Trainway

This configuration would place two mainline train tracks at grade in proximity to the existing tracks in Alameda Street. An existing drill track would be maintained adjacent to the main line tracks to continue to provide local service to industrial customers.

- Depressed Trainway

This configuration would place the two main line rail tracks in a trench that would be approximately 30 feet in depth below existing Alameda Street. Existing drill tracks would continue to be provided at grade, adjacent to the main line tracks. The trench would be required to return to grade south of State Route 91, in order to cross over Compton Creek.

- Elevated Trainway

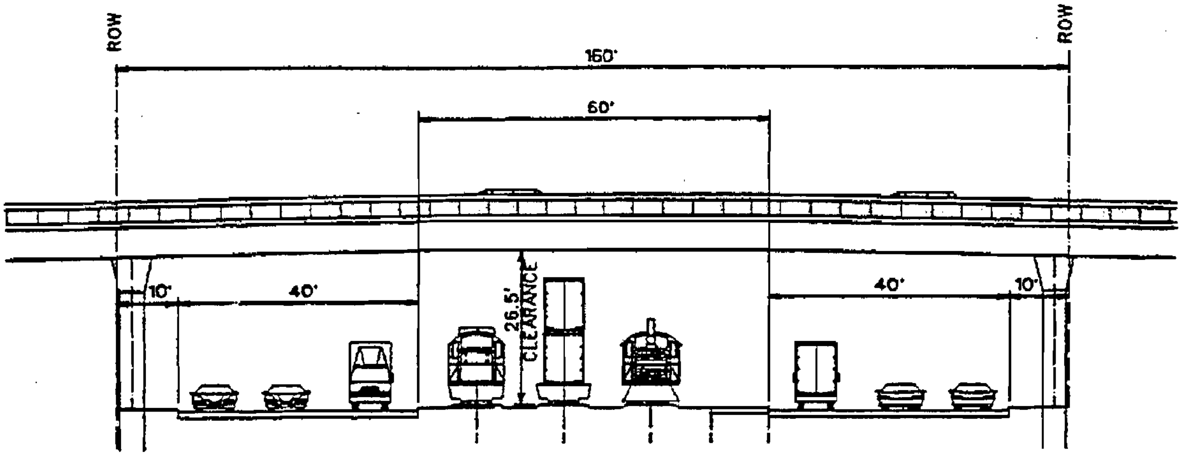
This configuration would place the two mainline rail tracks on an overhead structure or retained embankment along the length of Alameda Street, with an at-grade drill track to provide local service. The structure or embankment would need to be 20 to 35 feet in height to provide necessary clearances for the at-grade street system. This configuration was rejected early in the process because of the impacts it would bring to the surrounding area.

Typical Roadway Sections

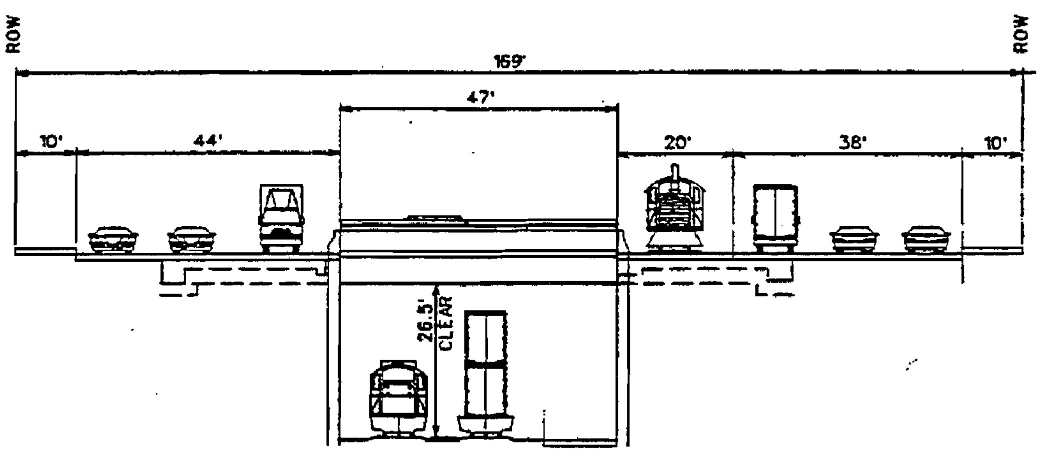
A range of sections were developed for the roadway component of the project, as described below. These options generally involved either splitting the roadway into a couplet straddling the rail tracks, or placing all of the roadway lanes on one side of the train tracks. In addition, some options retained use of the existing east barrel of Alameda Street, which could then function as a frontage road.

- One-Way Couplet

This option would place the train tracks between a pair of one-way streets, each of which could contain two or three lanes for through traffic movement. This option, which is preferable in areas with limited existing right-of-way, can be used with either the at-grade or depressed trainway configurations, as shown in Figure 2-2.



With At-Grade Trainway



With Depressed Trainway

Source: DMJM/M&N, 1991

FIGURE 2-2	One Way Couplet	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

- One-Way Couplet With Exclusive Truck Lanes

This configuration would use the basic one-way couplet arrangement and would add an elevated roadway at selected points along Alameda Street to permit truck traffic to be separated from general purpose traffic. The concept would provide a dual one-way couplet for vehicles and exclusive truck lanes separated by a barrier. The one-way directional lanes would be divided by the trainway. In the vicinity of selected highway/railroad grade separations, the exclusive truck lanes would be elevated. This arrangement has the advantage of improving overall operating speeds by eliminating many intersection conflicts. It could be used, however, only with the depressed trainway configuration. It could not be used in the City of Vernon due to physical constraints, and therefore much local congestion would result there. This arrangement would limit general purpose traffic to two lanes in either direction, and it would require an extremely costly structure. It was also determined that the demand for the facility, when compared to the construction cost, was not as favorable as originally anticipated. For these reasons, this option was also eventually rejected by the ACTA Governing Board.

- Two-Way Roadway With Median

This configuration would place four or six lanes of two-directional general purpose traffic on one side of the trainway, with the lanes being separated by a painted median for left turning vehicles. It could be used with either the at-grade or depressed trainway options, although it would also necessitate providing a frontage road on the side not served by the main roadway, in order to maintain access to these properties. This option is preferable, due to its superior local access, in areas where right-of-way is more generous. This configuration requires more right-of-way than the one-way couplet. The two-way roadway is shown in Figure 2-3.

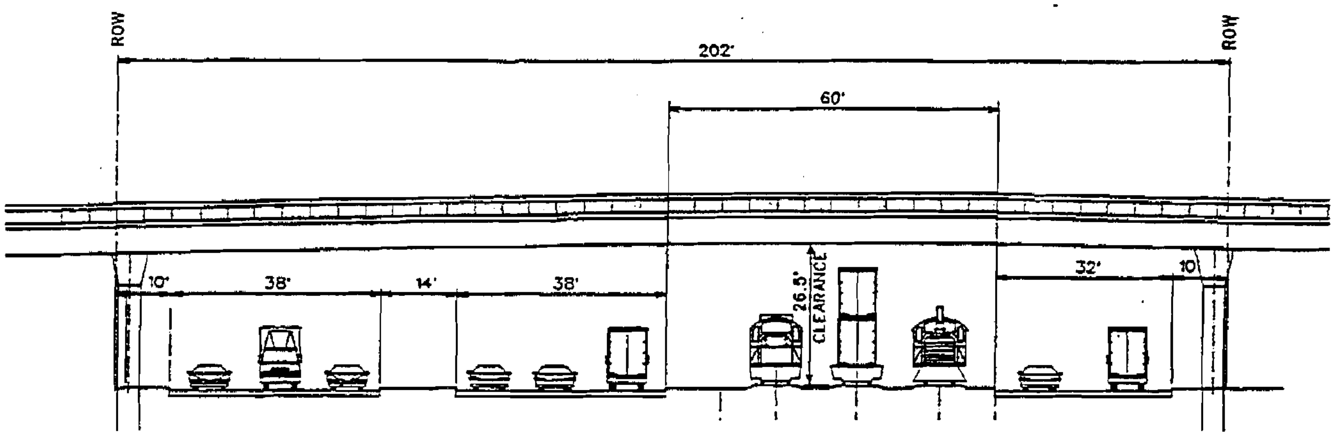
- Two-Way Roadway With Grade Separation Along Alameda Street

This arrangement would provide a longitudinal overcrossings or undercrossings at major east-west streets, to enhance traffic flow along Alameda Street. This configuration would require an extensive amount of right-of-way, and it was eventually rejected for cost and impact reasons.

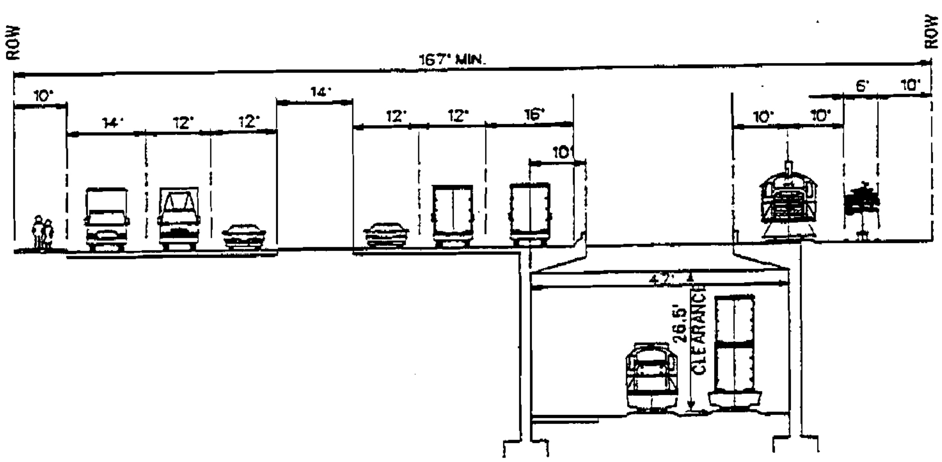
- Two-Way Roadway With Dual Frontage Roads

This alternative involves depressing Alameda Street below grade and providing tight urban diamond or slip ramp interchange points to at-grade two-way frontage roads along the entire length of the corridor.

This configuration, which would accompany the depressed trainway configuration, would provide a two-way frontage road on both sides of the roadway/trainway facility. This would permit the highest level of service along Alameda Street, while at the same time maximizing access to properties on either side. It would, however, also require the maximum right-of-way of all alternatives considered; up to 250 feet. This option was eventually rejected for reasons of cost and impact.



With At-Grade Trainway



With Depressed Trainway

Source: DMJM/M&N, 1991

FIGURE 2-3	Two Way Roadway With Median	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Grade Separations

In conjunction with the alternative trainway/roadway configurations along Alameda Street, selected east-west streets along the corridor would need to be provided with separations to permit effective railroad operations and improve traffic flow. If the railroad tracks were at-grade these grade separations could be configured as overcrossings or underpasses, depending upon the constraints or opportunities at any given location. All other points of at-grade crossing of the tracks would be closed as part of this project.

The following locations were selected for east-west grade separation, because they are major crossings along the corridor and because they satisfied a minimum delay threshold.

Santa Fe Avenue & Washington Boulevard
38th/41st Streets[1]
Vernon Avenue
Slauson Avenue
Gage Avenue
Florence Avenue
Nadeau Street[1]
Firestone Boulevard
92nd Street/Southern Avenue
Tweedy Boulevard
Imperial Highway
Weber Avenue (at-grade trainway only)[1]
Martin Luther King Boulevard (depressed trainway only)[1]
El Segundo Boulevard
Compton Boulevard
Alondra Boulevard
Greenleaf Boulevard[1]
Sepulveda Boulevard
Pacific Coast Highway
Anaheim Street
Henry Ford Avenue and SR47

In addition to transverse grade separations, a longitudinal roadway with elevated overcrossings along Alameda Street was also suggested. This option would use either the two-way roadway or the one-way couplet arrangement but would add elevated structures along Alameda Street at major east-west street crossings. This arrangement would maintain traffic speed for through traffic at those major intersecting streets. It would also, however, require costly structures and an undulating appearance and ride quality. This option was eventually rejected for these reasons.

The following additional grade separations are to be implemented by others, but are taken into account in the design of Alameda Corridor alternatives:

[1]These intersections were added as candidates during the course of project development. They were not part of the original definition.

Rosecrans Avenue	(Long Beach/Los Angeles Rail Transit Project; completed in 1991)
Del Amo Boulevard	(Ports Access Demonstration Project)
Carson Street	(Ports Access Demonstration Project)

2.2.3 Corridor Configurations

The various roadway, trainway and grade separation options were combined to yield alternatives to be considered for the entire corridor. It should be noted that south of Compton Creek (Segment D), all alternatives share a common configuration. The Ports Access Demonstration projects occur in Segment D. The following are the alternative corridor concepts that have been evaluated.

<u>Alternatives 1 & 5 - At-Grade Trainway</u> (Figure 2-4)

Beginning at the north end of the corridor, modifications to the railroad tracks are made in the Redondo Junction and J Yard areas to provide room for the consolidated trainway, which would consist of two main line tracks and an adjacent drill track. The trainway is redirected in a north-south direction as it approaches Alameda Street. Beginning in the vicinity of 25th Street, the trainway is parallel to Alameda Street and is approximately centered in the existing railroad right-of-way.

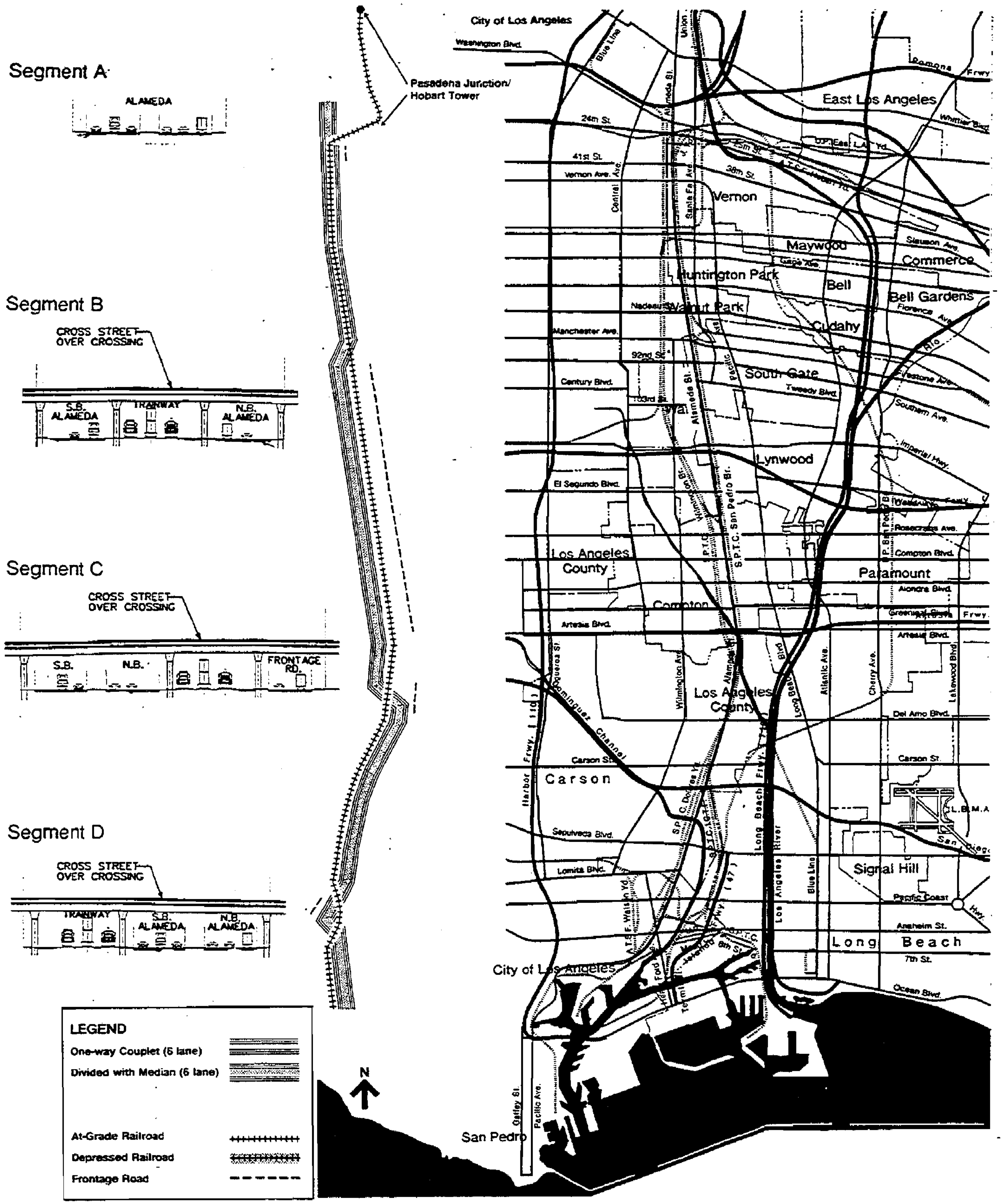
Rail improvements would proceed south from SR 91 along Alameda Street until a junction is reached between the Southern Pacific tracks along Alameda Street and the Atchison, Topeka and Santa Fe Harbor Subdivision tracks, at which point the corridor tracks would leave Alameda Street for the AT&SF tracks proceeding south until the Dominguez Channel is reached. The trainway runs along the west bank of the Dominguez Channel under the Anaheim Street bridge, then up and over the Dominguez Channel on a bridge toward a connection with the existing Union Pacific San Pedro Branch and the project terminus on the north side of the Badger Avenue Bridge which spans the Cerritos Channel.

Roadway improvements to Alameda Street begin in the area of the I-10 freeway interchange. Alternative 1 provides six lanes of traffic, whereas Alternative 5 provides four lanes. A two-way arterial (two or three lanes in each direction), separated by a painted median with turning lanes, extends from I-10 to 25th Street. At this point, the northbound and southbound lanes divide to form a one-way couplet, with the trainway in the center.

South of Nadeau Street, the roadway shifts to the west side of the trainway, where it becomes a two-way roadway, separated by a painted median. This configuration continues south to the vicinity of Del Amo Boulevard. A frontage road is provided between 92nd Street and SR 91.

The I-105 freeway is currently under construction. A recommended related project would provide a loop off-ramp and a diamond on-ramp for eastbound I-105 traffic, to be constructed by others. Westbound ramp connections were not possible, since Imperial Highway is proposed as an underpass at Alameda Street and grades for the ramps would be too severe. The existing Wilmington ramps would provide substitute access for westbound I-105 traffic.

South of SR 91, Alameda Street is being improved by the Ports Access Demonstration projects. In the vicinity of Laurel Park Road, Alameda Street improvements would pass beneath the



Source: DMJM/M&N, 1991

FIGURE 2-4 — Corridor Configuration Alternatives 1 & 5

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

consolidated trainway and occupy a position on the east side of the trackage. A small segment of frontage road is provided where this transition takes place.

The proposed roadway improvements would continue south to the intersection of Alameda Street and Henry Ford Avenue, a short distance to the north of Anaheim Street. The roadway improvements would proceed south along Henry Ford Avenue to its intersection with State Route 103 (Terminal Island Freeway), where a reconstructed interchange would be provided.

Alternatives 2.1 and 6.1 - Depressed Trainway (Figure 2-5)

From Redondo Junction, the trainway extends through J Yard in an alignment that traverses the yard area further north than under Alternatives 1 and 5, in order to allow a fully depressed trainway to be achieved by the time Alameda Street is reached at 25th Street. The trainway proceeds south in a depressed configuration along Alameda Street until south of Greenleaf Boulevard, where it begins to ascend to an at-grade section south of SR 91. The trainway is at-grade at the crossing of Compton Creek. South of this point, the alignment of both the trainway and roadway improvements is the same as Alternatives 1 and 5.

Roadway improvements in these alternatives consist of a one-way couplet straddling the trainway from I-10 until Compton Boulevard. A frontage road is provided on the east side of the corridor between 92nd Street and El Segundo Boulevard. From Compton Boulevard until the vicinity of Del Amo Boulevard, the roadway is on the west side of the trainway. A frontage road is provided between Compton Boulevard and south of Greenleaf Boulevard. Grade crossings in these alternatives are provided in the form of at-grade bridges over the depressed trainway. Alternative 2.1 provides for six lanes of traffic, whereas Alternative 6.1 provides for four.

Alternatives 2.2 & 6.2 - Vernon Diversion (Figure 2-6)

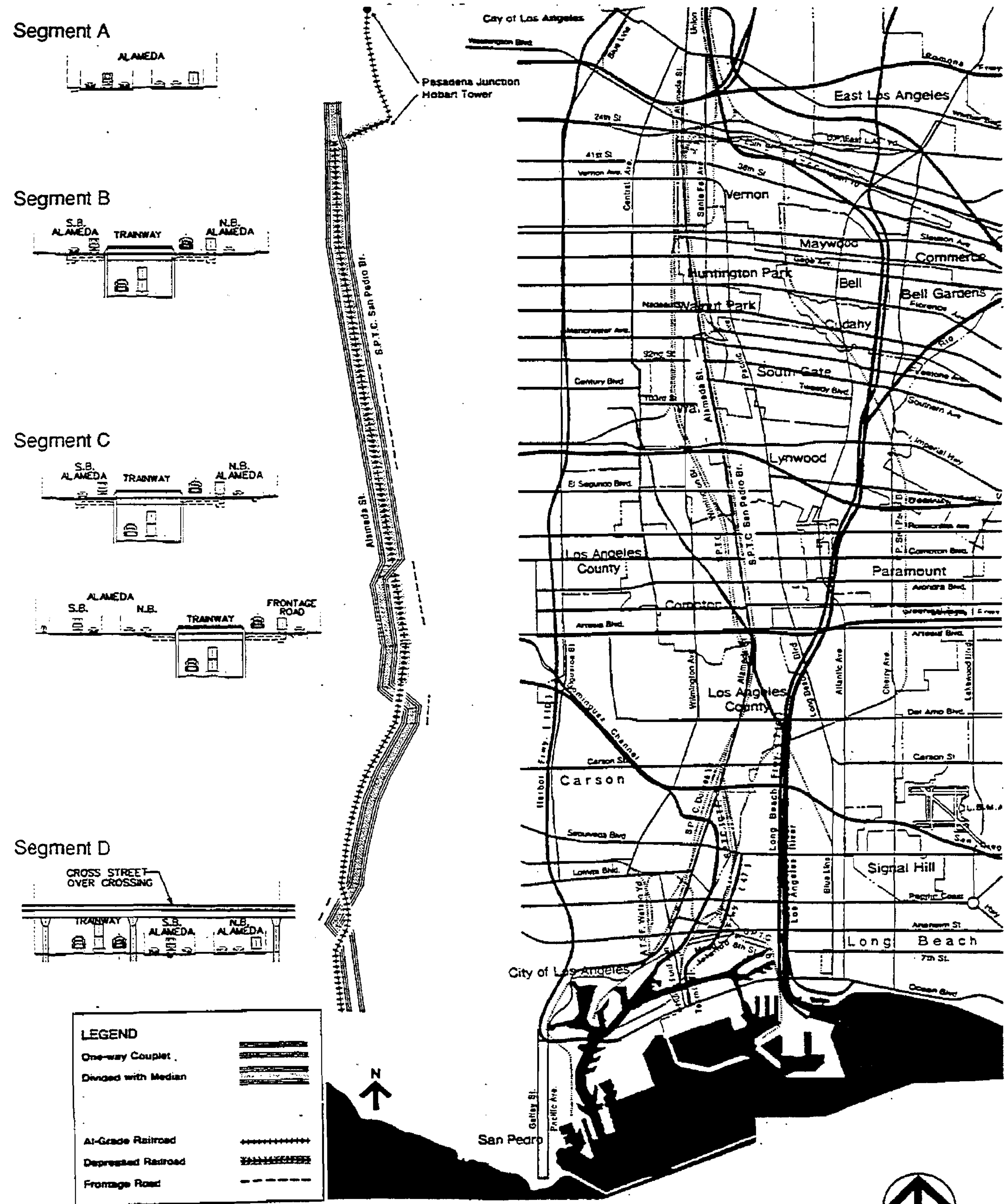
These alternatives generally follow the same trainway and roadway alignments as Alternatives 2.1 and 6.1 north of 25th Street and south of Randolph Street, with the exception of small differences in railroad configuration. Between 25th Street and Randolph Street, however, the depressed trainway follows an alignment along the Southern Pacific Wilmington Branch, which parallels Long Beach Avenue to the west of Alameda Street. Also present in this segment are two at-grade tracks of the Metro Blue Line passenger service and the SP Wilmington Branch line.

Between 25th Street and Randolph Street, the roadway improvements would consist of a two-way facility, separated by a paved median. Alternative 2.2 would provide for six lanes of traffic, whereas Alternative 6.1 would provide four lanes with an at-grade drill track.

South of Randolph Street, these alternatives are the same as Alternatives 2.1 and 6.1.

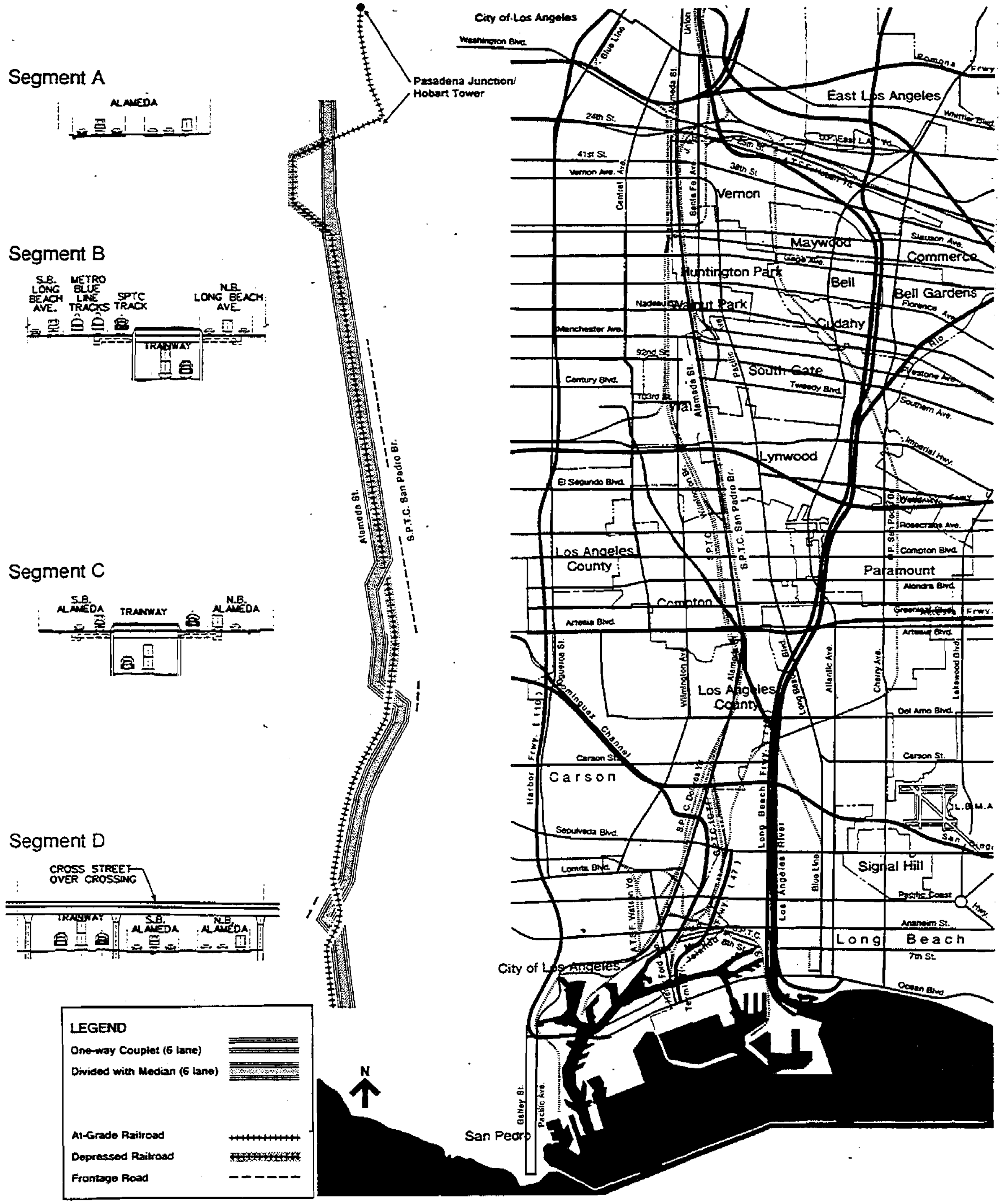
Alternatives 2.3, 2.4, 6.3 & 6.4 - Modified Depressed Trainways (Figures 2-7 & 2-8)

These alternatives are variations of the depressed trainway Alternative 2.1. Alternatives 2.3 and 6.3 bring the depressed trainway to an at-grade profile north of Rosecrans Avenue. South of Lynwood Avenue, Alameda Street would be an arterial with median extending south along the west side of the corridor. Alternatives 2.4 and 6.4 would bring the depressed trainway to surface north of Firestone Boulevard. From a point north of Nadeau Street, Alameda Street



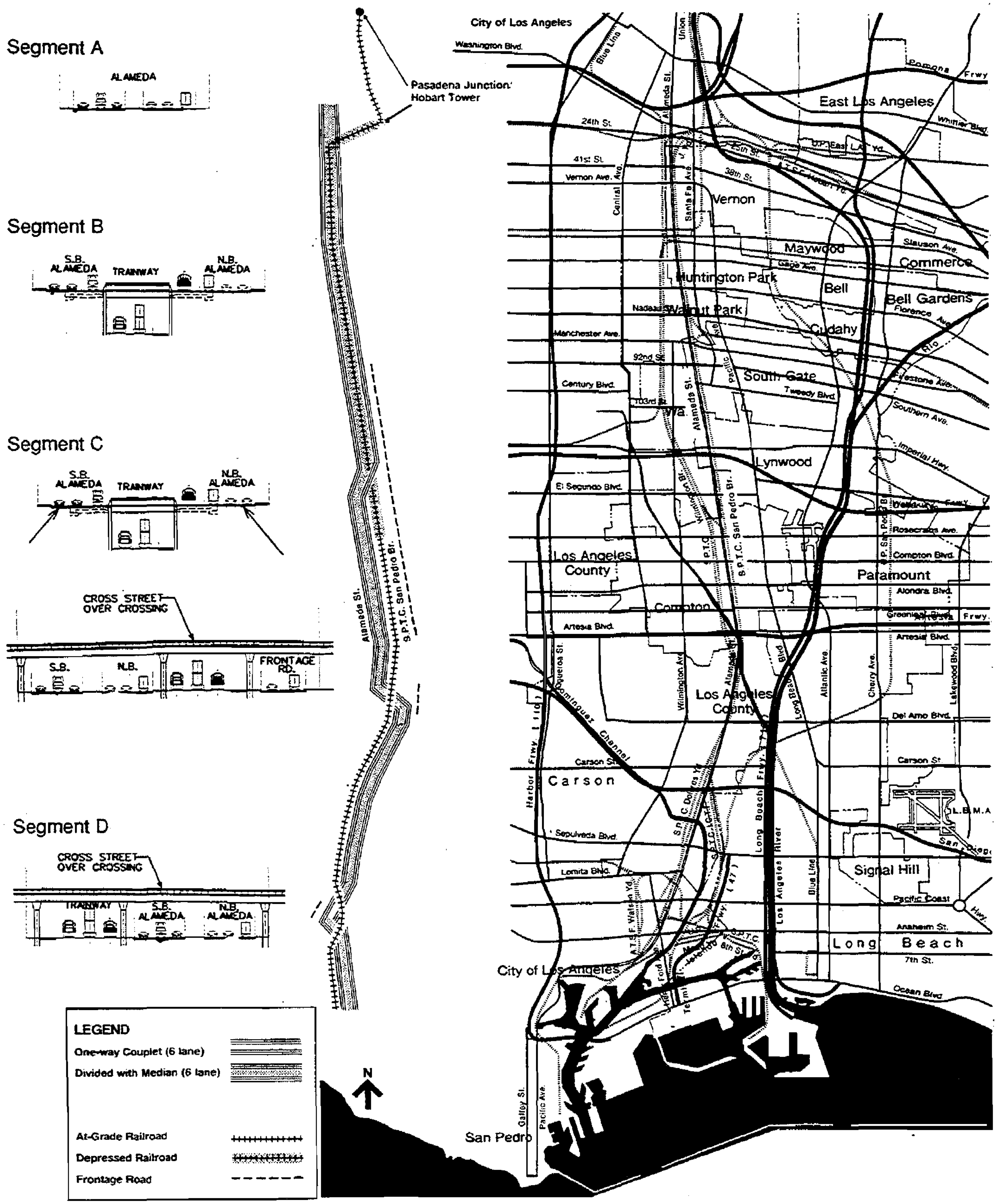
Source: DMJM/M&N, 1991

FIGURE 2-5	**Corridor Configuration Alternatives** 2.1 & 6.1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



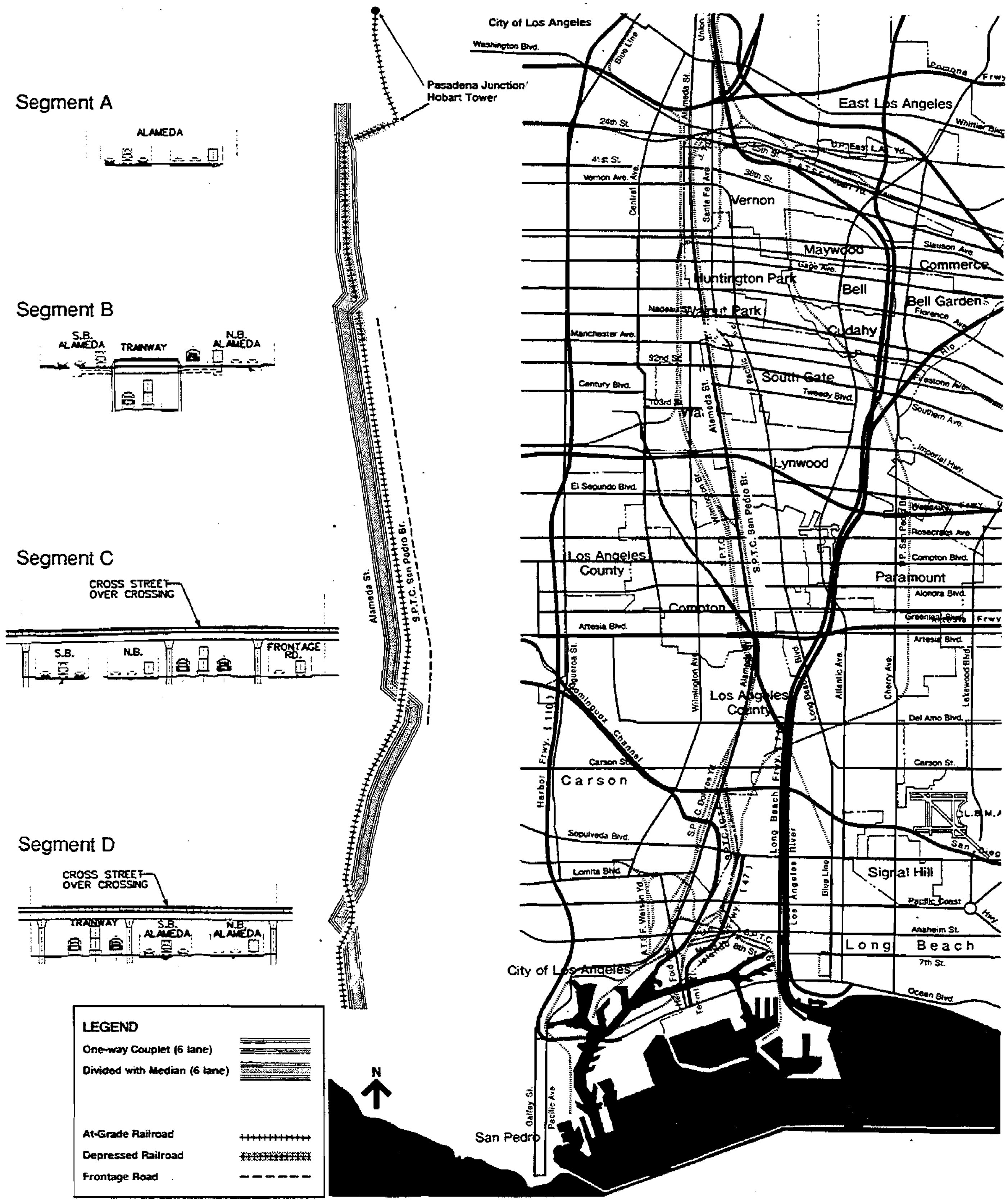
Source: DMJM/M&N, 1991

FIGURE 2-6	**Corridor Configuration Alternatives 2.2 & 6.2**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: DMJM/M&N, 1991

FIGURE 2-7	**Corridor Configuration Alternatives 2.3 & 6.3**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: DMJM/M&N, 1991

FIGURE 2-8	Corridor Configuration Alternative 2.4 & 6.4	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

improvements would be an arterial with median extending south along the west side of the corridor. Alternatives 2.3 and 2.4 would provide for six lanes of traffic, whereas Alternatives 6.3 and 6.4 would provide four.

Alternative 3 - Depressed Trainway With Two-Way Roadway (Figure 2-9)

This alternative is similar to Alternative 2.1, except that the depressed trainway would extend southerly on the east side of the roadway, which would be a two-way-with-median facility. Access to properties along the east side of Alameda Street would be provided by driveway bridges over the depressed trainway. An optional two-way frontage road could be constructed east of the depressed trainway in a new right-of-way.

Alternative 4 - Truck Expressway

This alternative, which would have provided exclusive elevated truck lanes along Alameda Street, was dropped from further consideration because of its high cost and because projections did not indicate a sufficiently high demand for such a facility. The Governing Board was also concerned about potential noise and traffic impacts.

2.3 ALTERNATIVE CORRIDORS CONSIDERED

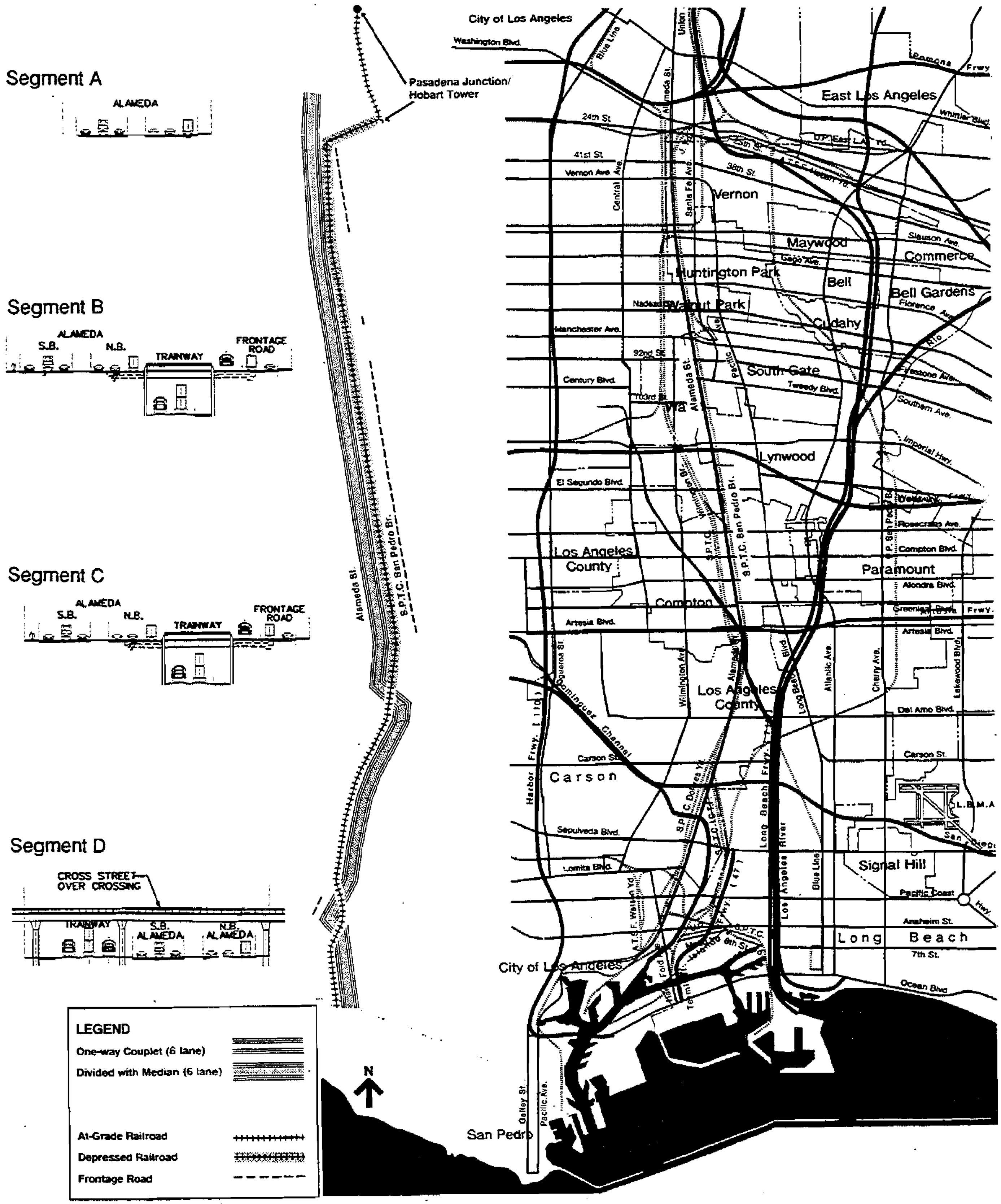
In addition to the alternatives to be considered along Alameda Street, two alternative corridors were also examined, namely the Union Pacific San Pedro Branch and the Los Angeles River. Los Angeles River has been suggested in the past as a potential route for a number of transportation facilities, including freight rail. The Union Pacific San Pedro Branch was suggested as a potential alternative corridor because it could theoretically connect the ports to downtown rail connections. Union Pacific and Los Angeles River routes were also examined in earlier work conducted by SCAG and therefore were worthy of reexamination.

2.3.1 Union Pacific San Pedro Branch

The study corridor is along the UPRR San Pedro Branch line that extends from the East L.A. Yard in the vicinity of Washington Boulevard and Downey Road in the City of Vernon south through or adjacent to the cities of Vernon, Maywood, Huntington Park, Bell, Cudahy, South Gate, Downey, Paramount, Lakewood, Long Beach, Carson and Los Angeles (Wilmington). The distance traversed is approximately 20 miles.

Beginning at the north end of the corridor, the proposed rail improvements would include two track connections in both directions to the UPRR Los Angeles Subdivision and the AT&SF San Bernardino Subdivison to the east only. The proposed trainway would follow the existing UPRR

San Pedro Branch from the East L.A. Yard/Hobart Tower area to Thenard Junction, in the vicinity of Lomita Boulevard. From Thenard Junction, the corridor diverges, with two tracks going to the Port of Long Beach, two tracks going to Terminal Island and one going track to the Port of Los Angeles. Long sidings south of I-405 would facilitate movements into and out of the SPTC Intermodal Container Transfer Facility (ICTF).



Source: DMJM/M&N, 1991

FIGURE 2-9	Corridor Configuration Alternative 3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

The existing rail line consists of one main track with sidings at South Bell, Paramount and Manuel. A total of 38 industry tracks connect with the main line. The current location of existing industry leads permit switching and other local train movements without compromising the operation of a consolidated corridor using this alignment. A continuous drill track would not be required with the UPRR corridor, unlike the Alameda Corridor, which does require such a facility. The line crosses seven other tracks at grade: four SPTC, one L.A. Junction Railway and two AT&SF. The most significant of these are the two AT&SF tracks located near Hobart Tower. These are used by Amtrak San Diego and Las Vegas trains as well as AT&SF trains and AT&SF Hobart switch engines. In addition, the Los Angeles County Transportation Commission (LACTC) and other agencies are planning to operate commuter rail service on these tracks. At a location approximately 1,000 feet southwest of the UPRR/Los Angeles River crossing, the rail line passes beneath the recently constructed Metro Blue Line Cota aerial structure, crosses the Blue Line maintenance yard access road at grade and passes over the I-710 freeway on an existing one-track bridge.

The UPRR San Pedro Branch traverses 33 at-grade road crossings, 17 grade separations, three crossings of the Los Angeles River, and one crossing of the Rio Hondo Channel. The right-of-way is typically 80 feet wide. The profile of the UPRR San Pedro Branch varies from at-grade to above grade on an earth embankment.

Given that there are 33 existing unseparated grade crossings of the UPRR route and that freight rail traffic on the facility would increase substantially, it was necessary to determine at which locations grade separations should be proposed. In order to do this, vehicle hours of delay at each of the current grade crossings were estimated, assuming year 2020 consolidated movements at a level of up to 99 trains per day, which is equivalent to the service to be provided in the Alameda Corridor. A threshold of 150 hours per day of delay was used to decide which grade crossings would be separated. A grade crossing which had less than 150 hours of delay per day would be closed to vehicular traffic. Using this criterion, the following 18 grade crossings were identified for grade separations:

Bandini Boulevard
Leonis Boulevard/District Boulevard
Fruitland Avenue
Slauson Avenue
Gage Avenue
Florence Avenue
Otis Avenue
Atlantic Avenue
Firestone Boulevard
Imperial Highway
Garfield Avenue
Rosecrans Avenue
Somerset Boulevard (Compton Boulevard)
Alondra Boulevard (by others)
Artesia Boulevard
South Street
Candlewood Street
Wardlow Road

It was determined that undercrossings would be the preferred method of providing grade separations. This approach would result in reduced length of approaches and less disruption to local traffic. At Imperial Highway and Garfield Avenue, the present alignments make it very difficult to maintain the railroad in an at-grade profile. It was therefore decided to raise the UPRR tracks and bridge over both these streets. At the southern end of this corridor, the trainway would necessitate reconstruction of the Anaheim Street bridge, and south of this point, the trainway would be elevated and carried on a new grade over the roadways.

Figure 2-10 illustrates the UPRR San Pedro Branch corridor.

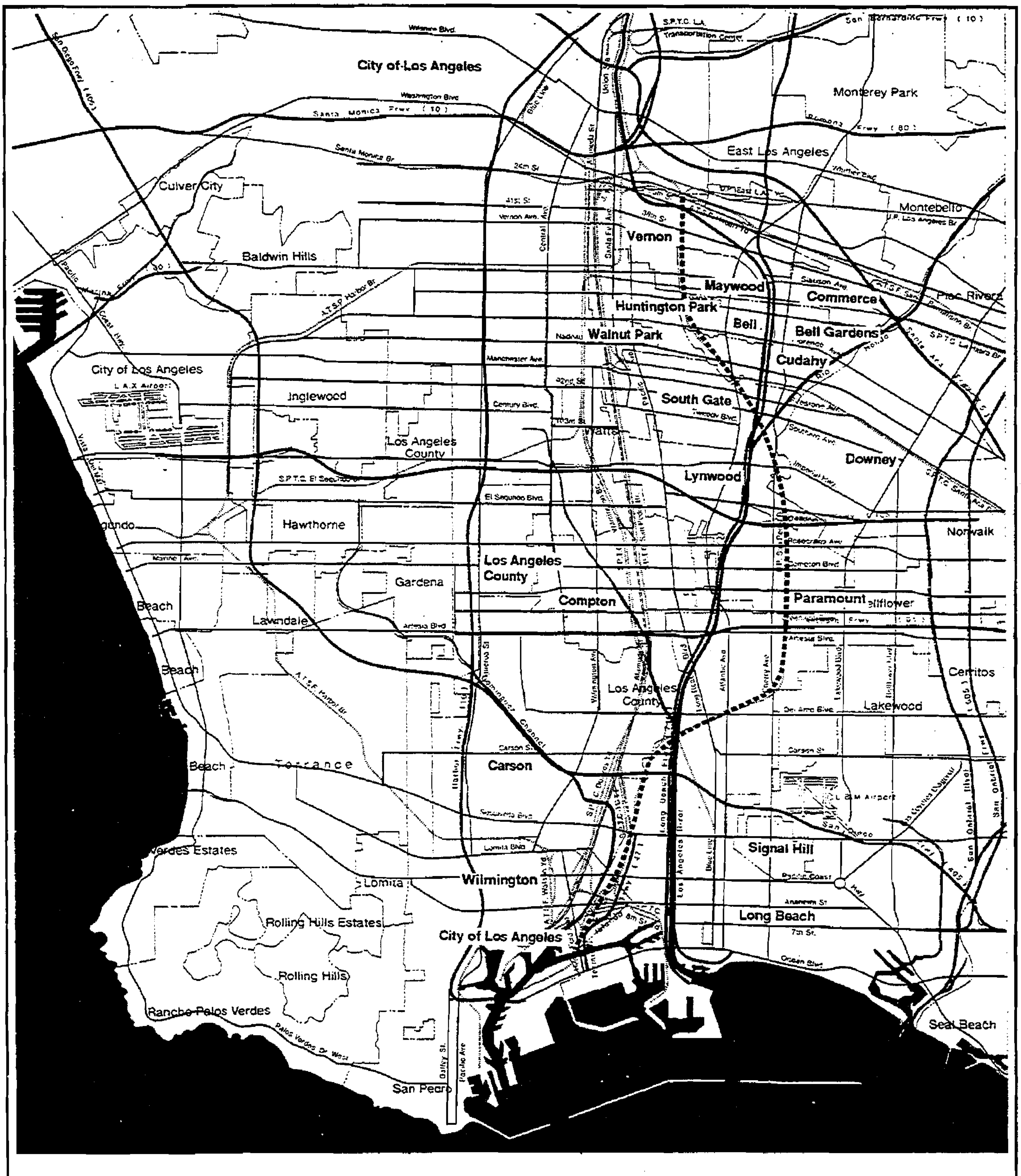
2.3.2 Los Angeles River Route

The river corridor would begin at the Downey Road bridge in the north (south of Bandini Boulevard) and extend southerly to the Union Pacific bridge (south of Del Amo Boulevard). The length of the corridor would be approximately 15 miles. The Los Angeles River is maintained by the Los Angeles County Flood Control District (LACFD), except for a portion that is controlled by the United States Army Corps of Engineers. In order to complete the required rail connections at the southern end of the project, the trainway would be required to leave the Los Angeles River route near Cota crossing and assume an alignment along the southern reach of the UPRR route. The Los Angeles River corridor is shown in Figure 2-11.

The existing Los Angeles River, within the reach that could function as a consolidated freight corridor, has a typical cross section that consists of a 300- to 350-foot wide concrete lined trapezoidal channel. The channel ranges in depth from 18 to 26 feet. The river levees are lined with either reinforced concrete or grouted riprap. The river includes a low flow channel that is located generally in the center of the river. A paved maintenance road is provided along the entire length of the river on both sides of the river along the top of the levees.

Placing the trainway within the waterway portion of the river channel was found to be infeasible, and subsequently discarded in favor of other approaches. Placement of a trainway in the river bottom is not possible without lowering the river. Placement of the trainway part way up the river embankment was also found to compromise flood control requirements. The trainway could theoretically be placed within the river trapezoid section on a structure supported on piers, but this also was found to not be acceptable from the perspective of flood control, unless additional flow capacity could also be provided. For these reasons, it was determined that only alignments outside the river trapezoid would be considered.

Two alternative alignments were defined for the Los Angeles River corridor. The first alternative would begin on the west side of the river south of Bandini Boulevard and ascend to cross over Atlantic Boulevard. It would remain elevated, continuing south until Imperial Highway. Beginning at a point south of I-710 and north of Imperial, the alignment would descend, passing beneath the I-105 freeway and continuing south beneath the street crossings on the west side of the west levee. After crossing Artesia Boulevard, the trainway would ascend and turn southeast, crossing over the river and continuing in an elevated configuration parallel to the river. Once the trainway passes over Del Amo Boulevard, it would descend, crossing the river and passing beneath the Metro Blue Line and over the Long Beach freeway, joining the UPRR alignment.



Source: DMJM/M&N, 1991

FIGURE **2-10**	**U.P.R.R. San Pedro Branch Corridor Alternative**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Source: DMJM/M&N, 1991

FIGURE 2-11	**Los Angeles River Route Corridor Alternative**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

The second river alignment alternative would also begin on the west side of the west levee, and it would continue south in a depressed configuration, passing beneath the major streets and the UPRR bridge. From this point southward, the alignment would generally follow the previously-described alignment alternative, except that the trainway would be depressed, passing beneath I-710 and Imperial Highway. This option would require raising nine additional bridges in order to provide the necessary vertical clearances.

2.3.3 Combination UPRR/Los Angeles River Route

A third alternative that emerged during the evaluation consisted of hybrid alignment that would begin on the UPRR route at the north end of the corridor, continue south along the UPRR route until the Los Angeles River is reached, opposite Tweedy Boulevard, at which point it would assume the river route. The alignment would then proceed south to the Cota crossing, where it would leave the river to assume an alignment along the UPRR route. The combination route is shown in Figure 2-12.

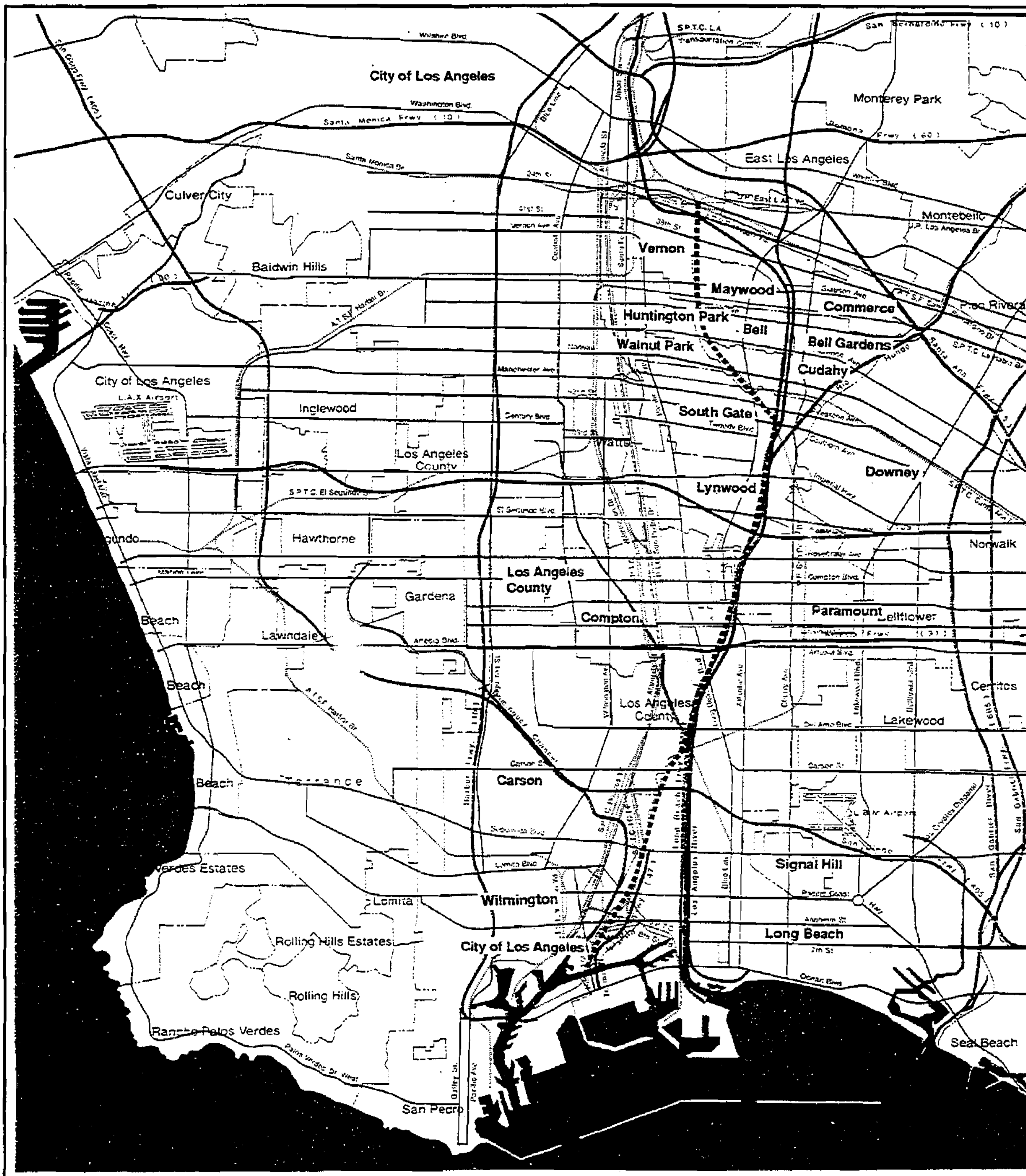
2.4 ALTERNATIVES EVALUATION PROCESS

Both the alternative corridor configurations described in Section 2.2 and the alternative corridors described in Section 2.3 were evaluated for potential implementation as a consolidated freight rail corridor. This section outlines the process used and the results of the evaluations.

2.4.1 Evaluation of the Corridor Configurations

The alternative corridor configurations described in Section 2.2.3 were evaluated in terms of their ability to satisfy the goals and criteria outlined in Section 2.1. A series of technical memoranda was produced, documenting the methodology and results of the evaluation of each of the goals and criteria. Details of the evaluation are included in Appendix G of the Concept Design Report. Depending upon the goal and criterion being considered, the evaluation yielded a numerical result derived from the data analyzed (e.g., vehicle hours of delay, number of sensitive receptors affected), a score that was based on an evaluation of data (e.g., numerical rating of railroad route efficiency) or a score based on a subjective rating (e.g., aesthetics rating). The evaluation results for each criterion was expressed as an index in which 1.00 was the best score that could be achieved. In this manner, all the alternatives could be compared with that alternative which was found to be the best for any given criterion. Then, using the weights that had been assigned to each group of goals, a normalized score was calculated for each alternative within each goal. Once again, the alternative performing the best for a given goal was assigned the full weight for that goal. Finally, the scores for all of the goals for each of the alternatives could then be summed to yield a total score for each alternative. The results of this exercise are displayed in Table 2-1.

Table 2-1 shows all the alternatives perform nearly the same, taking into account all of the goals established for the evaluation. The highest scoring alternative (Alternative 2.1) had a total score of 94.8, whereas the lowest scoring alternative (Alternative 5) had a total score of 90.2. For some goals (i.e., traffic, cost), the range in scores among alternatives was fairly broad, whereas for other goals (i.e., safety, railroad) the range was very narrow. The evaluation results show that the distinctions among alternatives were sufficiently small to require other factors to be considered, as follows:



Source: DMJM/M&N, 1991

FIGURE 2-12	Combination U.P.R.R./Los Angeles River Corridor Alternative	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

TABLE 2-1
RESULTS OF THE CORRIDOR CONFIGURATION ALTERNATIVES EVALUATION

Goals	Maximum Score	ALT.1.0	ALT.2.1A	ALT.2.2	ALT.2.3	ALT.2.4	ALT.3	ALT.5	ALT.6.1	ALT.6.2	ALT.6.3	ALT.6.4
Traffic Goals	17.0	14.6	17.0	17.0	16.4	16.3	16.5	13.8	15.9	15.8	15.3	15.0
Safety Security Goals	8.0	8.0	7.6	7.6	7.6	7.6	7.6	8.0	7.6	7.6	7.6	7.6
Railroad Goals	20.0	20.0	19.0	18.1	19.4	19.7	19.0	20.0	19.0	18.1	19.4	19.7
Environmental Goals	15.0	12.3	15.0	14.7	14.2	13.2	14.6	12.1	14.8	14.5	14.0	13.1
Economic Goals	10.0	7.2	9.4	9.9	9.2	8.3	9.8	7.3	9.5	10.0	9.2	8.3
Cost Goals	25.0	24.4	21.8	21.9	22.6	25.0	20.4	24.5	22.0	22.0	22.3	24.9
Construction Goals	5.0	4.5	5.0	4.6	4.1	3.9	5.0	4.5	5.0	4.6	4.1	3.9
Score	100.0	91.0	94.8	93.8	93.5	94.0	92.9	90.2	93.8	92.6	91.9	92.5

Source: DMJM/M&N, 1992.

- The alternatives providing only four traffic lanes (Alternatives 5, 6.1, 6.2, 6.3 & 6.4) were eliminated because the traffic analysis showed that these options would carry far less traffic than the six-lane options. Also, the environmental document would provide an analysis of the traffic consequences of four traffic lanes in the form of the "no build" alternative, and therefore should it be necessary in the future to consider implementing only four lanes, the impacts of that decision would be known.

- The environmental document would adequately identify the impacts of the alternatives which had shorter lengths of depressed trainway (Alternatives 2.3 & 2.4) by documenting the impacts of the complete depressed trainway. The consequences of these options would also be known.

- Alternative 3, because of its high cost and the fact that it would place a depressed trainway in close proximity to adjacent structures (with inherent problems such as vibration) was determined to be sufficiently undesirable to eliminate it from further consideration.

- A sensitivity analysis in which cost was eliminated as an evaluation factor was performed on the six-lane options, excluding Alternative 3. This analysis provided reinforcement for the rationale leading to the above conclusions.

As a result of the evaluation process, and taking into account the findings and conclusions discussed above, three Alameda Corridor configuration alternatives were recommended for further study and environmental documentation. These were as follows:

- Alternative 1 - At-grade trainway with six lanes along Alameda Street.

- Alternative 2.1A - Depressed trainway along Alameda Street with six traffic lanes.[2]

- Alternative 2.2 - Depressed trainway with Vernon Diversion.

Following presentations of this information to the Alameda Corridor Transportation Authority Technical Review Committee and the governing board, this recommendation was confirmed. The Governing Board also recommended that a variation of Alternative 2.1, involving sloped walls, also be evaluated in the EIR.

2.4.2 Evaluation of the Alternative Corridors

The UPRR, Los Angeles River route and combination UPRR/Los Angeles River route alternatives were also evaluated, according to a range of engineering, cost and environmental factors. The results of this evaluation are discussed in detail in a separate document entitled Feasibility Study of the Pacific San Pedro Branch and Los Angeles River Route as Alternative Consolidated Rail Corridors, December 1991. As part of this evaluation, population exposure was determined for

[2] During the evaluation process this alternative was modified to Alternative 2.1A, which employs the trench without an overhang. This alternative is described in greater detail in Chapter 3.

each of the alternative corridors and compared with the Alameda Corridor, using 1980 U.S. Census information. This analysis showed the Alameda Corridor to have the least population within 500 feet of its alignment (7,363) and also within 1,000 feet (26,199), as compared with the UPRR route, which had the most population exposure (15,841 within 500 feet & 39,940 within 1,000 feet). The L.A. River route had a population exposure of 10,223 within 500 feet and 32,787 within 1,000 feet. The combined UPRR/L.A. River route had a population exposure of 14,067 within 500 feet and 34,648 within 1,000 feet. Thus, the Alameda Corridor had the least exposure of any of the alternative corridors. It is also useful to note that in the case of the L.A. River option, the population exposure experienced there would be essentially new exposure, since there is no existing freight traffic along that corridor. In the case of the UPRR corridor, there is existing rail traffic, but it is not comparable to the volume currently being experienced along Alameda Street. Alameda Street, by contrast, has been an industrial corridor with substantial amounts of freight rail traffic for some time.

Each of the corridors was evaluated in terms of the community facilities that it could affect, once again using proximity (within 1,000 feet) as a surrogate for impact. Taking into account educational institutions, outdoor recreational facilities (parks & golf courses), fire stations, libraries, hospitals and churches, the Alameda Corridor had the greatest exposure, with 39 total such facilities being located within 1,000 feet of the alignment. The L.A. River route had the greatest exposure of housing projects and mobile home parks (10 within 1,000 feet), whereas the Alameda Corridor had only three such facilities within 1,000 feet. The UPRR and UPRR/L.A. River corridors had six and nine housing project/mobile home parks within 1,000 feet, respectively. Taking all facilities into account, each of the corridors had roughly the same number of facilities within 1,000 feet. The range was 30 total facilities for the UPRR/L.A. River corridor to 39 for the Alameda Corridor.

The evaluation suggested that the L.A. River route would result in the most severe impacts in terms of noise, land use and aesthetics. Single family homes, schools and playing fields abut the river in many neighborhoods, and separation distances are as little as 20 feet in some instances. Traffic congestion, on the other hand, would not adversely affect the river route, because the river channel does not have frequent street crossings.

The Los Angeles River has been suggested by a number of agencies and private interests as a desired corridor for a number of transportation proposals. These proposals have ranged from freeway corridors to passenger rail service to monorail options to freight rail corridors. A number of committees and organized groups have been formed to investigate these proposals. As a result of this interest, it is likely that implementation of any facility within or adjacent to the river would face protracted dialogue and negotiations with these groups.

The UPRR route was found to have substantial residential exposure, but not to the same degree as the river route. Adverse effects on residential areas would be expected along the UPRR route, and these effects would be expected to be more substantial than those encountered along the Alameda Corridor. There is a reach of the corridor in the North Long Beach area in which the profile of the UPRR tracks is above grade on an approximately 30-foot-high embankment. Mitigating the adverse effects of significant train movements along this embankment would be difficult. Traffic aspects of the UPRR corridor would result in local impacts that would not be the case under the river route.

In addition to the evaluation that was conducted by members of the project team, each of the local jurisdictions along the UPRR and L.A. River corridors was contacted for their opinion regarding locally perceived impacts. Comment letters were received from two cities and telephone conversations were held with representatives of all but one of the remaining cities. In general, all cities had a negative opinion of an improved freight rail facility along either route. Most cities cited traffic, noise and local land use impacts, which they characterized as potentially severe.

Costs to implement a rail facility in the alternative corridors were found to range from below the estimated cost in the Alameda Corridor, to approximately equivalent. However, these costs do not include roadway improvements of the scale proposed under the Alameda Corridor option. In fact, the use of either the UPRR or L.A. River routes would provide essentially only a rail facility, and accommodation of vehicular traffic would not be addressed unless a separate project were also to be considered.

2.4.3 Alternatives to be Examined in the Environmental Document

Based on the comparative evaluation of the corridor configuration alternatives and the evaluation of the alternative corridors, it was recommended by the project team, and concurred by the Alameda Corridor Transportation Authority Governing Board, that:

(1) Alameda Corridor Alternatives 1, 2.1A and 2.2 would be evaluated in the environmental document,

(2) the UPRR and Los Angeles River routes would not be evaluated further in the environmental document, and

(3) the environmental document would also examine the effects of a sloped trench variation for the Alameda Corridor trench alternative, such variation having been suggested as a potential cost-saving measure.

The ACTA board supported the recommendation that Alameda Street was to be the selected corridor, and therefore it decided not to consider the L.A. River and UPRR options further, at this time. The board, however, did not permanently eliminate this alternative from all future considerations.

The following chapter of this environmental document describes in further detail the alternatives to be considered for implementation.

CHAPTER 3

PROJECT DESCRIPTION

3.0 PROJECT DESCRIPTION

As noted in Chapter 1, the purpose of the Alameda Corridor project is to facilitate access to the ports through the year 2020 while mitigating potentially adverse impacts of the ports' growth. It is assumed for purposes of this environmental document that the economic activity associated with development of the ports of Los Angeles and Long Beach is the result of economic forces of national and international proportions, and that these forces will continue into the future. It is assumed that without the Alameda Corridor project, the ports would continue to grow as currently projected; without the Alameda Corridor project, freight rail carriers and trucking firms would seek alternative routing that would allow them to maintain goods movement in the most manageable way possible, albeit subject to increasing delays and other adverse effects.

Planning at the ports of Long Beach and Los Angeles has focused on a horizon extending to the year 2020. Projections of economic activity and resultant goods movement have been developed, and physical improvements at the ports needed to respond to these requirements have been defined. A Programmatic Environmental Impact Report/Statement for Landfill Development and Channel Improvements (November 1985) was prepared that outlined a series of actions intended to meet cargo handling and navigation demands in the San Pedro Bay Ports through the year 2020. This would be done by providing land for terminals to allow for projected increases in cargo throughput to be handled in the ports. This approach has become known as the "Ports 2020 Plan." In its original definition, it would have resulted in upwards of 2,600 acres of dredged landfill for use as cargo handling areas. Year 2020 cargo volumes have been projected to be 212 million metric tons, as compared with slightly less than 100 metric tons in 1989. The Ports 2020 Plan has since been redefined as a staged effort calling for incremental development of facilities over time, in an effort to achieve an acceptable balance of controlled port expansion which would also reduce environmental impacts to the greatest extent possible. However, the underlying economic projections are still regarded as valid.

As outlined in Chapter 2, a conceptual design process was undertaken that has led to several alternatives to be considered for implementation in the Alameda Corridor. It is the purpose of this chapter to describe those alternatives. In addition to alternatives involving physical improvements for the corridor, a "no build" alternative is also described.

Note: The Alameda Corridor Transportation Authority (ACTA) Governing Board, at its March, 1992 meeting, approved a motion identifying the "depressed trainway" as the preferred alternative. Of the alternatives discussed in the following sections, Alternatives 2.1A, 2.1S and 2.2 all incorporate a depressed trainway. The ACTA Board action did not distinguish among alternatives 2.1A, 2.1S and 2.2.

3.1 NO BUILD ALTERNATIVE

Currently, freight rail movements of cargo into and out of the ports of Los Angeles and Long Beach are handled on the independent trackage of the three rail carriers operating in the region, namely the Southern Pacific (SP), Union Pacific (UP) and Atchison, Topeka & Santa Fe (AT&SF) railroads. The No Build alternative would continue this mode of operation. Goods movement by truck is currently handled by the area street and freeway systems, including Alameda Street as it is currently configured. This also would remain as it is under the No Build alternative. One exception involves a series of projects, referred to as the Ports Access Demonstration Projects, which would make certain improvements to Alameda Street, south of State Route 91. The following sections provide more detail regarding the physical and operational aspects of the No Build alternative.

3.1.1 Current Freight Railroad Operations

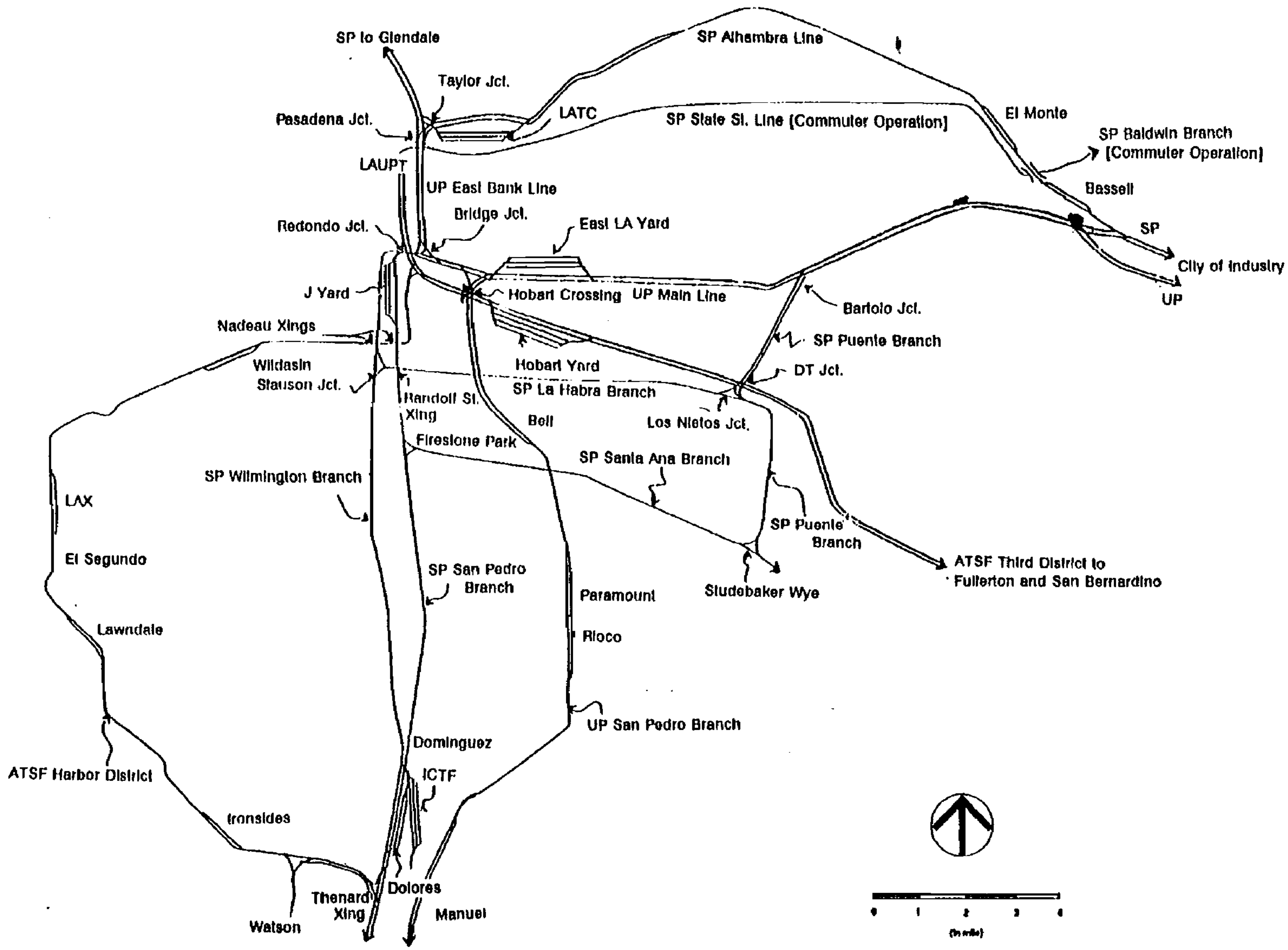
Train operations to and from the ports and within Southern California can be divided into two types: through train movements and local train movements. Some of these movements are associated with activity at the ports. Port-related through trains include bulk unit trains (carrying coal, white bulk and slab steel), intermodal trains (carrying containers taken from ships at the ports) and unit auto trains. Through trains not related to the ports include unit oil trains and general carload trains (carrying a mixture of cars and goods). Through trains account for the vast majority of movements affecting ports-related trackage. Certain freight movements operate on a regular basis, whereas other train movements are operated on a more flexible, as-needed basis. Local trains (also referred to as "road" or "zone" switchers), have regularly scheduled operations, and they are based in specific locations. Some of the local trains also carry goods to destinations within Southern California, and others conduct switching activity.

Currently a total of 28 through train movements per day occur on tracks linked to the ports. Nearly two thirds (61 percent) of these movements occur on SP lines (17 trains per day); 27 percent of the through movements occur on UP lines (8 trains per day), and 10 percent occur on Atchison, Topeka & Santa Fe lines (3 trains per day).

Current railroad service to the ports of Long Beach and Los Angeles extends from the crossing of the Cerritos Channel on the Badger Avenue Bridge to the vicinity of SR- 103, at which point the tracks of the three carriers diverge along separate routes. Proceeding northerly from this point, the three carriers all follow routes to the general area extending from South Gate to the northern portion of downtown Los Angeles, and then northerly and easterly to main line tracks that then carry freight out of Southern California to destinations throughout the United States. The routes used by the three carriers are described below and are shown collectively in Figure 3-1. The sections that follow describe routes currently used by each of the carriers and identify streets that are crossed by the rail lines. These crossings may or may not be at grade, and their inclusion is intended only to assist in establishing reference points for route location.

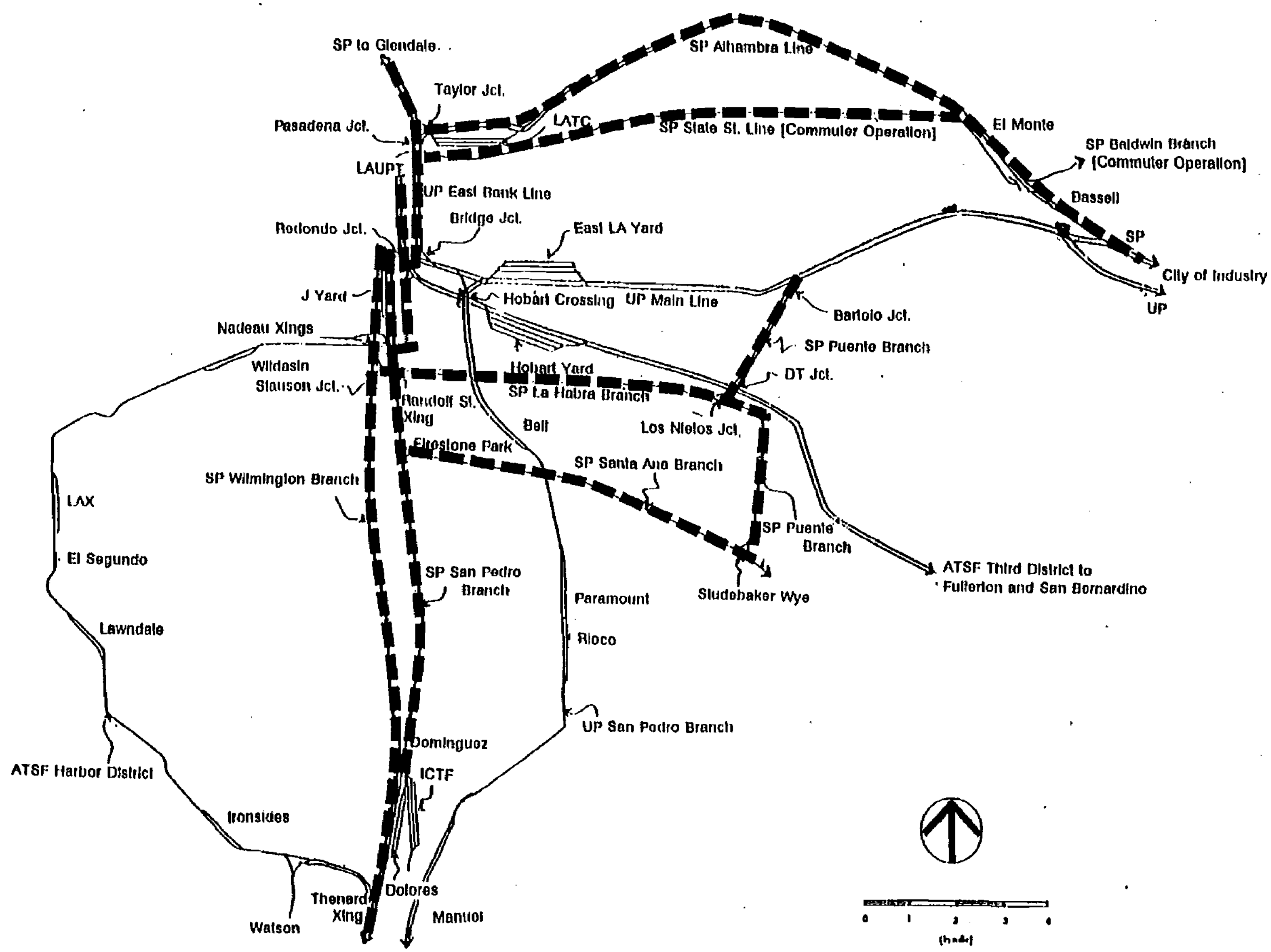
Southern Pacific (Figure 3-2)

SP through trains (currently approximately 17 per day) have favored a combination of the Puente, La Habra and Wilmington branches for through freight traffic between main line connections and the San Pedro Bay area. This is due to the presence of heavy switching activity on the Santa Ana and San Pedro branches, and the fact that the Wilmington and La Habra branches have seen more maintenance and are therefore in superior condition. Some trains use a routing that, in the in-bound direction, follows the La Habra and Wilmington branches, and in the outbound direction uses the San Pedro and Santa Ana branches. Train lengths can range up to 8,000 feet for container trains.



Source: DMJM/M&N, 1992

FIGURE 3-1	Existing Freight Carrier Routes	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: DMJM/M&N, 1992

FIGURE 3-2	Existing Southern Pacific Routes	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

ZLocal trains are based at "J" Yard, Dolores and the 8th Street Yard. Demands for time for switching on the main line are greatest on the San Pedro Branch, with up to four hours per day being required in some locations. Demand for main track time are also high in the Dolores yard area. Demands for track time (up to six hours daily) are also substantial for switching activity based out of Long Beach's 8th Street Yard.

The SP Wilmington Branch has 39 vehicular grade crossings, the San Pedro Branch has 33, the La Habra Branch has 32 and the Puente-Santa Ana branches have 26 between them.

Starting in the Wilmington area, SP tracks proceed northerly along Alameda Street, cross Anaheim Street and Pacific Coast Highway (PCH). The tracks continue along Alameda Street beyond Thenard Junction (south of Lomita Boulevard) in the City of Carson, through the SP Dolores Yard (north of Sepulveda Boulevard), and connect with the SP Intermodal Container Transfer Facility (ICTF, southeast of 223rd Street and Alameda Street). From the vicinity of the ICTF, the SP tracks continue north, crossing I-405 (San Diego Freeway), Carson Street and Del Amo Boulevard, to Dominguez Junction (mid-way between Del Amo Boulevard and SR- 91) in Los Angeles County. At this point, SP tracks split into two alternate routes, both proceeding northerly: the San Pedro Branch (easterly alignment) and the Wilmington Branch (westerly alignment).

- Wilmington Branch

The SP Wilmington Branch also contains the recently constructed Metro Blue Line passenger service, which is operated by the Southern California Rapid Transit District (SCRTD). The Wilmington Branch proceeds northerly along Willowbrook Avenue to Rosecrans Avenue in the City of Compton, crossing SR-91 (Artesia Freeway) and Alondra and Compton boulevards. From Rosecrans Avenue the alignment continues along Willowbrook Avenue through the Willowbrook portion of Los Angeles County, following a more northwesterly bearing, to the vicinity of 106th Street in the Watts area of the City of Los Angeles. In this reach the alignment crosses El Segundo Boulevard and Imperial Highway. At 106th Street, the tracks turn due north, following an alignment parallel to and west of Graham Avenue and Long Beach Avenue, crossing 103rd Street, entering the Walnut Park portion of Los Angeles County at 92nd Street, crossing Firestone Boulevard and Florence and Gage avenues, to Slauson Avenue. North of Slauson Avenue, again in the City of Los Angeles, the alignment follows Long Beach Boulevard, crossing Vernon Avenue, 38th Street and Washington Boulevard.

- San Pedro Branch

Proceeding north from Dominguez Junction, the SP San Pedro Branch follows an alignment parallel to Alameda Street, through the Rancho Dominguez portion of Los Angeles County. It crosses SR-91 and Artesia Boulevard, traverses the City of Compton, crosses Alondra and Compton boulevards, Rosecrans Avenue and El Segundo Boulevard and enters the City of Lynwood south of Butler Avenue. The alignment then crosses Imperial Highway, I-105 (Century Freeway), and the SP West Santa Ana Branch (at grade). The alignment proceeds north, crosses Martin Luther King Boulevard, enters the City of South Gate and the Walnut Park portion of Los Angeles County and crosses Firestone Boulevard and Florence Avenue. North of Florence Avenue, the alignment traverses the City of Huntington Park, crossing Gage Avenue, the SP La Habra Branch (discussed below) and Slauson Avenue. North of Slauson Avenue, the alignment enters the City of Vernon, crossing Vernon Avenue and 38th Street. In the vicinity of 25th Street, the SP tracks turn to the northeast and enter the SP "J" Yard facility. The SP "J" Yard extends from Alameda Street northeasterly to Santa Fe Avenue. East of Santa Fe Avenue, tracks are owned by UP. These tracks cross Redondo Junction, which is located west of the Los Angeles River and near Washington Boulevard.

- Connections to the North

From Redondo Junction, two sets of tracks continue north. One set of tracks, owned by UP and on which the SP has rights to operate, crosses the Los Angeles River on a bridge structure, turns to the north and follows an alignment on the east side of the river to Pasadena Junction, which is located north of Mission Road. This section is referred to as the UP East Bank Line. Pasadena Junction is located adjacent to the SP Los Angeles Transportation Center. The second set of tracks, owned by AT&SF, turn to the north at Redondo Junction and proceed north along the west side of the river. Beyond Pasadena Junction, the track continues on to the north end of the SP Cornfield Yard, where it connects with SP tracks.

- Santa Ana Branch

At a point north of Firestone Boulevard, the SP Santa Ana Branch connects with the SP San Pedro Branch, and the Santa Ana Branch continues easterly along an alignment generally following Firestone Boulevard. The alignment traverses the City of South Gate, crossing State Street, California Avenue, the UP San Pedro Branch (described below), Atlantic Avenue (where the City of Cudahy borders to the north), the Los Angeles River, I-710 (Long Beach Freeway) and Garfield Avenue (where the City of Bell Gardens borders to the north), crosses the Rio Hondo River and enters the City of Downey. Through Downey the alignment is parallel to, and south of, Firestone Boulevard, and it crosses Old River School Road, Paramount and Lakewood boulevards. After crossing the San Gabriel River, the alignment enters the City of Norwalk, where it continues in a southeasterly direction south of Firestone Boulevard, and where it crosses I-605 (San Gabriel River Freeway) and Studebaker Road. East of Studebaker Road, the Santa Ana Branch joins the SP Puente Branch. Beyond the junction with the Puente Branch, the SP Santa Ana Branch continues on to points east.

- La Habra Branch

Beginning at the SP Wilmington Branch south of Slauson Avenue, the La Habra Branch proceeds easterly along Randolph Street, through the City of Huntington Park, crossing Santa Fe Avenue, Pacific Boulevard and State Street. Continuing in this direction, the alignment straddles the cities of Maywood and Bell, then crosses Atlantic Boulevard, the Los Angeles River and I-710. The alignment then straddles the cities of Commerce and Bell Gardens, crossing Eastern and Garfield avenues, proceeds easterly and crosses the interchange of I-5 (Golden Gate Freeway) and Telegraph Road, at which point the tracks enter the City of Pico Rivera, take a slight southerly turn and follow an alignment south of, and parallel to, Slauson Avenue, crossing Paramount, Rosemead and Passons boulevards. After crossing the San Gabriel River and I-605, the alignment enters the City of Santa Fe Springs. Beyond I-605, the La Habra Branch joins the Puente Branch.

- Puente Branch

North of the Los Nietos Junction, the SP tracks follow an alignment parallel to, and east of, the San Gabriel River, joining with UP tracks south of Beverly Boulevard in Pico Rivera. South of Los Nietos Junction, the SP tracks follow an alignment west of Norwalk Boulevard, through the cities of Santa Fe Springs and Norwalk, to a junction with the SP Santa Ana Branch, south of Firestone Boulevard.

- Alhambra Line

Beginning from the SP Transportation Center is the SP Alhambra Line, which extends easterly along Alhambra Road in the Lincoln Heights area, continues along Valley Boulevard in the El Sereno area and then along Mission Road in the City of Alhambra. Major streets crossed in this reach include Soto Street, Fremont Avenue, Atlantic Boulevard and Garfield Avenue. Near the San Gabriel Mission, in the vicinity of Ramona Street in the City of San Gabriel, the tracks leave Mission Road and follow an alignment that curves to the southeast and continues in a southeasterly direction through the cities of San Gabriel (crossing Del Mar Avenue and San Gabriel Boulevard), Rosemead, Temple City (crossing Rosemead and Temple City boulevards), and El Monte (crossing Baldwin Avenue). The alignment followed through these communities is generally north of, and parallel to, Mission Road and Valley Boulevard. At Santa Anita Avenue, the Alhambra Line is met by the SP State Street Line.

The SP Alhambra Line continues southeasterly beyond this point, following an alignment along Valley Boulevard through the City of Industry and the La Puente area of Los Angeles County to points east. Major crossings in this reach include I-10 (San Bernardino Freeway), the San Gabriel River, I-605, 3rd/Puente avenues, 7th/Sunset avenues, and Hacienda Boulevard. South of Baldwin Park Boulevard, a track leaves the alignment, making a turn to the northeast, where it becomes the Baldwin Branch, traversing the City of Baldwin Park.

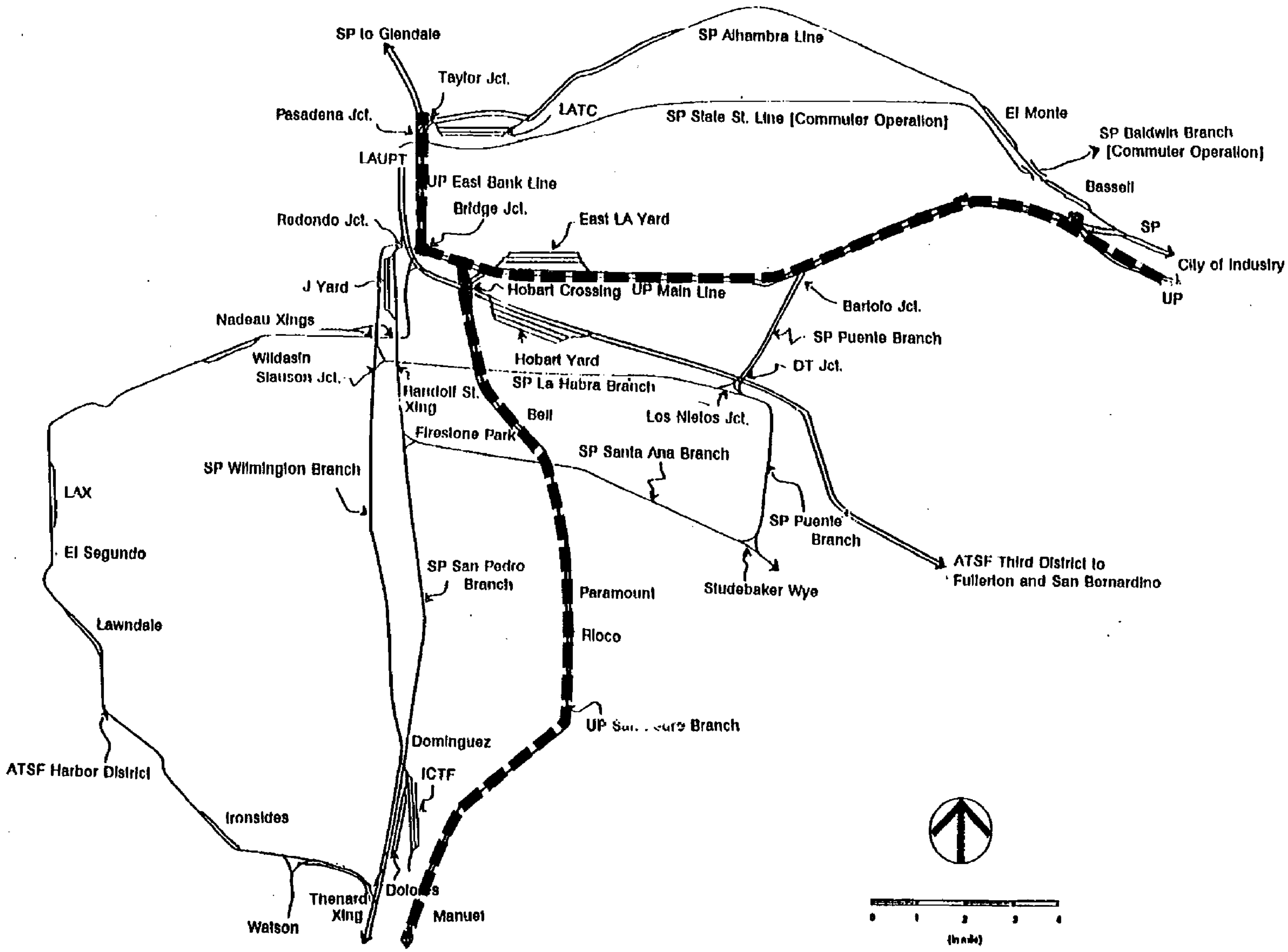
- State Street Line

Another SP track section, the State Street Line, begins in the vicinity of the SP Transportation Center and travels easterly along I-10, traversing the cities of Monterey Park, Alhambra, Rosemead, and El Monte. Just beyond Santa Anita Avenue, the SP State Street Line leaves I-10 and proceeds northeasterly, crossing Valley Boulevard, where it joins the SP Alhambra Line.

Both the SP Alhambra and State Street lines use the same tracks south of their junction at Santa Anita Avenue, continuing southeasterly along an alignment that is north of, and parallel to, Valley Boulevard, through El Monte and the Bassett area of Los Angeles County.

<u>Union Pacific</u> (Figure 3-3)

UP through trains (currently approximately eight per day) travel to and from the ports, along the UP San Pedro Branch, to downtown connections with the East Bank Line (which proceeds north) and the UP mainline, which proceeds east through the East L.A. Yard and points beyond.



Source: DMJM/M&N, 1992

FIGURE 3-3	Existing Union Pacific Routes	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

- San Pedro Branch

Beginning at the Badger Avenue Bridge, the UP San Pedro Branch proceeds northerly along Henry Ford Avenue. When SR-103 (Terminal Island Freeway) is reached, the UP tracks make a turn to the northeast, following an alignment on the east side of the Dominguez Channel, parallel to Pennington Avenue, crossing Anaheim Street. At a point approximately one block north of "I" Street in the Wilmington area, the UP San Pedro Branch is crossed by the SP Long Beach Branch. At this location, the UP San Pedro Branch tracks make a turn to the east, travel a short distance and then turn north to assume an alignment parallel to, and west of, SR-103, crossing PCH (SR-1) in the City of Long Beach.

At Sepulveda Boulevard SR-103 ends, and the UP tracks continue due north to approximately 34th Street in the City of Long Beach, where the tracks make a slight turn to the east, assuming a northeasterly alignment. As the route crosses I-405, it traverses the southeasternmost portion of the City of Carson.

A short distance north of Carson Street (approximately at Madison Street) the alignment again turns to the northeast. It crosses over I-710, and at this point it is crossed by the SP East Long Beach Branch at the same bridge elevation. This crossing is known as the Cota Crossing. Blue Line trains are carried over this crossing on an elevated structure into a yard south of this point. Beyond the Cota Crossing, the UP tracks continue over the Los Angeles River on a bridge and follow a northeasterly alignment through the North Long Beach area, crossing Long Beach and Atlantic boulevards and Orange Avenue.

As the alignment crosses Cherry Avenue, it traverses the westerly corner of the City of Lakewood. At this point the alignment makes a turn to the north and follows a northerly route, running parallel to and midway between Cherry Avenue on the west and Paramount Boulevard on the east. This alignment continues north through the cities of Paramount, South Gate and Downey. Major crossings in this reach include South Street, Artesia Boulevard, SR-91, Alondra and Compton boulevards, and Rosecrans Avenue.

To the north of Century Boulevard, the alignment enters a long curve to the northwest that takes it across Imperial Highway, the Rio Hondo River, I-710 and the Los Angeles River. It continues along a northwesterly alignment through the City of South Gate, crossing Firestone Boulevard. North of Firestone Boulevard, at Patata Street, the UP line crosses the SP Santa Ana Branch at grade.

North of the Patata Junction, the UP line continues in a northwesterly direction, traversing the cities of Huntington Park, Cudahy and Bell, following Salt Lake Avenue. The alignment then turns to a more northerly direction after passing Florence Avenue, and at Randolph Street it crosses the SP La Habra Branch (Bell Junction). Major crossings in this reach include Florence and Gage avenues.

North of Randolph Street, through the cities of Maywood and Vernon, the alignment proceeds in a northerly direction along Downey Road. Major crossings in this reach include Slauson Avenue and Bandini Boulevard. South of Washington Boulevard, the UP line enters Hobart Junction, at which point the UP right-of way splits into two alternate routes: one to the west and north and a second to the east.

- East Bank Line and "J" Yard Connections

From Hobart Junction, one set of UP tracks turns to the northwest, running parallel to and north of Washington Boulevard. After crossing Washington Boulevard, the tracks turn to the north to become the UP East Bank Line that was described in the previous section. A second set of tracks continue westward, across the Los Angeles River to Santa Fe Avenue, where they enter the SP "J" Yard. The East Bank Line continues north, crossing Olympic Boulevard, SR-60 (Pomona Freeway), 7th Street, Whittier Boulevard, 4th and 1st streets, I-10, and Macy Street, after which it reaches Pasadena Junction.

- UP Main Line

Beginning at Hobart Junction, the UP Main Line turns to the east and enters the UP East Los Angeles Yard, which is located north of Washington Boulevard and east of Indiana Street, in the City of Commerce.

From the East L.A. Yard, UP tracks proceed easterly along an alignment that is south of Olympic and Whittier boulevards, traversing the cities of Commerce, Montebello and Pico Rivera. Major crossings in this reach include I-710, Atlantic Boulevard, Garfield and Greenwood avenues, Montebello Boulevard, the Rio Hondo River, and Paramount and Rosemead boulevards. In the vicinity of Durfee Avenue, west of the San Gabriel River, the tracks make a long turn to the northeast to assume an alignment parallel to, and east of, I-605, in the North Whittier portion of Los Angeles County. Just after crossing the San Gabriel River and before passing beneath I-605, the UP tracks are joined from the south by the SP Puente Branch. This connection is known as Bartolo Junction.

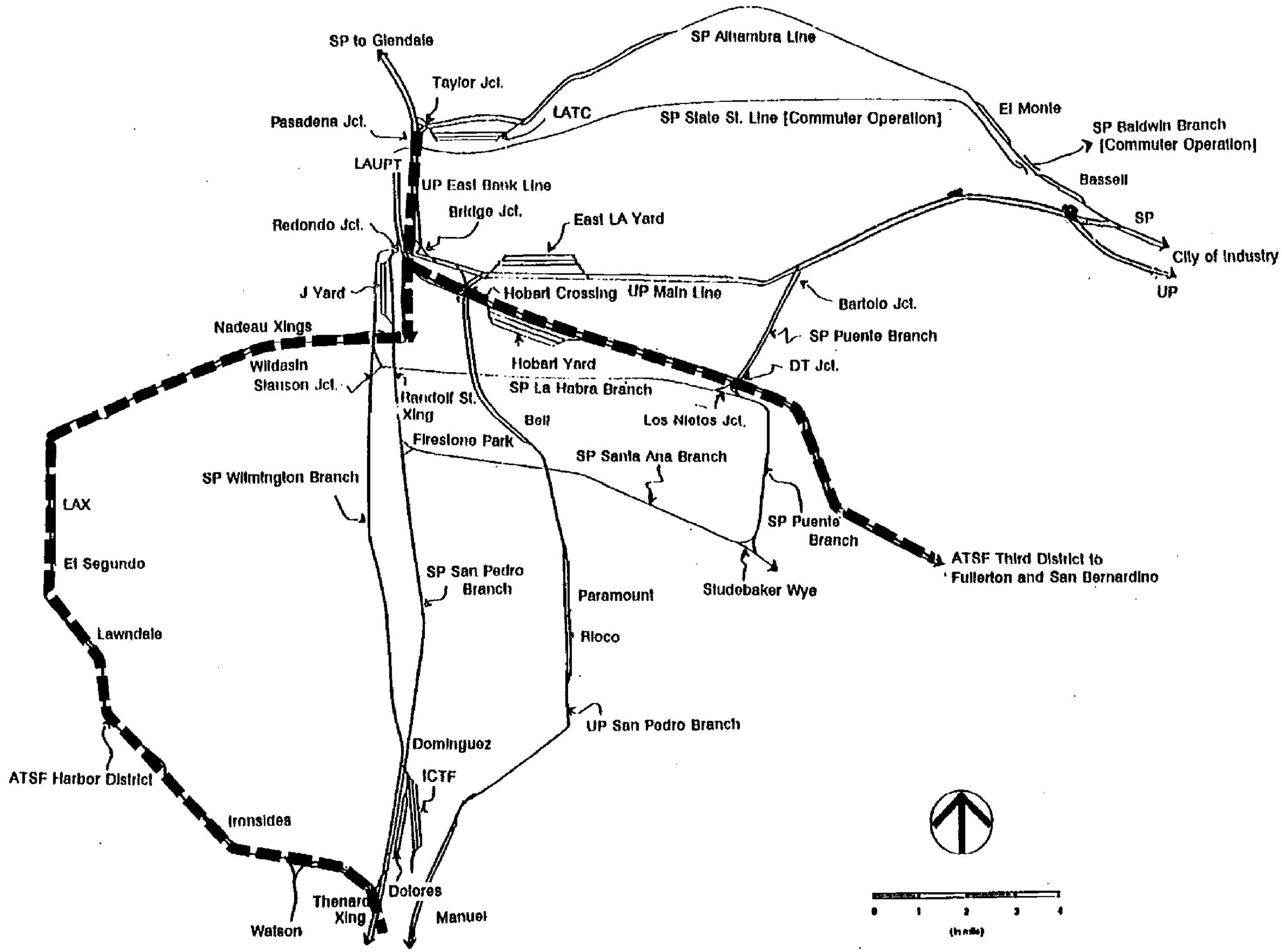
From Bartolo Junction, the UP main line tracks continue in a northeasterly direction east of I-605, until the vicinity of Workman Mill Road. At Workman Mill Road, the tracks begin another turn to the east, assuming an alignment that becomes southeast in its direction, and proceed along the north side of SR-60. In the vicinity of 7th Street, the freeway diverges to a more southerly alignment, and the UP line continues southeasterly, crossing Turnbull Canyon Road and Hacienda Boulevard. From here the main line tracks continue to points east. Just beyond Stimson Avenue, in the City of Industry, a short connection is provided north to the SP main line along Valley Boulevard.

<u>Atchison, Topeka & Santa Fe</u> (Figure 3-4)

AT&SF through trains (three per day at the present time) use the Harbor Subdivision northward from the ports to Redondo Junction, from which movements proceed east through Hobart Yard to points beyond on the Third District.

Local trains are based at Watson (four road switchers) and Hobart (three switchers) yards. The greatest demand for main track time is at Alcoa, where up to eight hours per day may be required. Lawndale, another significant demand location, may require up to three hours per day.

There are 92 at-grade crossings along the AT&SF Harbor Subdivision, and three along the main line to Los Nietos.



Source: DMJM/M&N, 1992

FIGURE 3-4

Existing Atchison, Topeka & Santa Fe Routes

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

- Harbor Subdivision

AT&SF Harbor Subdivision tracks begin at Long Beach Junction, north of Anaheim Street and west of the Dominguez Channel. The tracks proceed north, cross PCH, turn to the northwest and then west along Lomita Boulevard in the City of Carson. A short distance before reaching Wilmington Avenue, the tracks turn again to the northwest, proceed to a point approximately at Avalon Boulevard, where a turn to the west again occurs. The alignment then proceeds due west, crossing Main Street, Figueroa Street and I-110 (Harbor Freeway).

Beyond I-110, the tracks cross Vermont Avenue in a portion of Los Angeles County and turn to the northwest. This northwest alignment is followed through the Harbor City portion of the City of Los Angeles and the City of Torrance. At Carson Street, east of Crenshaw Boulevard, the alignment turns to the north, continues for a short distance, and at Serra Street it again turns to the northwest. This northwesterly alignment is followed, crossing Crenshaw Boulevard, Prairie Avenue and Hawthorne Boulevard, until north of 190th Street in the City of Redondo Beach.

At approximately 186th Street, the alignment turns to the north and continues in that direction through the City of Lawndale, until Manhattan Beach Boulevard, where it again turns to the northwest. The alignment proceeds in a northwesterly direction through portions of the cities of Redondo Beach and Hawthorne and then into the City of El Segundo. In El Segundo, north of Rosecrans Avenue, the alignment makes a turn to the northeast for a short distance and then turns to the north to follow Aviation Boulevard, beginning at El Segundo Boulevard.

From El Segundo Boulevard, the alignment follows Aviation Boulevard due north, passing Imperial Highway, Los Angeles International Airport, and Century Boulevard. A short distance south of Manchester Boulevard, the alignment turns to the northeast, to follow Florence Avenue. It continues along Florence Avenue, crossing I-405, La Brea Avenue and Prairie Avenue. Just before West Boulevard, Prairie Avenue makes a turn to the east, but the rail alignment continues in a northeasterly direction, crossing Crenshaw Boulevard, Van Ness Avenue, and Western Avenue.

At Slauson Avenue, the alignment turns due east to follow Slauson, traversing the City of Los Angeles, crossing Normandie Avenue, Vermont Avenue, Figueroa Street, I-110, Broadway Street, Main Street, Avalon Boulevard, Central Avenue, Compton Avenue, Long Beach Boulevard and Alameda Street.

As the alignment crosses Alameda Street, it enters the City of Vernon, where it continues along Slauson Avenue until Santa Fe Avenue, where it turns to the north, following an alignment parallel to Santa Fe Avenue and crossing Pacific Boulevard, Vernon Avenue and 37th Street. As the alignment reaches the vicinity of 25th Street, it makes a slight turn to the northeast and proceeds in that direction, joining other AT&SF tracks at Redondo Junction.

From Redondo Junction, the AT&SF tracks split. One set proceeds north along the west bank of the Los Angeles River, and the second proceeds to the east toward Hobart Yard.

- Third District

From Redondo Junction, the AT&SF Third District track crosses the Los Angeles River and proceeds in a southeasterly direction, along an alignment that generally parallels Bandini Boulevard. The AT&SF Hobart Yard is located east of Downey Road and west of I-710.

After crossing I-710, the tracks continue in a southeasterly direction, traversing the northernmost portion of the City of Bell, crossing Eastern Avenue, continuing through the City of Commerce, crossing I-5 and Garfield Avenue, passing through the City of Montebello, crossing the Rio Hondo River into the City of Pico Rivera and crossing Paramount, Rosemead and Passons boulevards.

The alignment continues southeasterly beyond Passons Boulevard, crossing the San Gabriel River and I-605, entering the City of Santa Fe Springs and generally following Pico Rivera Road. At approximately the intersection of Norwalk Boulevard and Los Nietos Road, the AT&SF Third District is met by the SP La Habra Branch. Beyond this point, the Third District tracks continue, turning south and crossing Santa Fe Springs and Telegraph roads, Florence Avenue and Imperial Highway.

At Imperial Highway, the alignment turns to the southeast and proceeds in that direction through Santa Fe Springs, crossing Carmenita Road, the North Fork of Coyote Creek and Rosecrans Avenue, then proceeding to points east.

3.1.2 Future Freight Railroad Operations

According to current forecasts, total through train movements to and from the ports are expected to reach 73 per day by the year 2010 and 97 per day by the year 2020. SP's share of this traffic is anticipated to be approximately 45 percent (33 trains per day) by the year 2010 and 40 percent (39 trains per day) by the year 2020. UP trains are projected to be 32 percent (23 trains per day) in 2010 and 35 percent (34 trains per day) in 2020. The AT&SF is expected to move 23 percent (17 trains per day) of through trains in the year 2010 and 25 percent (24 trains per day) in the year 2020.

For purposes of planning and estimating the effects of rail operations, it is assumed that overland common point (OCP) traffic will account for 50 percent of all containerized cargo entering the ports of Los Angeles and Long Beach in 2010, as compared with 35 percent at the present.

Also for purposes of planning and estimating, it is necessary to make certain assumptions regarding typical train lengths. A standard train length of 8,000 feet is assumed for intermodal trains leaving the Port of Los Angeles and the ICTF. Due to physical constraints, intermodal trains would be shorter leaving the Port of Long Beach (average length, 5,400 feet). Other trains are assumed to have the following lengths: steel slab - 6,000 feet; coal - 4,800 feet; white bulk - 6,000 feet; autos - 2,500 feet; crude oil - 4,500 feet; carload - 3,000 feet.

If freight rail consolidation does not become a reality, each of the three carriers will move trains along their respective routes, essentially the same as the routing used at the present time. Local switching assumptions have also been made that are consistent with current operations. The

No Build alternative presumes the movement of daily through trains to and from the ports by the three carriers as follows (referred to as Status Quo routing):

Southern Pacific

- Wilmington Branch - La Habra Branch - Puente Branch - Main Line
- San Pedro Branch - Santa Ana Branch - Puente Branch - Main Line
- Wilmington Branch - "J" Yard - UP - West L.A. Branch - LATC - Main Line
- San Pedro Branch - West L.A. Branch - LATC - Main Line

For the vast majority of train movements along SP lines, westbound trains would typically use the La Habra and Wilmington branches, whereas eastbound trains would typically use the San Pedro and Santa Ana branches. A much smaller proportion of train movements would take place on the main line out of the area to the north from Pasadena Junction. Those movements would also operate in a coupled fashion, with northbound movement following the San Pedro Branch and southbound movements following the Wilmington Branch.

Union Pacific

- UP San Pedro Branch - East L.A. Yard - Main Line

Atchison, Topeka & Santa Fe

- Harbor Subdivision - Redondo Junction - Hobart Yard - Main Line

Status Quo Trackage

In order to provide for the orderly movement of trains into and out of the region, it will be necessary for some improvements to the existing rail trackage to be implemented. It is assumed that these improvements would be undertaken by each of the three carriers, in response to their own operational needs, as follows.

For SP routes:

- Two main tracks between the City of Industry and Los Nietos Junction, with state-of-the-art track control.
- New direct connection between SP Puente and La Habra branches at Los Nietos Junction.
- Two main tracks added between Bridge Junction and Ninth Street Junction, in the "J" Yard area, coupled with placement of this area under a single traffic control authority.

For the UP San Pedro Branch:

- State-of-the-art track control.
- Two main tracks from East L.A. Yard to south of Bell Crossing (4.5 miles).
- Two main tracks through Paramount (18,000 feet).
- Two main tracks from north switch at Manuel to SP connections at Thenard.

For the AT&SF Harbor Subdivision:

- State-of-the-art track control.
- 8,000 foot passing tracks at Wildasin, Lairport, Lawndale and Ironsides.
- Two main tracks from Watson Wye to SP connection at Thenard.

3.1.3 Passenger Operations

In addition to freight train movements on the various rail lines in the region, there is ongoing development of intercity and passenger commuter rail service that has begun and is expected to continue. At the present time, 14 Amtrak trains per day traverse the AT&SF main line at Redondo Junction. For purposes of planning, the following intercity and commuter passenger train operations are assumed:

- Former SP State Street Line and former SP Baldwin Park Branch (service to San Bernardino) - 18 trains per day in 2010; 50 trains per day in 2020. These tracks are now owned by the Southern California Regional Authority.
- AT&SF Third District (service to Orange and Riverside counties) - 56 trains per day in 2010; 84 trains per day in 2020. The Southern California Regional Rail Authority has trackage rights over this line.

The LACTC is currently engaged in an ambitious program to acquire existing rail lines providing access to major trip attractors, including the Los Angeles Central Business District, or rights to operate on selected rail lines, for purposes of operating commuter rail and light rail passenger service. Included among these are UP and AT&SF tracks straddling both sides of the Los Angeles River between the Redondo and Pasadena junctions. The operation of passenger service on these lines would have a direct effect on the efficiency of freight movements into the corridor study area from the north.

3.1.4 Existing Roadway Improvements

The project study area includes Alameda Street, extending from I-10 in the north, south to Henry Ford Avenue, and then south along Henry Ford Avenue to the north side of the Cerritos Channel, at the Badger Avenue Bridge. Alameda Street is classified as a major highway and it extends for a distance of approximately 20 miles within the limits of the study area. Henry Ford Avenue is classified as a primary arterial, and it extends for a distance of approximately one mile in the study area. There are a total of 151 street intersections along the study corridor. Of these, 43 are signalized, and 108 are not. Alameda Street passes through a number of municipal jurisdictions, each of which has responsibility for roadway maintenance within the limits of its jurisdiction. The jurisdictions involved include the City of Los Angeles, the County of Los Angeles and the cities of Vernon, Huntington Park, South Gate, Lynwood, Compton and Carson.

Alameda Street runs parallel to the SP San Pedro Branch. In some locations, vehicular travel lanes are located only on the west side, generally consisting of four through lanes with left turn pockets at most intersections. In other locations, Alameda Street has four vehicular through travel lanes on the west side of the railroad right-of-way, together with a two-lane frontage or local access road on the east side of the railroad. This frontage road exists for a significant portion of the total length of Alameda Street, but it is not continuous throughout. In the southern portion of the route, the vehicular travel lanes are located on the east side of the railroad.

Within the study area, Alameda Street begins at the northern end at an undercrossing beneath I-10. In the vicinity of 16th Street, freeway on- and off-ramps connect with the west Side of . At this point, Alameda Street is a four-lane facility. Between 25th and 26th streets, Alameda Street has three lanes in the northbound direction and two lanes southbound. At 26th Street, an east side frontage road begins that extends south to a point north of Gage Avenue in the City of Huntington Park. North of Gage, at Randolph Street, Alameda Street is crossed at grade by the SP La Habra Branch tracks.

North of Gage Avenue the roadway is a four-lane facility on the west side only. Between Gage Avenue and Florence Avenue, the section again contains a four-lane west side roadway and two-lane east side frontage road. From Florence Avenue to Nadeau Street, only a four-lane facility is provided. From Nadeau Street to Short Street, a frontage road again occurs. South of Short Street and north of Firestone Boulevard, at-grade track connections are made between the SP San Pedro Branch and the SP Santa Ana Branch to the east. Between Short Street and 92nd Street, a four-lane street section is provided.

From 92nd Street to north of Artesia Boulevard (in the City of Compton), Alameda Street has a four-lane roadway and a frontage road. The frontage road in this reach has sufficient width for a parking lane in either direction. Between Tweedy Boulevard and Seminole Avenue (in the City of South Gate), the frontage road has been recently reconstructed as a four-lane facility. Between Rosecrans Avenue (in the City of Compton) and north of Artesia, the frontage road is also a four-lane facility, with two lanes provided for parking. At Rosecrans Avenue, an east-west grade separation has been completed that will carry through traffic along Rosecrans Avenue on the overhead structure. Also in this reach, I-105 (under construction) crosses over Alameda Street. South of Artesia Boulevard is SR-91, which has on- and off-ramps connecting with Alameda Street south of the freeway.

Beginning in the vicinity of SR-91, recent roadway improvements have been made to Alameda Street, extending south almost to the ports. These improvements consist of a new roadway surface, sidewalks, curb and gutter and left turn lanes or pockets. South of SR-91 a short distance, Alameda Street is crossed by the SP Wilmington Branch tracks. From SR-91 south to Manville Street, Alameda Street has three lanes in the northbound direction and two lanes in the southbound direction. From Manville Street to Dominguez Street, four lanes are provided.

In the vicinity of Dominguez Street, the roadway crosses the railroad tracks to put Alameda Street on the east side.

From Dominguez Street to 218th Street (in the City of Carson), Alameda Street is a four-lane facility. From 218th Street to I-405, it is a six-lane facility with a continuous right turn lane in the northbound direction. On- and off-ramps to I-405 connect with Alameda Street north of the freeway. From I-405 to 223rd Street, Alameda Street is a six-lane facility. From 223rd Street to Mauretania Street, where the recent improvements end, it is a four-lane facility. South of Lomita Avenue (at West Thenard Junction), the AT&SF Harbor Subdivision tracks cross over Alameda Street on an overhead structure.

From Mauretania Street to Henry Ford Avenue, Alameda Street is a four-lane facility. In the vicinity of Henry Ford, the SP Long Beach Branch connects with the San Pedro Branch and proceeds to the east. The project study area proceeds south along Henry Ford Avenue to SR-103.

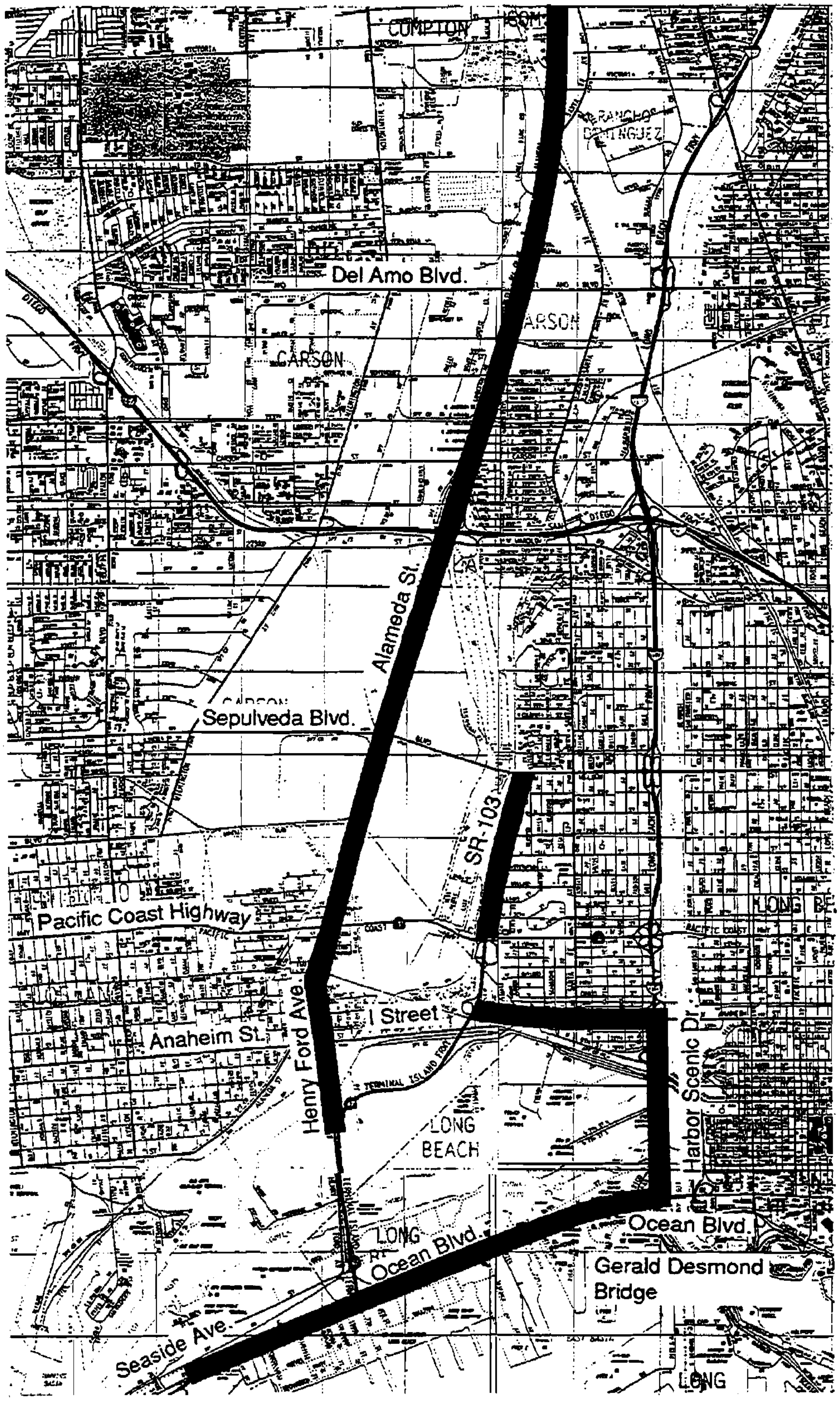
3.1.5 Ports Access Demonstration Projects

As a result of past efforts, a number of projects to improve access to the ports have been identified and are in various stages of implementation. These projects are assumed to be in place for purposes of the Alameda Corridor project, and are therefore also part of the No Build Alternative. The Ports Access Demonstration Projects include street widenings, repaving, intersection and interchange improvements, bridge improvements and grade separations. The projects affect Alameda Street (from Dominguez Street to Henry Ford Avenue), Henry Ford Avenue (from Alameda to the Dominguez Channel), SR-103 (from Willow Street to PCH), "I" Street (from SR-103 to Anaheim Street), Anaheim Street (from "I" Street to Harbor Scenic Drive), Harbor Scenic Drive (from Anaheim Street to Ocean Boulevard), Ocean Boulevard (from Harbor Scenic Drive to the Gerald Desmond Bridge), the Gerald Desmond Bridge itself, Ocean Boulevard (from the Gerald Desmond Bridge to the Los Angeles/Long Beach city limits and Seaside Avenue (from the city limits to the Vincent Thomas Bridge toll plaza. The general area of these projects is shown in Figure 3-5. They are described in more detail under Related Projects (Section 3.8).

3.2 ALTERNATIVE 1.0

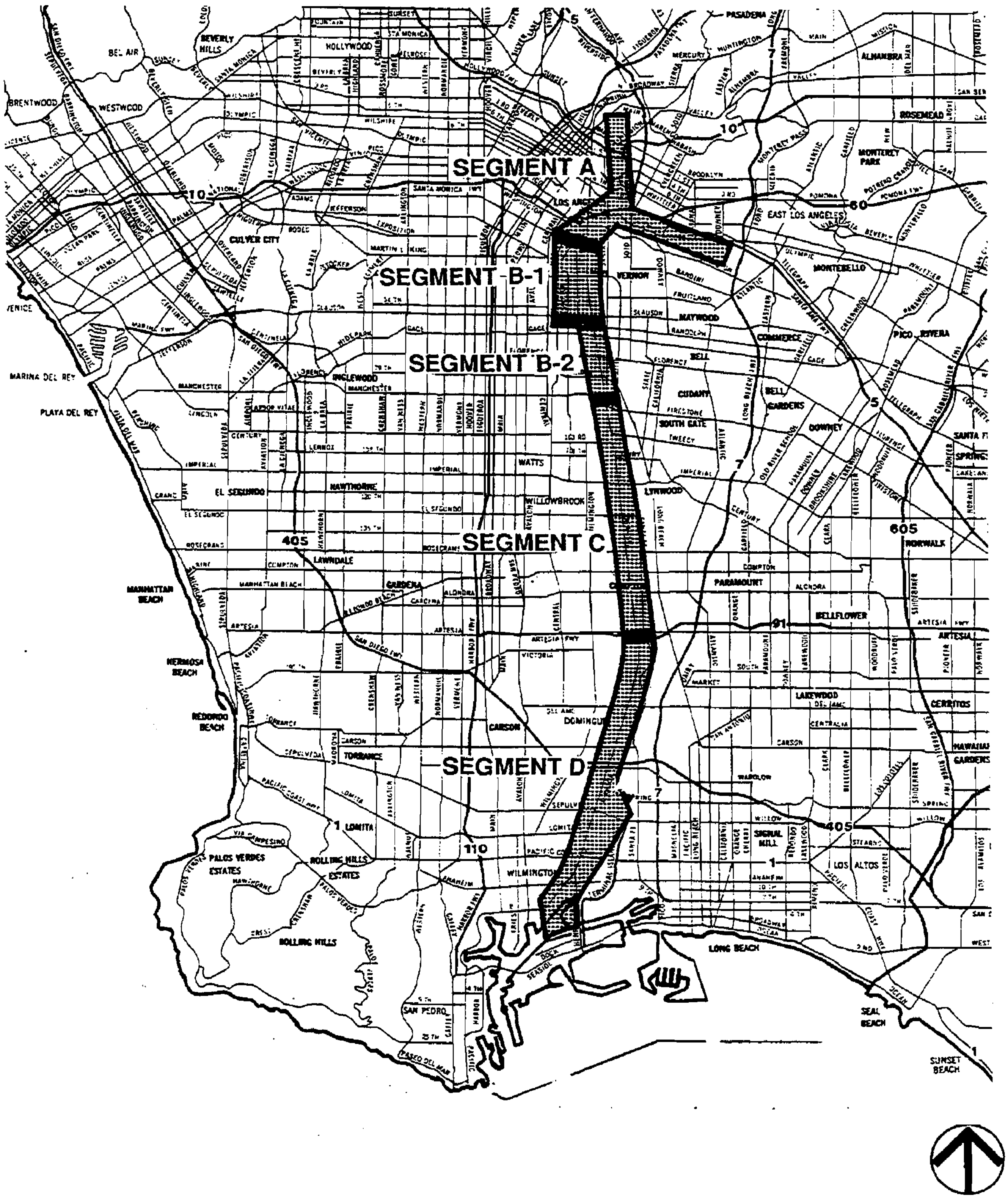
Introductory note: *The following sections describe the Alameda Corridor build alternatives. These alternatives have similar northern and southern project limits, and they are further divided into segments. Project segments were developed during the conceptual design stage, in order to provide reference points for transitions among engineering solutions, to recognize political boundaries and to aid in the cost estimation process. These segments are also useful in understanding the alternatives and, in particular, the differences among them. Consequently, the descriptions of the alternatives make reference to the segments, and they are also used in describing impacts, where distinctions based on segments are appropriate. The segments are shown in Figure 3-6, and they are defined as follows.*

Segment A would begin at Pasadena Junction, which is located north of Macy Street, in the vicinity of the Southern Pacific Transportation Center. Railroad connections located there permit easterly and northerly train movements out of the downtown area. Segment A would include



Source: ACTA, 1992

FIGURE 3-5	**Ports Access Demonstration Projects**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: DMJM/M & N, 1992

FIGURE 3-6	Project Study Area Segments	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

railroad trackage that continues southerly along the Los Angeles River to the vicinity of Redondo Junction and the "J" Yard, and then southerly to the vicinity of 25th Street. Segment A would also include rail trackage that extends easterly from the "J" Yard/Redondo Junction area to the UP East L.A. Yard, located north of Washington Boulevard and east of Downey Road. Segment A would also include the roadway section in Alameda Street that extends from the vicinity of I-10 south to the vicinity of 25th Street.

***Segment B1** would begin in the vicinity of 25th Street and continues south along Alameda Street to the vicinity of Randolph Street. Segment B1 would also include the SP Wilmington Branch line that runs along Long Beach Boulevard, between 25th Street and Randolph Street.*

***Segment B2** would begin in the vicinity of Randolph Street and continue south along Alameda Street to the vicinity of Firestone Boulevard.*

***Segment C** would begin in the vicinity of Firestone Boulevard and extend to the vicinity of SR-91.*

***Segment D** would extend from the vicinity of SR-91 to the southern project limits at the north side of the Cerritos Channel along Henry Ford Avenue. Segment D would include railroad trackage that leaves Alameda Street and parallels the Dominguez Channel, and it would also include the roadway section that extends along Alameda Street and Henry Ford Avenue.*

For purposes of appropriate figure displays, Segments C and D are shown further divided into three subdivisions each.

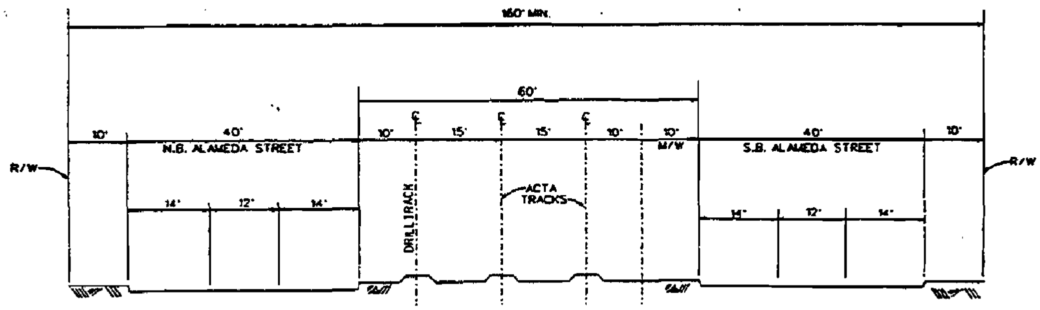
Alternative 1.0 is the first of four build alternatives to be considered for implementation in the Alameda Corridor. It would consist of an at-grade two-track railroad main line consolidated freight rail corridor with drill track, together with a six-lane roadway section throughout. At 22 selected streets, above- and below-grade east-west grade separation structures would be provided. The combined trainway/roadway arrangement in Alameda Street would vary from a one-way couplet with trainway in the center to the trainway on one side of a six-lane roadway. In some locations a two-lane frontage road would also be provided.

3.2.1 Typical Sections

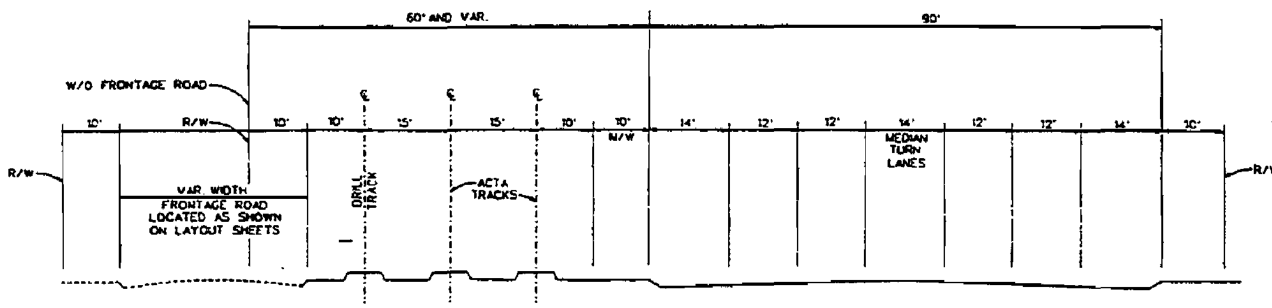
Figure 3-7 illustrates the typical cross sections that would be used in this alternative.

In this alternative, the width of the railroad right-of-way would vary, but it would typically be 60 feet wide, with two main line railroad tracks and a drill track located at a spacing of 15 feet on center. Also located within this right-of-way would be a railroad maintenance-of-way road that would be 10 feet in width.

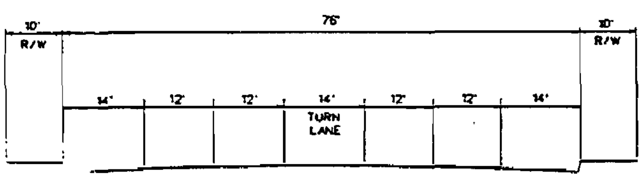
In locations where the one-way couplet would be used, each roadway would consist of an outside lane of 14 feet in width, a center lane that would be 12 feet wide, and an inside lane of 14 feet in width. A 10-foot-wide sidewalk would also be provided, as needed, for a total roadway width of 50 feet. Taking into account the two one-way roadways and the trainway, the total right-of-way width for this section would be 160 feet, at a minimum.



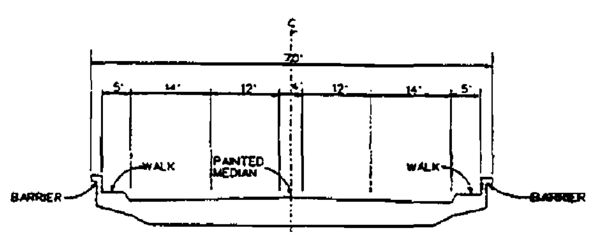
One Way Couplet With Trainway in Center



Two Way Six Lane Roadway With Trainway on East Side



Six Lane Roadway Without Trainway



Overhead Grade Separation Structure

Source: DMJM/M&N, 1992

FIGURE 3-7	**Alternative 1.0 - Typical Sections**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

In locations where a six-lane two-way roadway would be used, the roadway would be 90 feet in width, allowing four travel lanes of 12 feet each, three lanes of 14 feet each (the center one of which would function as a median/left turn lane), and a 10-foot wide sidewalk, as needed. Adding a 60-foot-wide trainway, the total right-of-way in this instance would also be a minimum of 160 feet in width.

In those locations where a frontage road is provided in addition to the main roadway, the frontage road would provide for two lanes of traffic and a 10-foot-wide sidewalk. The width of the frontage road would vary.

In Alameda Street, north of 25th Street, a trainway would not be provided. In this area, the right-of-way would vary from 76 feet to 90 feet, and a minimum of six travel lanes would be provided, with a center left turn lane.

The east-west grade separations would be provided on structures that would have a minimum width of 70 feet. Two outside travel lanes of 14 feet in width, two inside lanes of 12 feet in width, a 4-foot center painted median and two outside walks, each 5 feet wide, would be provided on the structure. A short barrier would be located on the outside edges of the structure.

3.2.2 Corridor Configuration

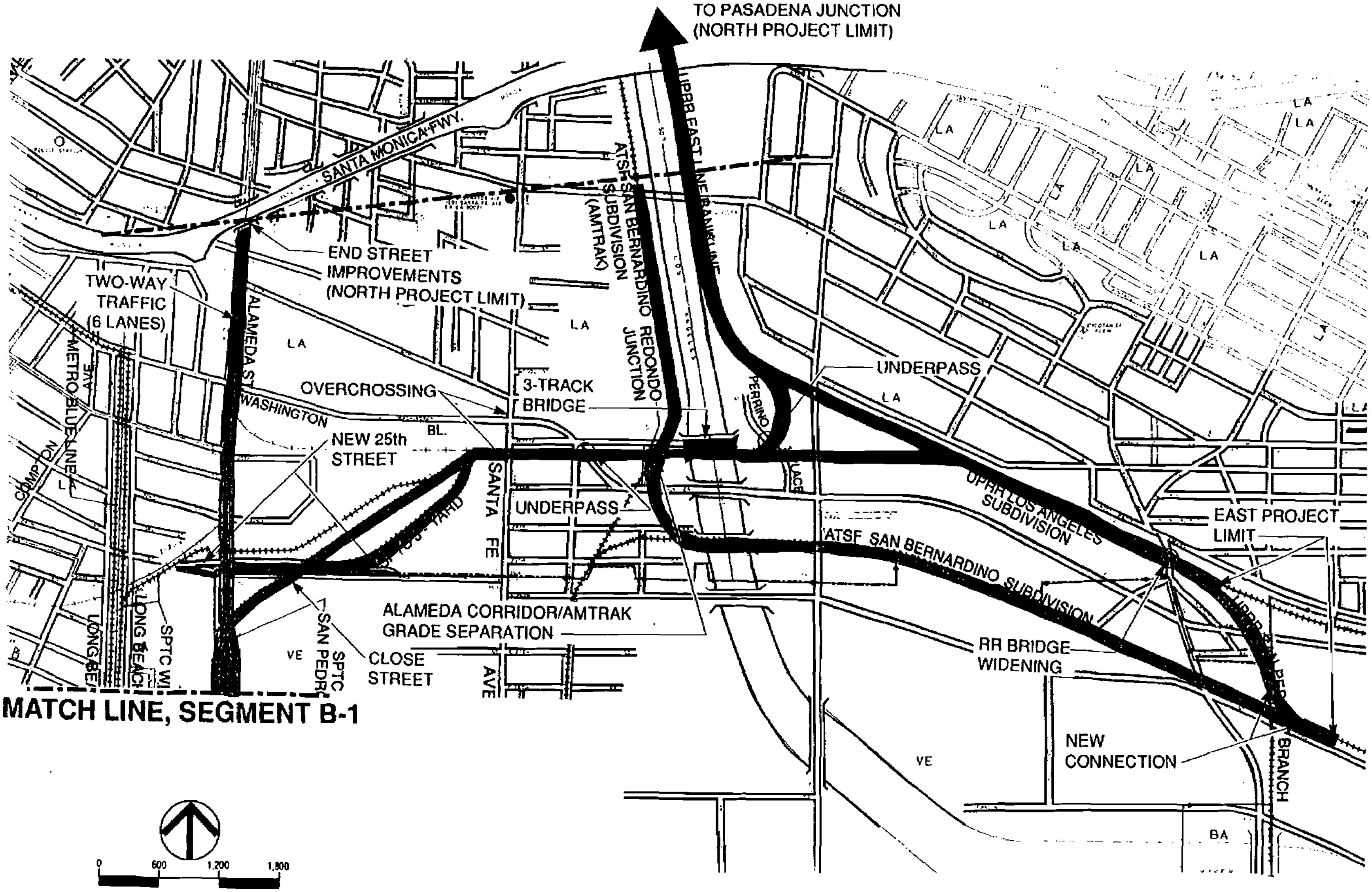
<u>Segment A</u> (See Figure 3-8)

The improvements in this segment would consist of trainway legs extending to the north and east from the corridor and roadway improvements from I-10 to 25th Street.

Beginning at the project's northern terminus at Pasadena Junction, the north leg of the trainway would proceed south along improved tracks that follow the existing UP East Bank Line. North of Washington Boulevard, the tracks would make a turn to the west and cross the Los Angeles River on a new three-track bridge.

At Redondo Junction, a grade separation would be provided between the corridor tracks (located at grade) and the AT&SF main line tracks, which carry Amtrak service (relocated on an overhead structure). The corridor tracks would proceed west beyond Redondo Junction, crossing Washington Boulevard. Washington Boulevard would pass beneath the corridor tracks on a newly-constructed underpass. Continuing west, the corridor tracks would cross beneath Santa Fe Avenue, which would be reconstructed as a new overpass.

Beyond Santa Fe Avenue the corridor tracks would turn to the southwest into the "J" Yard and proceed southwest to 25th Street. 25th Street would be reconstructed on a new alignment north of existing 25th Street, and it would pass beneath the corridor tracks in an underpass. Existing 25th Street would be closed on the east and west sides of the trainway. The corridor tracks would continue southwesterly, passing over the northbound side of Alameda Street, which would pass beneath as an underpass. The corridor tracks would then curve to the south to meet the corridor in the center of Alameda Street.



SOURCE: Myra L. Frank & Assoc.

FIGURE	SEGMENT A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY
Fig. No. 3-8	Alternative 1.0	

The east leg of the trainway in this segment would leave the corridor on the east side of the Los Angeles River and proceed east along the UP Main line. At Soto Street, a new two-track bridge would be provided. Just beyond Grande Vista Avenue, which would receive an addition to the existing railroad bridge overcrossing, the tracks would split. One leg would continue east to meet the UP main tracks in East L.A. Yard. The second leg would curve to the southeast, crossing over Washington Boulevard on an expanded railroad bridge, and enter Hobart Yard. In Hobart Yard, connection to eastbound AT&SF main line tracks would be provided as well as a connection to the southbound UP San Pedro Branch.

Roadway improvements in this segment would consist of four travel lanes and median left turn pockets from I-10 south to 15th Street, and six lanes (three lanes in each direction divided by a traversable median with turn lanes) from 15th to 25th Street. South of 25th Street, the roadway would split into a one-way couplet configuration.

Segment B1 (See Figure 3-9)

Beginning south of 25th Street, where the trainway enters Alameda Street, the corridor would be configured as a six-lane one-way couplet with trainway in the center. This configuration would continue south to the vicinity of Randolph Street, where segment B2 begins.

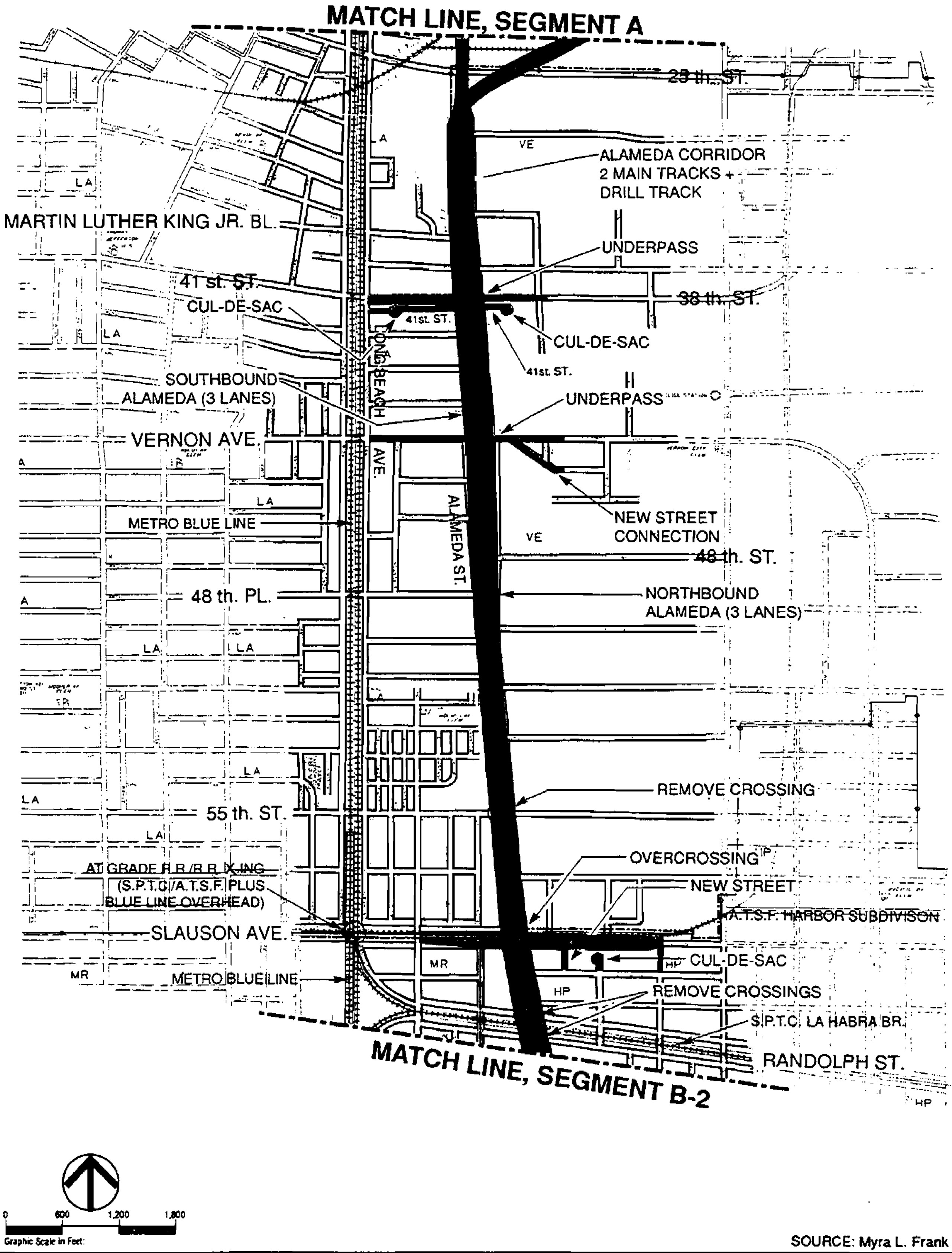
A frontage road would be provided on the east side of the corridor from a point north of Ross Street (south of the trainway/Alameda Street crossing) to 37th Street.

East-west overcrossings would be provided at 41st/38th streets (to be realigned), Vernon Avenue and Slauson Avenue. Existing 41st Street would become a cul-de-sac on both sides of Alameda Street. At Vernon Avenue, a new east side access road would be constructed from East 46th Street, and Hawthorne Avenue would be vacated. At Slauson Avenue, new street construction would take place on the east side of Alameda Street. Two new north-south street segments would be provided east and west of Regent Street, connecting Slauson Avenue with Laura Avenue. Regent Street would become a cul-de-sac north of Laura Avenue.

Segment B2 (See Figure 3-10)

From the vicinity of Randolph Street, the corridor would be configured as a six-lane one-way couplet with trainway in the center. This configuration would continue until south of Nadeau Street, where the northbound roadway would cross beneath the trainway, in a tunnel, to join the southbound roadway located on the west side. The corridor would then assume a two-way configuration of six lanes with left turn pockets and with the trainway located east of the roadway. This configuration would continue to the vicinity of Firestone Boulevard, where Segment C would begin.

East-west grade separations would be provided at Gage Avenue, Florence Avenue, Nadeau Street and Firestone Boulevard. Gage Avenue would be reconstructed along a new alignment that would be located southerly of its present alignment, joining Wilmington Avenue on the west and Albany Street on the east at their present intersections. On the west side of Alameda Street, existing Gage Avenue would be converted to a frontage road between Wilmington Avenue and Alameda Street. On the east side of Alameda Street, existing Gage Avenue would also be converted to a frontage road between Alameda Street and Albany Street. A new roadway would



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-9	SEGMENT B-1 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

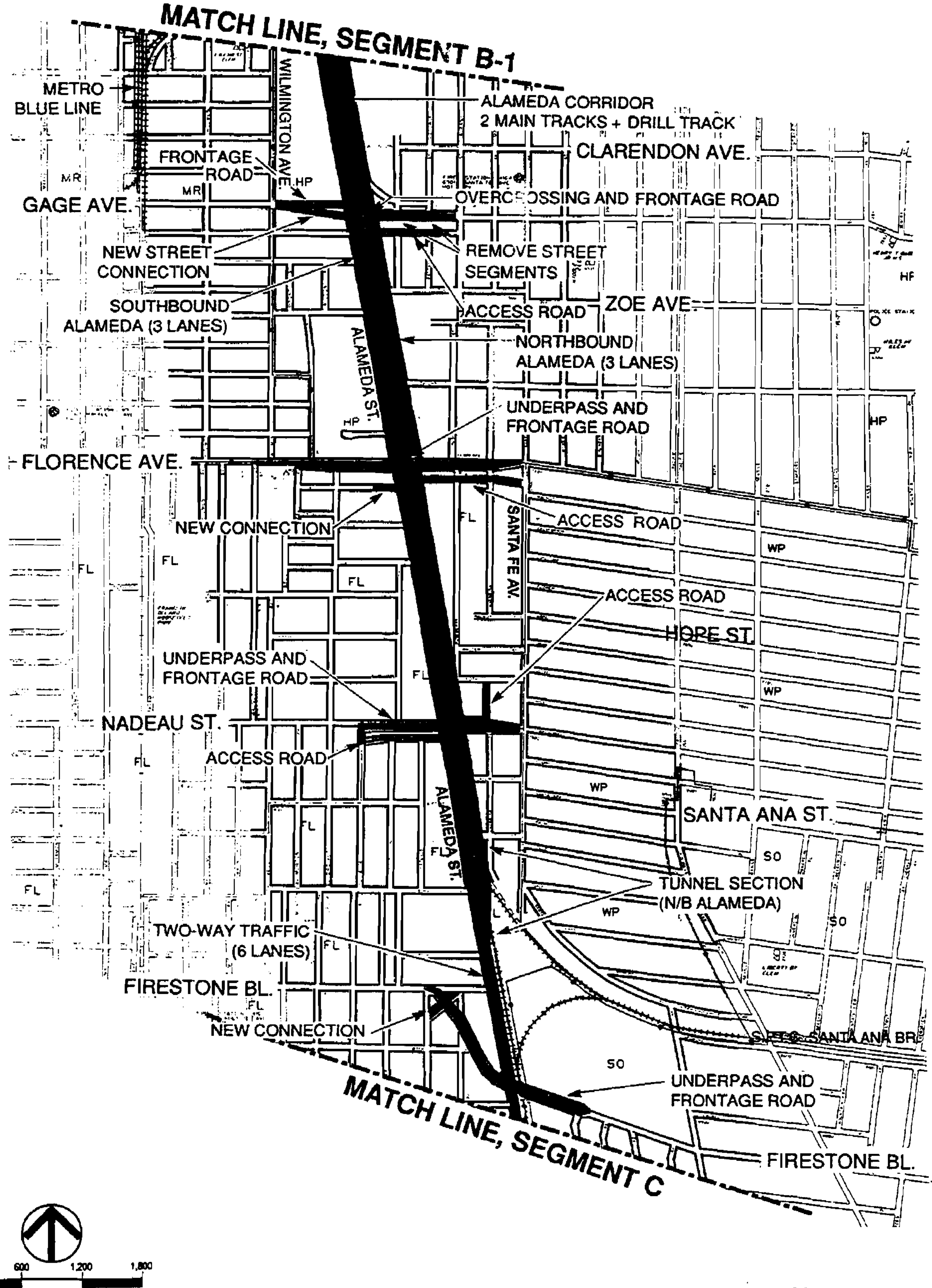


FIGURE Fig. No. 3-10	**SEGMENT B-2** Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

be constructed along the alignment of 64th Street between Alameda Street and Albany Street. Regent Street and Cottage Street would be terminated at the new access roads.

Florence Avenue would be reconstructed as an overpass along its present alignment. On the west side of Alameda Street, 73rd Street would become an access road, with a short north-south link to Florence Avenue along Bell Avenue. Crockett Boulevard would become a cul-de-sac south of Florence Avenue. On the east side of Alameda Street, a new access road would be provided, linking Alameda Street with Santa Fe Avenue. Between Alameda Street and Santa Fe, the intervening north-south streets (Albany Street, Marbrisa Avenue, Roseberry Street) would be terminated where they meet Florence Avenue or the access road.
Nadeau Street would be reconstructed as an underpass essentially along its present alignment, returning to grade at Alix Avenue on the west and west of Santa Fe Avenue on the east. On the west side of Alameda Street, a new access road would be provided, linking Alix Avenue with Alameda Street, and the intervening north-south streets (Lou Dillon Avenue, Croesus Avenue) would be terminated at either Nadeau Street or the access road. On its east side Alameda Street would be linked to the north along a new access road that would follow Nadeau Street for a short distance and then turn north to meet Leota Street. Marbrissa Avenue would be terminated on the south side of Nadeau Street.

Firestone Boulevard would be reconstructed as an underpass along its present alignment. On the west side of Alameda Street, Firestone Boulevard would return to grade at Juniper Street, and frontage roads would link Juniper Street and Manchester Avenue to Alameda Street. Ivy Street would provide a direct link to Firestone Boulevard in the eastbound direction. On the east side of Alameda Street, Firestone Boulevard would return to grade east of Calden Avenue.

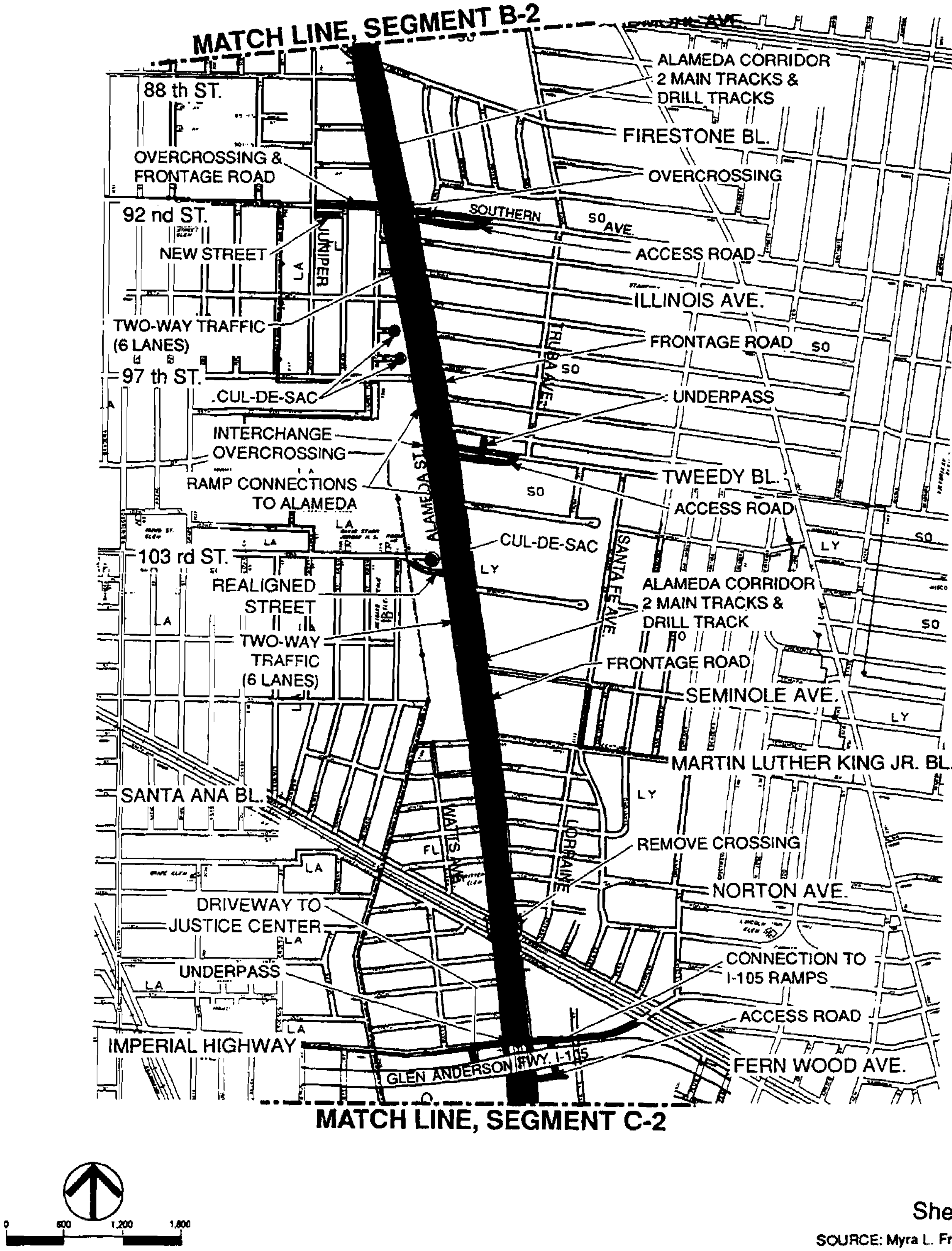
<u>Segment C</u> (See Figure 3-11)

Beginning in the vicinity of Firestone Boulevard, the corridor would be configured as a two-way roadway with left turn pockets and trainway east of the roadway. This configuration would continue until north of 97th Street, where the roadway would become a four-lane facility on an elevated structure, providing an interchange with Tweedy Boulevard. This configuration would change back to six at grade lanes north of Seminole Avenue. The six-lane roadway would continue until Palmer Street, where it would change again to a overhead structure, providing an interchange with Compton Boulevard. In the vicinity of Myrrh Street, the structure would return to grade.

In the vicinity of Alondra Boulevard, the roadway would be configured as a six-lane two-way facility with left turn pockets. This configuration would continue until the vicinity of SR-91, where Segment D would begin.

In addition to the six-lane roadway, a frontage road would also be provided on the east side of the trainway throughout Segment C. The frontage road would begin at Firestone Boulevard and continue until SR-91.

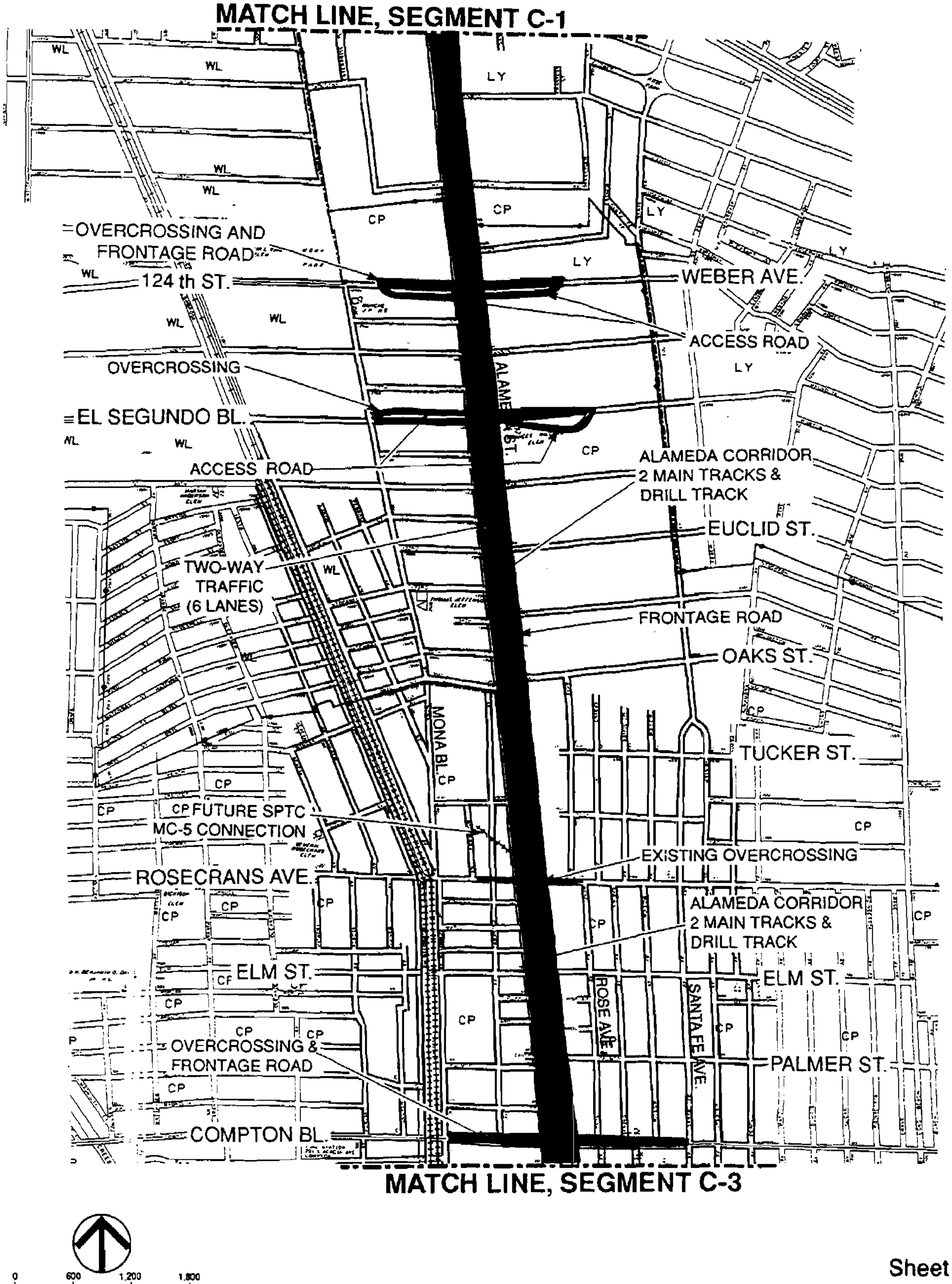
Grade separation structures would be provided at 92nd Street/Southern Avenue, Tweedy Boulevard, Imperial Highway, Weber Avenue, El Segundo Boulevard, Rosecrans Avenue (by others), Compton Boulevard, Alondra Boulevard, and Greenleaf Boulevard.



Sheet 1 of 3

SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-11	SEGMENT C-1 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



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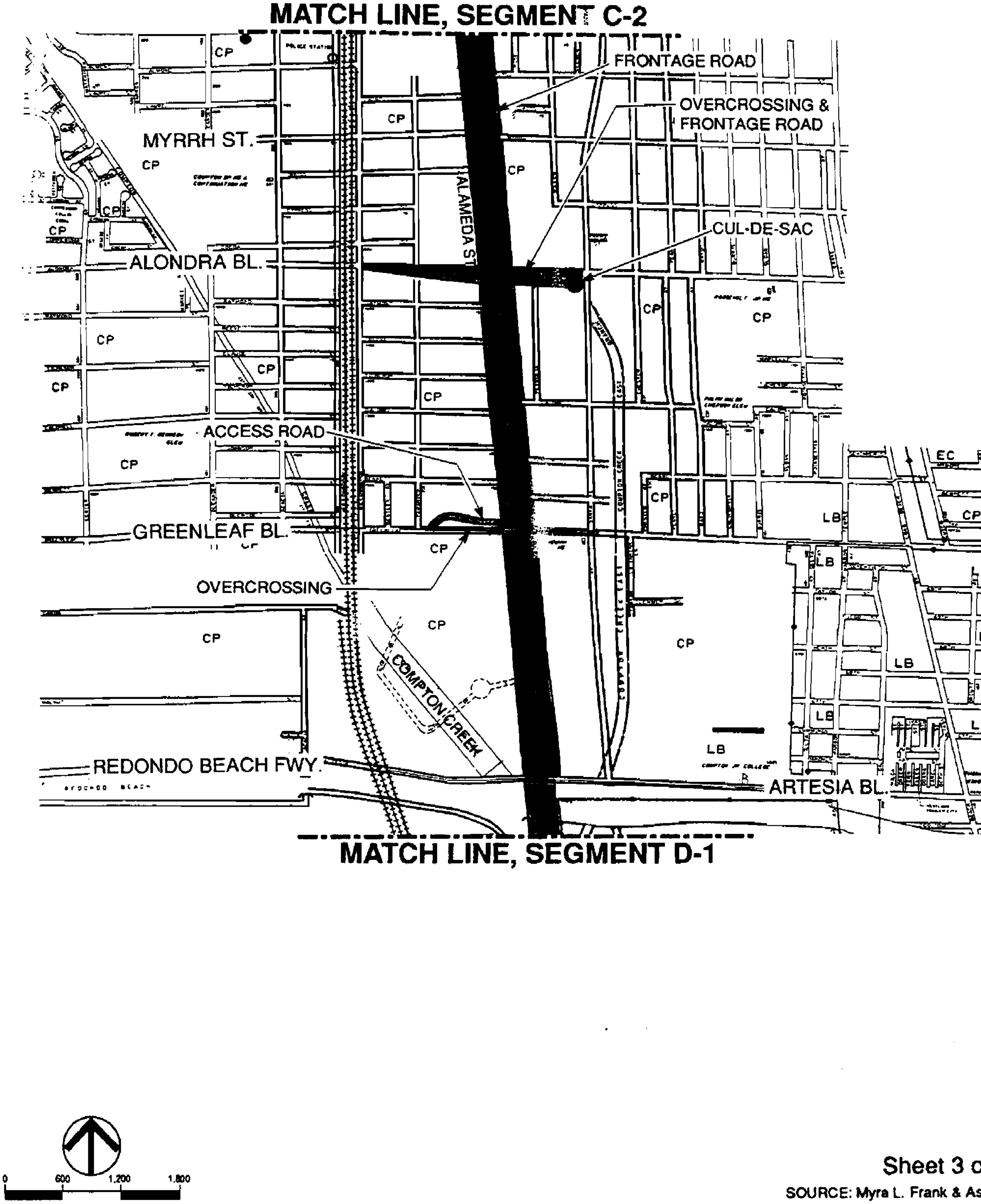
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-11	SEGMENT C-2 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Sheet 3 of 3

SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-11	SEGMENT C-3 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

At 92nd Street/Southern Avenue, an overcrossing would be provided, generally following the present alignment of 92nd Street and Southern Avenue. On the west side of Alameda Street, Juniper and Kalmia streets would be terminated on the south side of the overcrossing and connected to one another by a new east-west roadway segment. On the east side of Alameda Street, a new access road would be constructed, connecting with Calden Avenue and Southern Avenue in the vicinity of Beaudine Avenue.

Tweedy Boulevard connects with Alameda Street from the east only. Both Tweedy Boulevard and Alameda Street would be reconstructed to provide an interchange above grade on a new structure that would leave grade on the east side of Alameda Street at Truba Avenue. A new north-south roadway would be provided just east of Alameda Street to link Tweedy Boulevard with Nebraska Avenue. A new access road would be constructed on the south side of Tweedy Boulevard, as well.

At Imperial Highway, the Alameda Corridor, I-105 and the surrounding street system all come together. Imperial Highway would be reconstructed as an underpass along an alignment to the north of I-105, returning to grade on the west side of Alameda Street at Watts Avenue. Also at Watts Avenue, a driveway would be provided as a direct connection to the L.A. County Justice Center being constructed on the south side. 115th Place would function as an access road to southbound Alameda Street. On the east side of Alameda Street, the Imperial Highway underpass would return to grade between Alameda Street and Santa Ana Boulevard. At this point, a short segment of roadway would also be provided in a north-south direction, connecting Imperial with an access road that also would accept a future eastbound off ramp of I-105.

Weber Avenue would be reconstructed along its present alignment as an overcrossing that would return to grade before Mona Boulevard on the west and Santa Fe Avenue on the east. Access roads to Alameda Street would be provided on both its east and west sides, south of the overcrossing.

El Segundo Boulevard would be reconstructed as an overcrossing along an alignment northerly of its present alignment, returning to grade before Mona Boulevard on the west and Santa Fe Avenue on the east. The present alignment of El Segundo would provide access road connections to Alameda Street and the nearest streets on either side of Alameda Street.

Rosecrans Avenue has been opened as an overcrossing by the LACTC as part of the Blue Line project. The Alameda Corridor project would not result in alterations to this structure.

Compton Boulevard rail crossing would be reconstructed as an overcrossing, returning to grade before Willowbrook Avenue on the west and Santa Fe Avenue on the east. Compton Boulevard would interchange with northbound Alameda Street on an overhead structure. Adjacent frontage roads would be provided on the north and south sides of the overcrossing structure, and the local streets on either side of Alameda Street (Tamarind Avenue, Park Avenue, Rose Avenue, Spring Avenue, Willow Avenue) would have "T" intersections with Compton Boulevard.

Alondra Boulevard would be reconstructed as an underpass along its present alignment, returning to grade before Tamarind Avenue on the west and Santa Fe Avenue on the east. Frontage roads would be provided on the north and south sides of the structure. On the east side, the south side frontage road would terminate in a cul-de-sac before reaching Santa Fe Avenue.

Greenleaf Boulevard would be reconstructed along its present alignment as an overcrossing, returning to grade before Tamarind Avenue on the west and after Chester Avenue on the east. Frontage roads are not provided as part of this configuration. On the west side of Alameda Street, a new access road would be provided north of the overcrossing. On the east side of Alameda Street, Santa Fe Avenue would pass beneath the overcrossing structure. Chester Avenue would join Greenleaf in "T" intersections on both the north and south sides.

<u>Segment D</u> (See Figure 3-12)

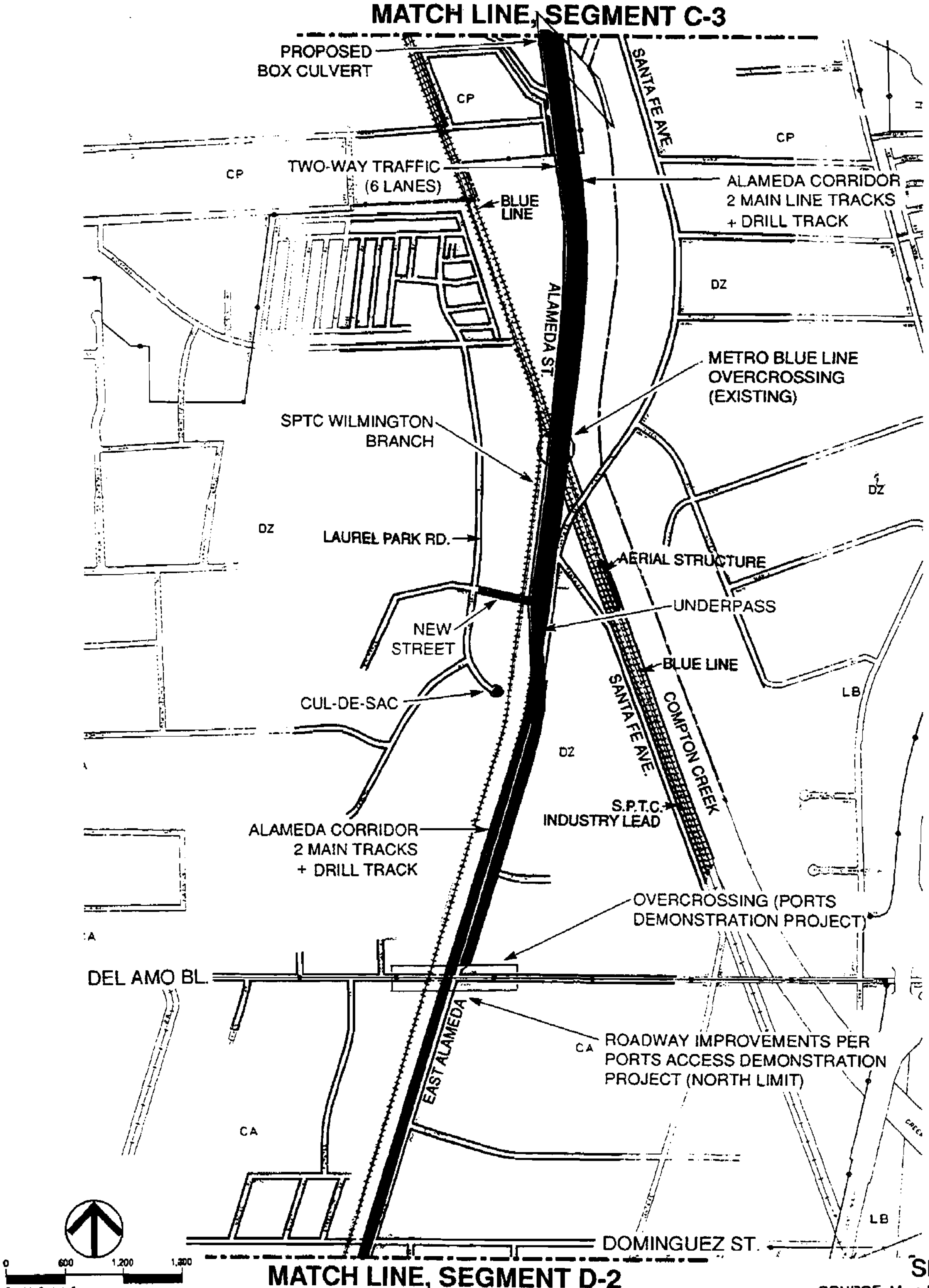
Segment D contains the Ports Demonstration Projects which were discussed briefly in Chapter 1 and described in detail in Section 3.8. These improvements would be augmented slightly by the Alameda Corridor project to include additional grade separations and access roads. The improvements described below for Segment D would remain the same for all Alameda Corridor alternatives.

Beginning in the vicinity of SR-91, the corridor would be configured as a two-way roadway with continuous median and a trainway to the east side of the roadway. This configuration would continue to just south of the Metro Blue Line overpass, in the vicinity of Santa Fe Avenue. In this vicinity, both the northbound and southbound portions of the corridor roadway would pass beneath the ACTA trainway in an underpass. Three lanes of southbound Santa Fe Avenue join the corridor at this point, tapering to two lanes. By the time Del Amo Boulevard is reached, the southbound configuration is again three lanes. North of Del Amo Boulevard, existing Laurel Park Road would become a cul-de-sac at its southern end and a new road would be constructed at a point just to the north, permitting access from Alameda Street.

South of Del Amo Boulevard, the Ports Demonstration Access projects would continue, which provide for a six-lane roadway with left turn pockets, located to the east of the trainway. This configuration would continue to Carson Street, where the trainway would make a turn to the west to enter the Dolores Yard area, within which the corridor trackage would be located on the westernmost tracks in that yard.

Leaving the Dolores Yard area, the corridor tracks would curve back to assume an alignment following Alameda Street, crossing beneath I-405 and Wardlow Road. The corridor tracks continue in this manner, crossing the Dominguez Channel on bridge structures that would be expanded by the project. South of Lomita Boulevard, the tracks would swing wide to the west and make a curve to the southeast, to assume an alignment along the AT&SF Harbor Subdivision. The tracks are at grade, and Alameda Street passes beneath as a underpass.

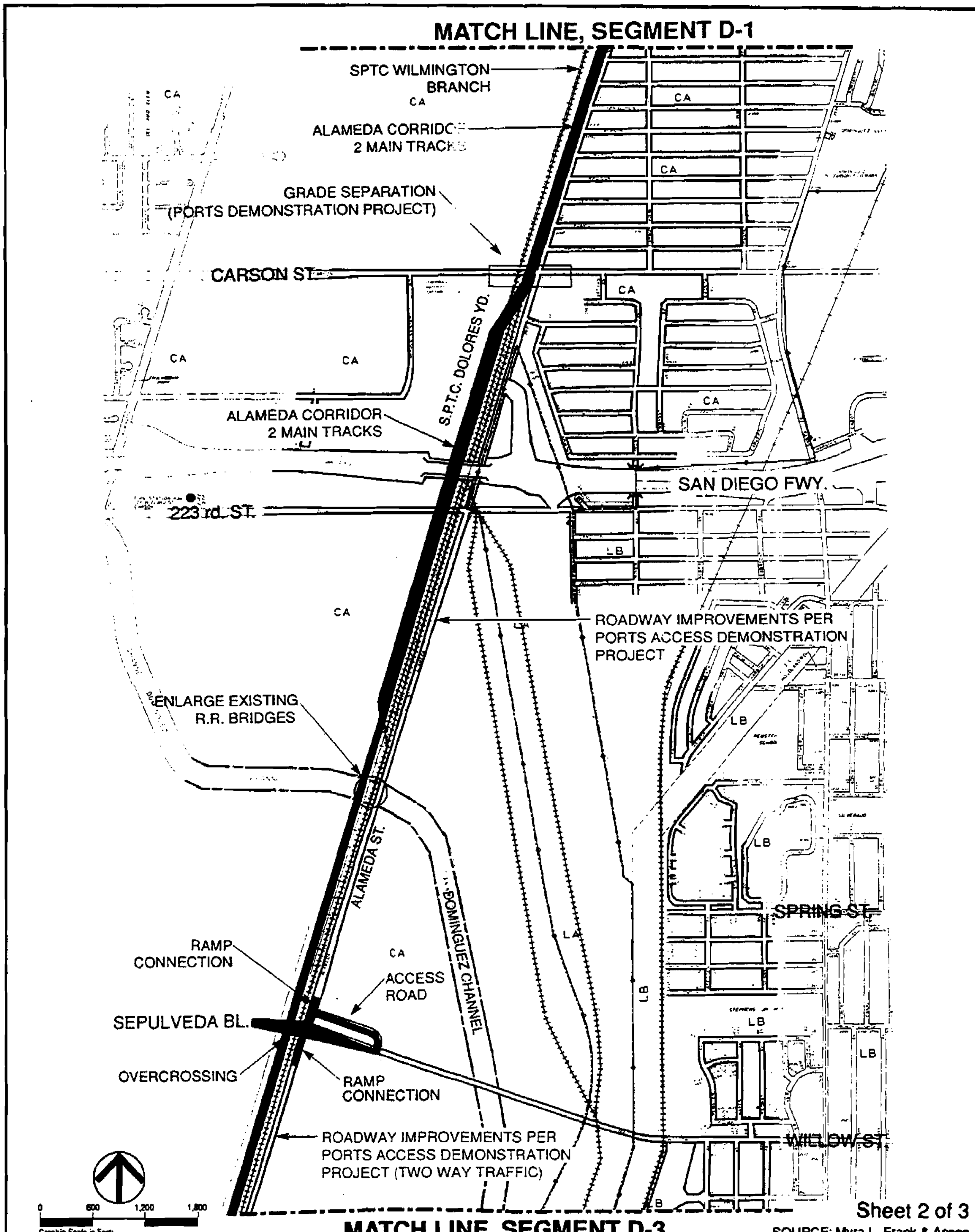
From the point at which the tracks cross Alameda Street, they would continue on an alignment that would leave Alameda Street and proceed in a southeasterly direction. Also from this point, the roadway improvements would continue along Alameda Street to Henry Ford Avenue. Continuing south along Henry Ford Avenue, the roadway configuration would be six lanes with left turn pockets. This configuration would continue south until SR-103/47, where the grade separation/interchange would be reconstructed. This would end the roadway improvements in Segment D.



Sheet 1 of 3

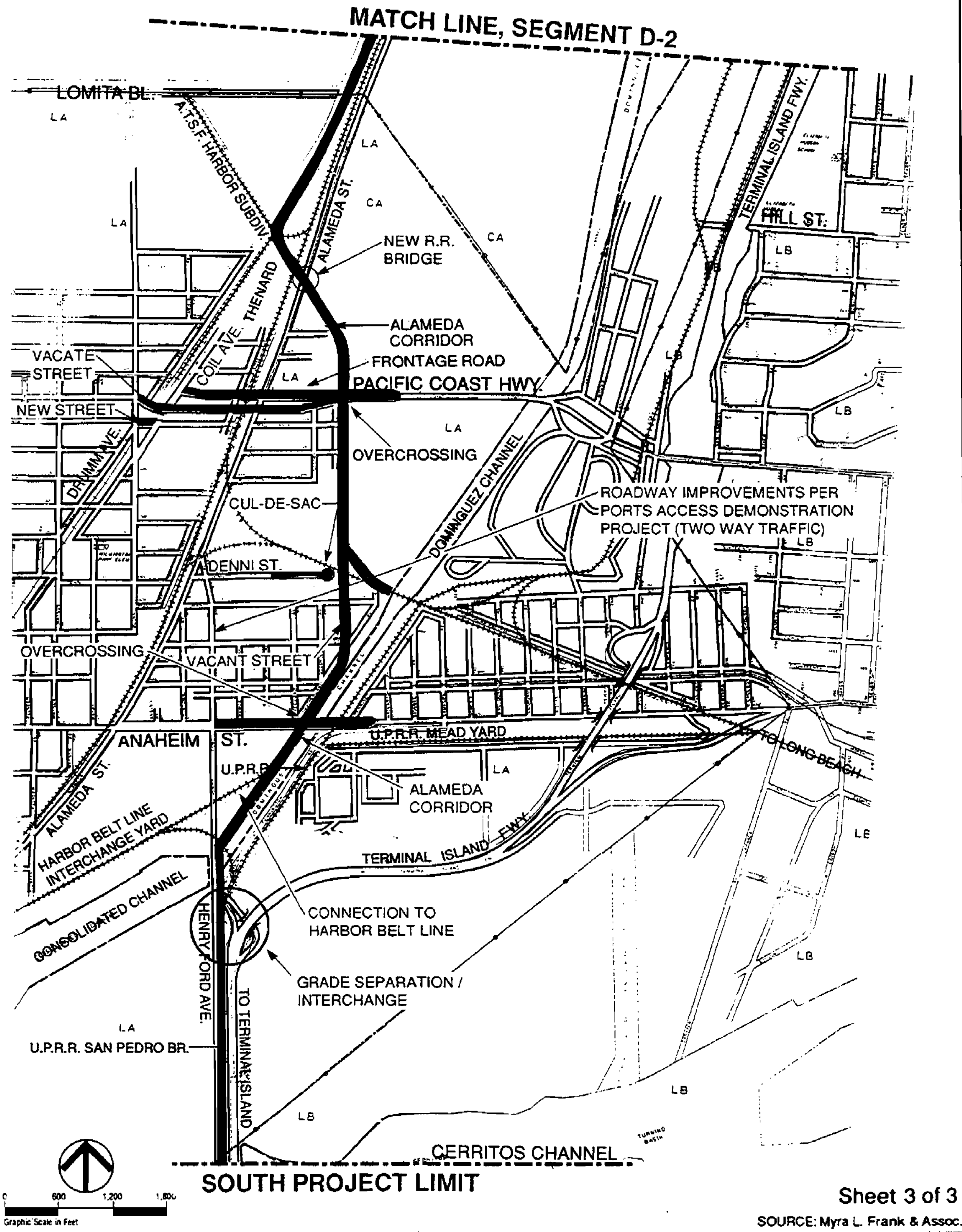
SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-12	SEGMENT D-1 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



SOURCE: Myra L. Frank & Assoc.

FIGURE	SEGMENT D-2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY
Fig. No. 3-12	Alternative 1.0	



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SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-12	SEGMENT D-3 Alternative 1.0	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Grade separation structures would be provided at Sepulveda Boulevard, and SR-1. Sepulveda Boulevard would be reconstructed as an overcrossing along its present alignment. On/off ramps would be provided for southbound traffic on Alameda Street to execute a turn to eastbound or westbound Sepulveda Boulevard, and permitting westbound traffic on Sepulveda Boulevard to execute a left turn to southbound Alameda Street. On the west side of Alameda Street, no access other than the overcrossing structure would be provided. On the east side of Alameda Street, a new access road would be constructed to the north of Sepulveda Boulevard.

SR-1 would be reconstructed as an overcrossing, returning to grade on the west side of Alameda Street at Drumm Avenue and on the east side of Alameda Street beyond the AT&SF tracks to the east of Alameda Street. On the west side of Alameda Street, a combination access/frontage road would be constructed north of PCH, joining with Coil Avenue. A portion of Coil would be vacated between PCH and the frontage road. On the south side of PCH, existing Mauretania Avenue would be continued to connect with Blinn Avenue. On the east side of Alameda Street, the frontage road to the north of PCH would be continued until Leeds Avenue, just west of the AT&SF tracks.

At Anaheim Street, the existing bridge crossing over the Dominguez Channel east of Alameda Street would be reconstructed. The improvement would widen the bridge to provide six lanes of traffic and raise the soffitt to provide 26.5 feet of clearance.

After the corridor tracks leave Alameda Street to the southeast, they would continue along the AT&SF Harbor Subdivision, turning south and passing beneath Anaheim Street. At approximately Denni Street, the SP Long Beach Branch tracks would join the corridor, permitting southeast movement to and from the Port of Long Beach. The corridor tracks would continue south along the AT&SF alignment, following the alignment of present Leeds Avenue (which would be vacated), to reach the west bank of the Dominguez Channel, at which point the tracks would follow the alignment of the channel. In the vicinity of the Henry Ford/SR-103/47 interchange, the tracks would turn to the south to approach Terminal Island. The trainway portion of the project would end at the north side of the Badger Avenue Bridge over the Cerritos Channel.

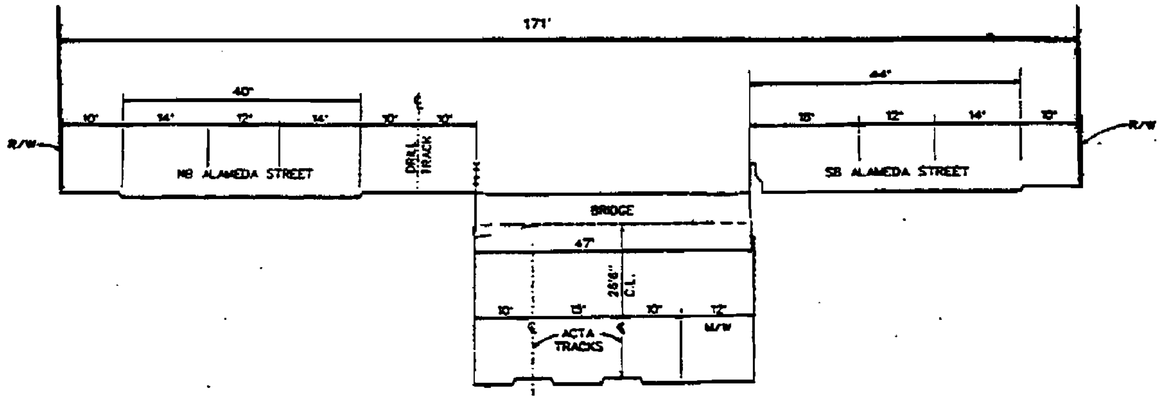
3.3 ALTERNATIVE 2.1A

Alternative 2.1A is the second of four build alternatives to be considered for the Alameda Corridor. It is the first of three alternatives calling for a depressed trainway configuration. The alternative would consist of a depressed trainway providing for two main line consolidated freight rail tracks, together with an at-grade drill track to provide for local industrial service. Accompanying the depressed trainway would be a six-lane roadway facility, configured as a one-way couplet of three lanes in each direction. Grade separations would be provided for at grade, with bridges crossing over the trainway.

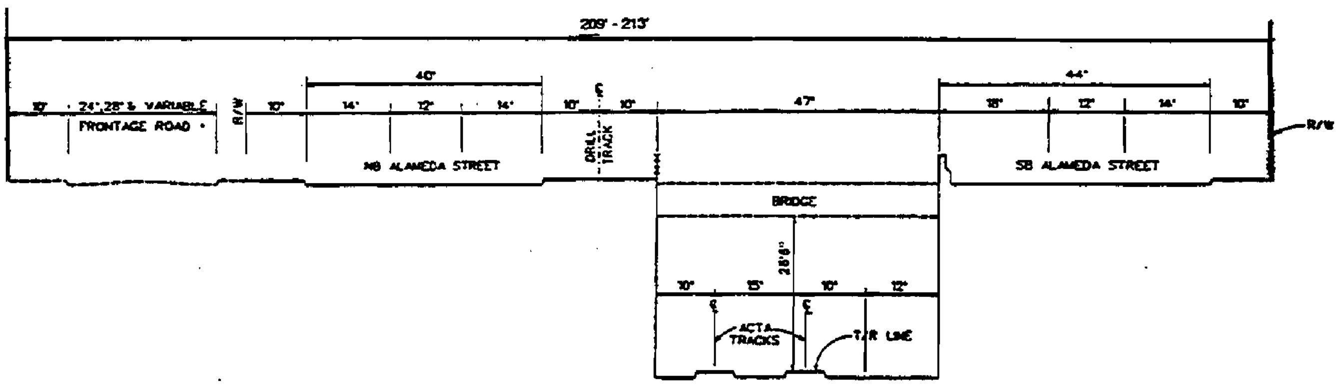
3.3.1 Typical Sections

Figure 3-13 illustrates the typical cross sections that would be used in this alternative.

When the corridor configuration alternatives were initially being developed, the depressed trainway was defined as a cross section having a trench to carry the trainway, together with at-



Depressed Trainway



Depressed Trainway With Frontage Road

Source: DMJM/M&N, 1992

FIGURE 3-13	**Alternative 2.1A - Typical Sections**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

grade roadways and an at-grade drill track. One important desire was to reduce right-of-way takings as much as possible, and in order to pursue this, the cross section was defined to incorporate a partial overhang of both the roadway and drill track over the trench, by 10 feet on either side. This reduced the overall right-of-way width by 20 feet, and was referred to as Alternative 2.1. During subsequent stages of project development, it became clear that the additional cost required to provide the overhanging portion was extremely high; so much so that it was decided to drop this from further consideration. The resulting cross section, known as Alternative 2.1A, would not have overhangs, but, rather, would provide vertical retaining walls on either side of the trainway. Alternative 2.1A was subsequently recommended for inclusion in the environmental document.

Alternative 2.1A has two typical sections. In the first, a depressed trainway of 47 feet in width and approximately 32 feet in depth (26 feet, 6 inches vertical clearance to the soffitt of all overhead structures) is flanked by two at-grade one-way roadway sections, and an at-grade drill track. The depressed trainway would contain two main line tracks (at 15 feet on center) and a 12-foot-wide maintenance-of-way road. Between the main line tracks and the road would be a distance of 10 feet, and between the other main line track and the retaining wall would also be 10 feet. The typical roadway sections would include three travel lanes in each direction and a 10-foot-wide sidewalk. On one side, also at grade, would be a 20-foot-wide area in which the drill track would be located. The total right-of-way needed for this cross section would be 171 feet.

The second depressed trainway section would be configured essentially as the first, with the exception that it would also provide for a frontage road varying in width between 24 and 28 feet, separated from the main roadway by four feet. The total right-of-way needed for this section would be 209-213 feet.

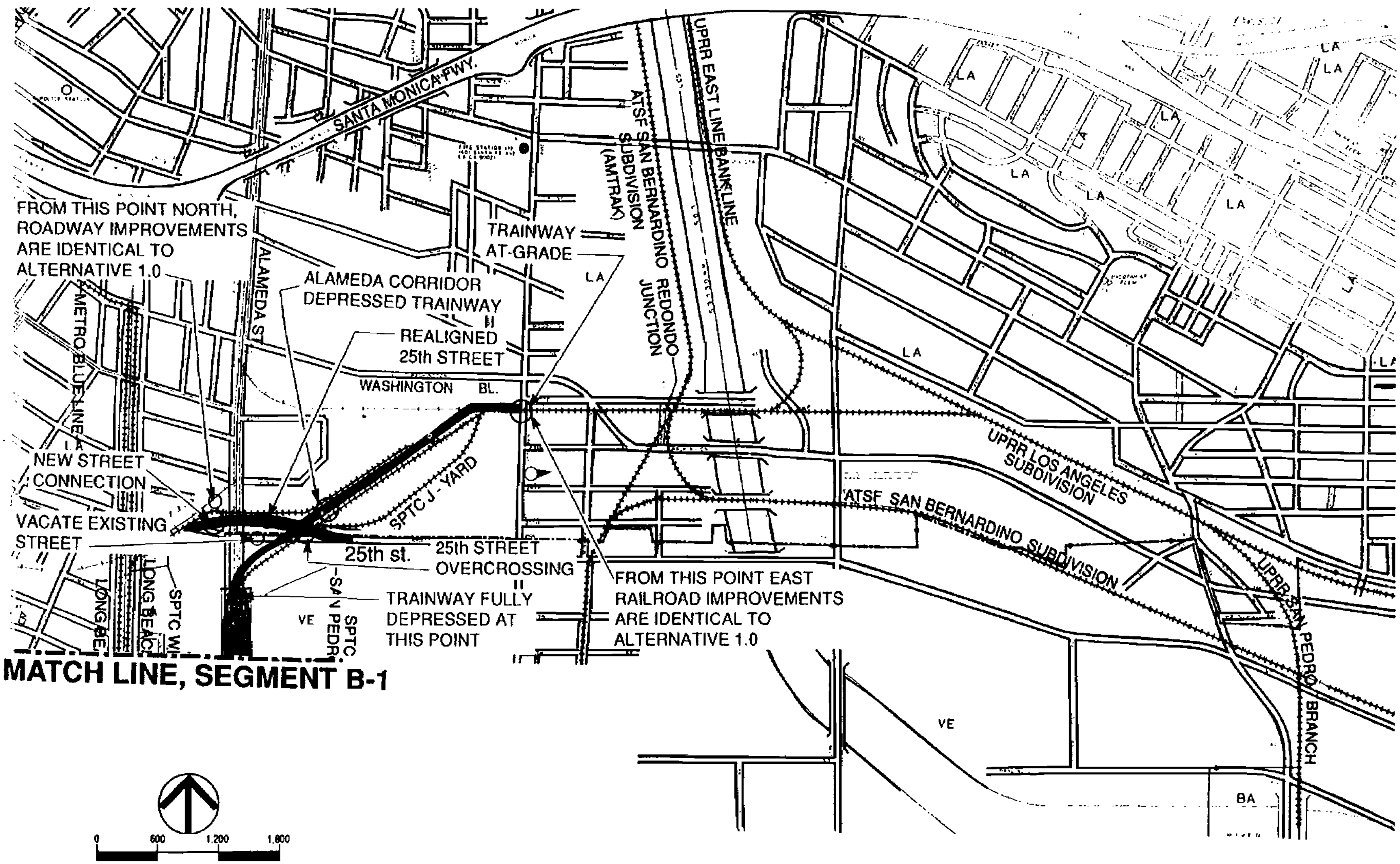
3.3.2 Corridor Configuration

<u>Segment A</u> (See Figure 3-14)

Segment A would contain essentially the same north and east railroad legs as Alternative 1.0, and it would contain the same roadway improvements along Alameda Street to I-10. The differences in this segment that pertain to this alternative are as follows.

Beginning at Santa Fe Avenue, at the north end of "J" Yard, the trainway would begin a descent to the southwest at a one percent slope, reaching its final below grade elevation between realigned 25th Street and Alameda Street. Curving to the south along a six degree curve, the trainway would then pass beneath the northbound lanes of Alameda Street to assume a southbound trainway alignment in the center of Alameda Street.

In all other respects, the remainder of the proposed improvements in this segment are the same as under Alternative 1.0.



FIGURE

Fig. No. 3-14

SEGMENT A

Alternative 2.1A

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Segment B1 (See Figure 3-15)

Beginning south of 25th Street, the corridor would be configured as a depressed trainway in the center of Alameda Street, flanked by three lanes of one-way traffic on either side. The traffic lanes would be located at grade, as would the railroad drill track. This configuration would be maintained throughout this segment.

Crossings over the trainway and left turn movements would be provided for on at-grade bridge structures at the following locations: 38th Street, Vernon Avenue, Slauson Avenue and Randolph Street. All other east-west streets would be configured as "T" intersections with Alameda Street.

Segment B2 (See Figure 3-16)

Beginning in the vicinity of Randolph Street, the corridor would be configured as it is in the previous segment. At Randolph Street, the existing SP La Habra Branch would cross over the depressed trainway in an east-west direction along the center of Randolph Street, on a proposed one track bridge.

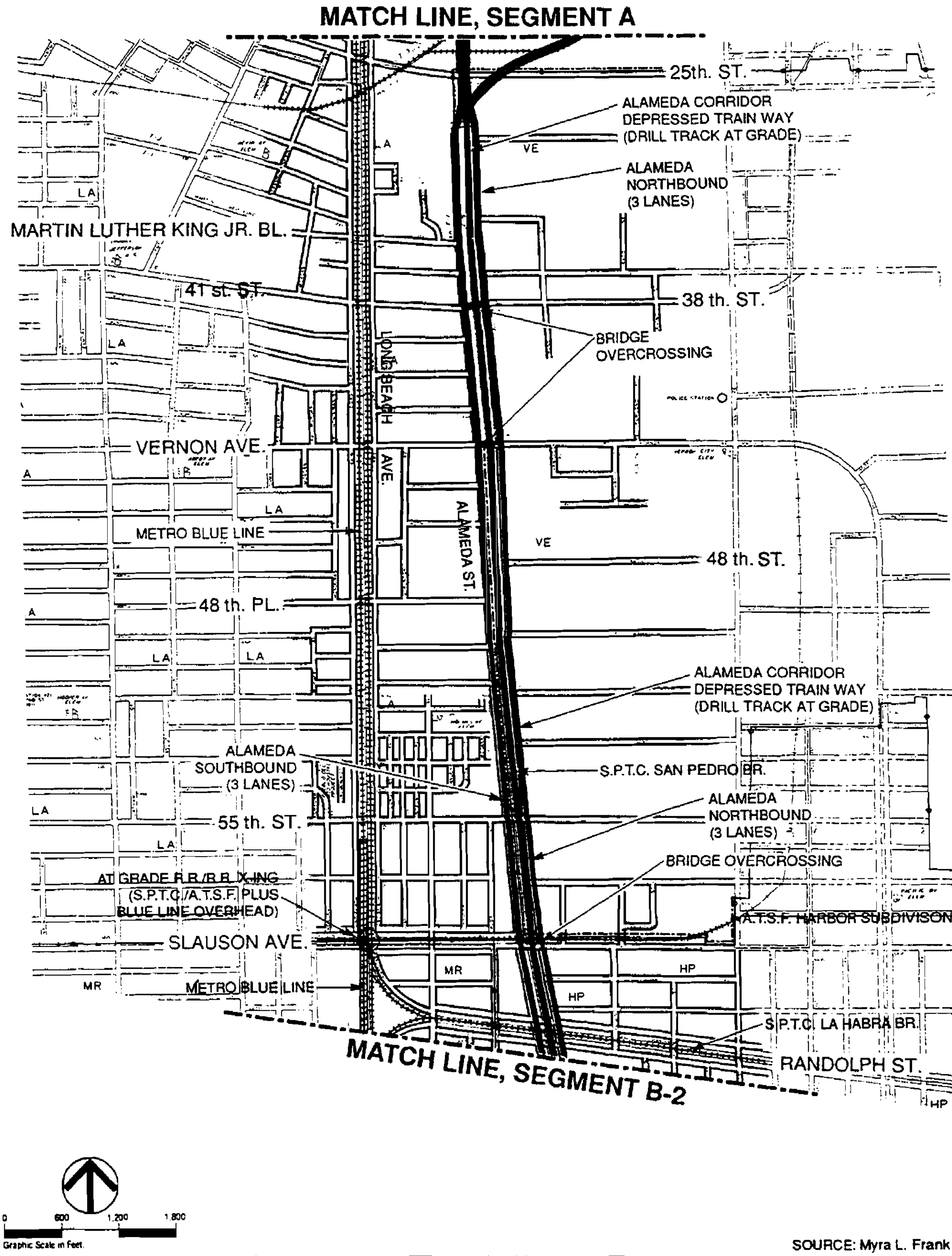
Crossings over the trainway and dual left turn movements would be provided for an at-grade bridge structures at the following locations: Gage Avenue, Florence Avenue, Nadeau Street and Firestone Boulevard. All other east-west streets would be configured as "T" intersections with Alameda Street.

Segment C (See Figure 3-17)

Beginning in the vicinity of Firestone Boulevard, the corridor would be configured as it is in the previous segment. At Southern Avenue, a one-lane northbound frontage road would also be provided on the east side of Alameda Street. This configuration would continue until Tweedy Boulevard. Beginning at Tweedy Boulevard, the frontage road would provide for two lanes of traffic in opposite directions. This configuration would continue until Martin Luther King Boulevard. At Martin Luther King Boulevard, the frontage road would return to its previous one lane configuration, continuing south until I-105. South of I-105, a one lane frontage road again would begin, extending to Butler Avenue, where it would stop.

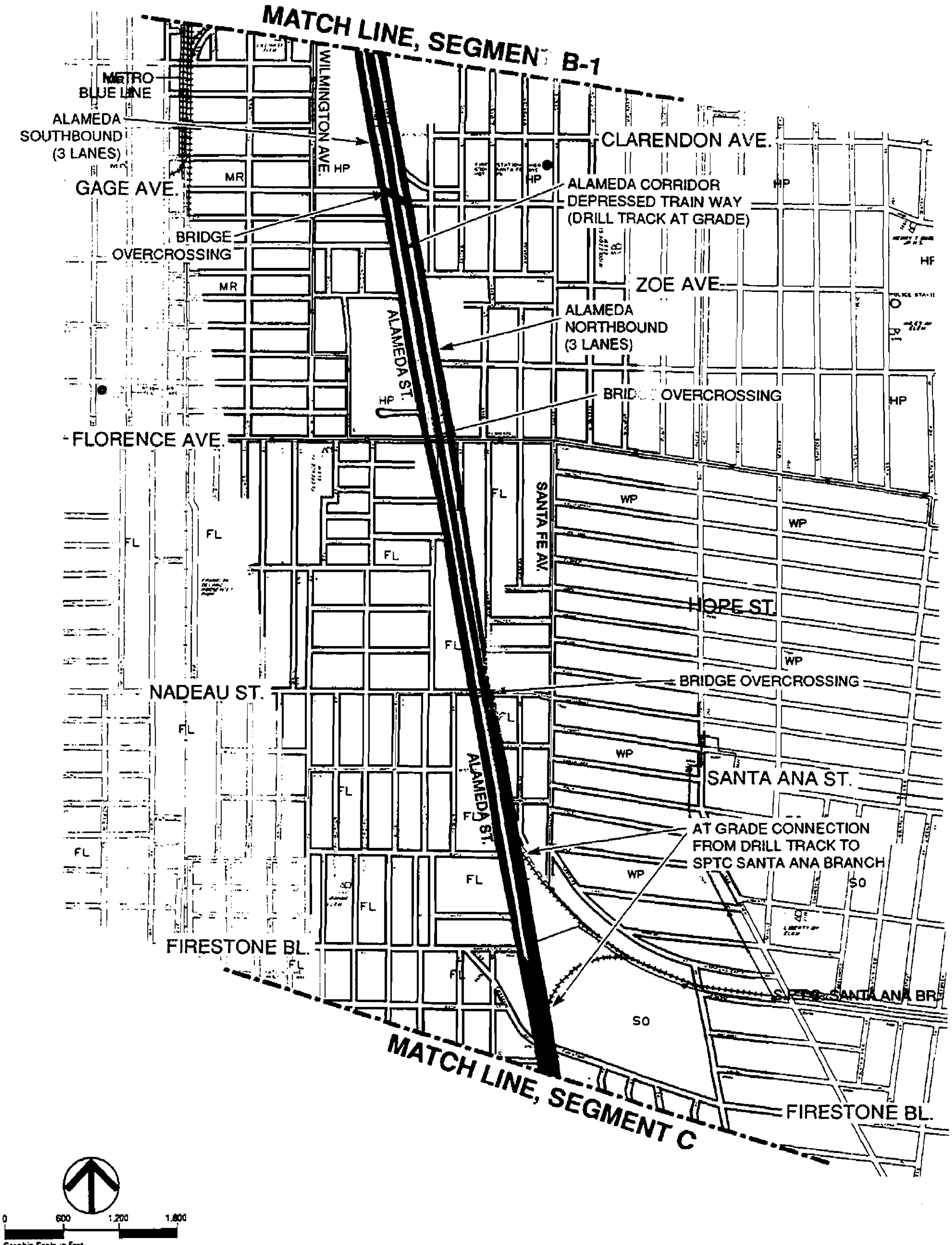
From a point north of Carlin Street to a point north of Oaks Street, the northbound side of Alameda Street would provide for two lanes of traffic, rather than three. This is required in order to permit lane space to be used for access to and from the railroad maintenance-of-way road in the depressed trainway. The exit from the maintenance road is by means of a ramp leading onto Alameda Street in the vicinity of Oaks Street, and the entrance ramp is located farther south, in the vicinity of Mealy Street.

South of Compton Avenue, in the vicinity of Laurel Street, the corridor's vehicular facilities would transition from a one-way couplet to a two-way roadway on the west side of the trainway. This is accomplished by means of a bridge structure that would cross the trainway at an oblique angle. South of this transition, two-way traffic is provided for in six lanes on the west side of the trainway, and a two-lane frontage road would continue on the east side of the trainway. This configuration would continue south to SR-91, where Segment C ends.



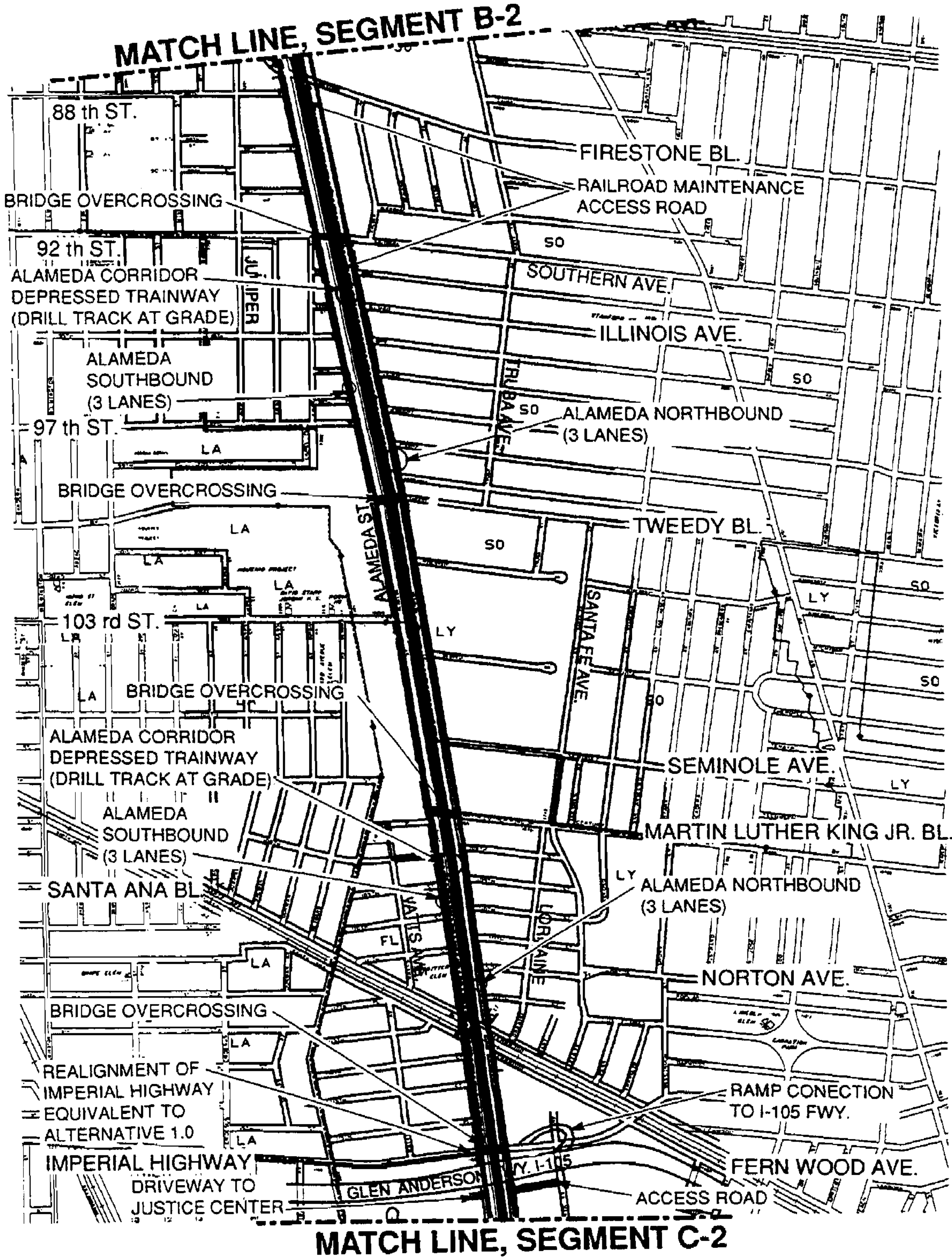
SOURCE: Myra L. Frank & Assoc.

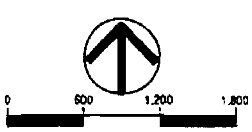
FIGURE Fig. No. 3-15	**SEGMENT B-1** Alternative 2.1A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



SOURCE: Myra L. Frank & Assoc.

FIGURE	SEGMENT B-2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY
Fig. No. 3-16	Alternative 2.1A	

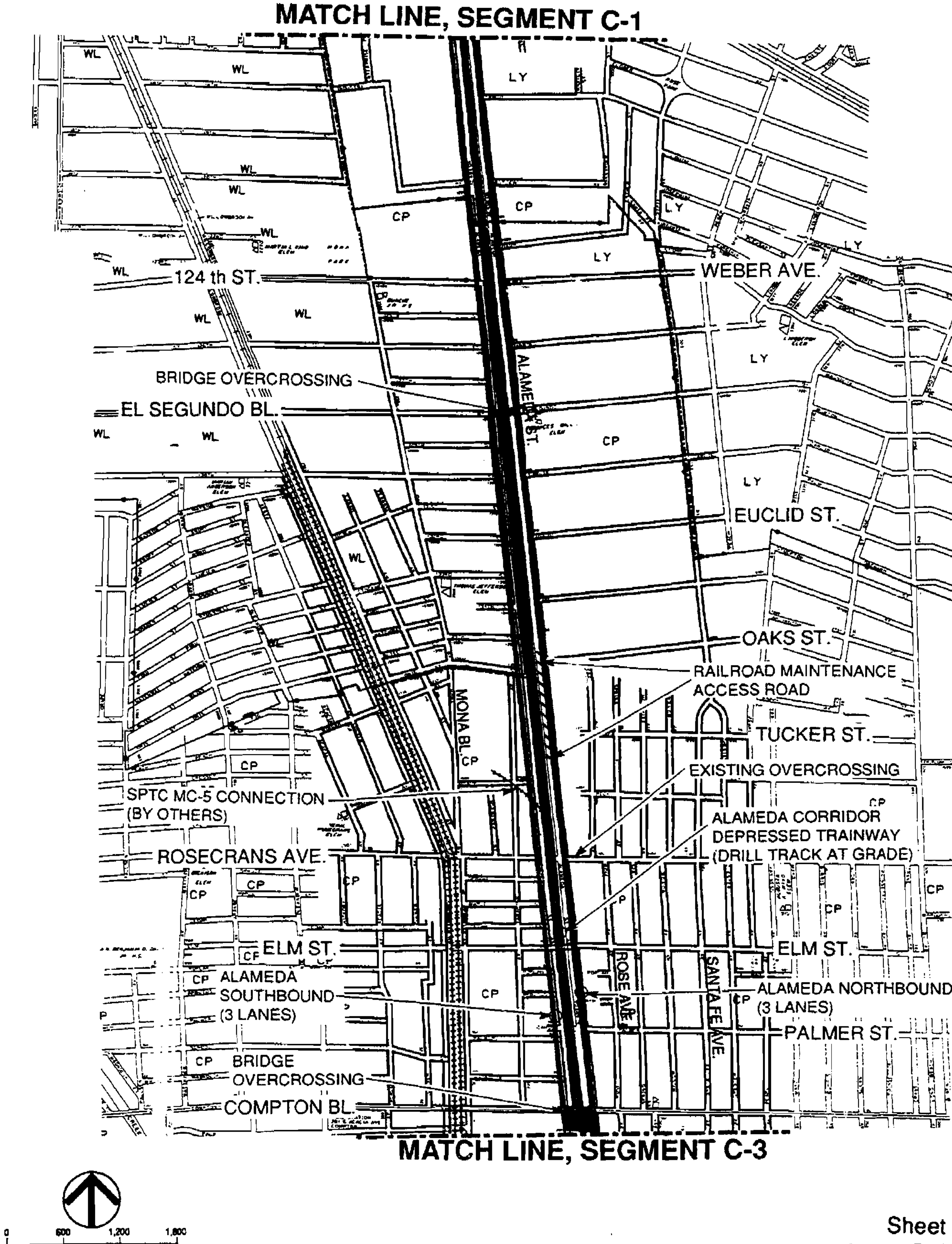




Sheet 1 of 3

SOURCE: Myra L. Frank & Assoc.

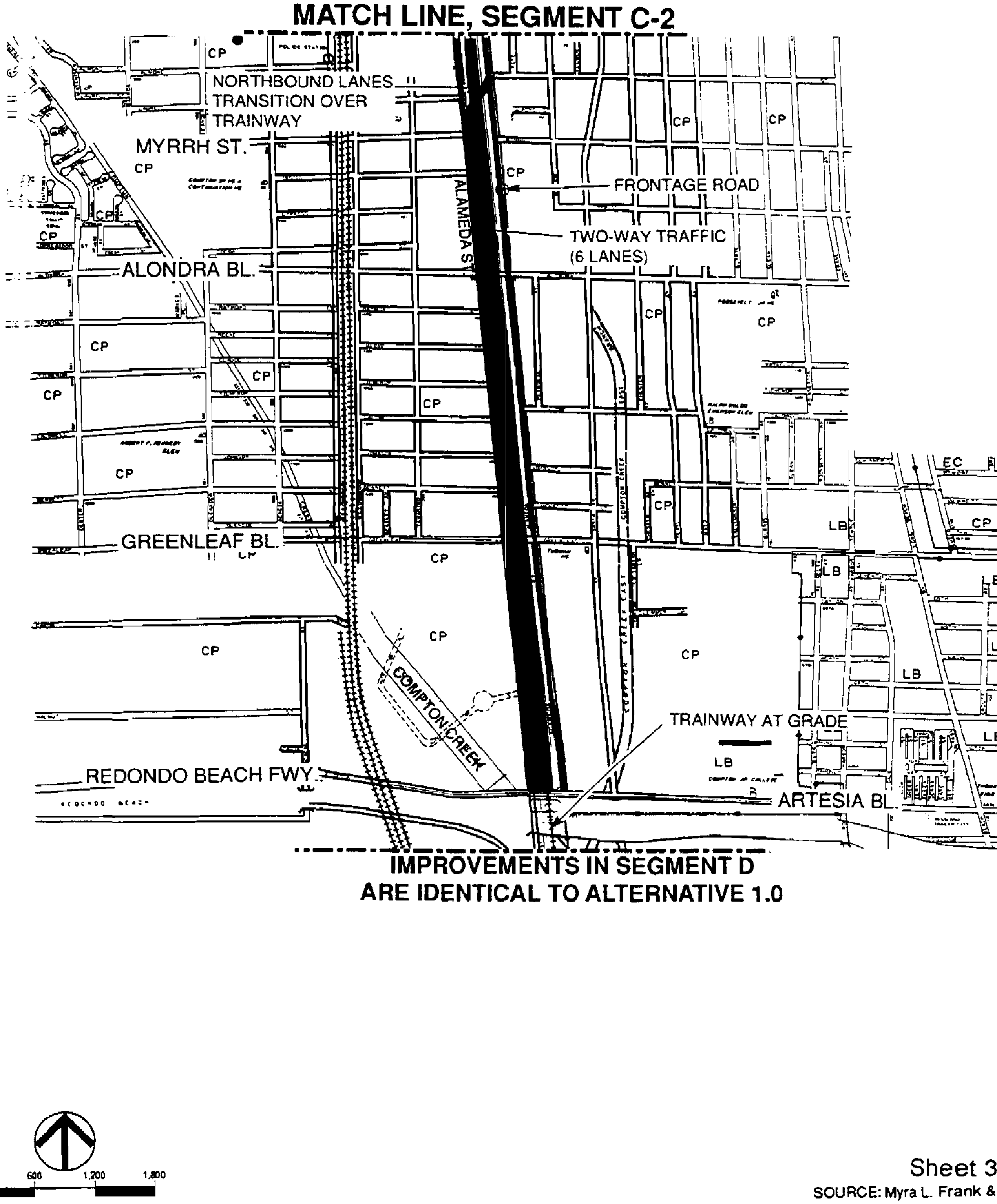
FIGURE Fig. No. 3-17	**SEGMENT C-1** **Alternative 2.1A**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Sheet 2 of 3

SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-17	**SEGMENT C-2** **Alternative 2.1A**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-17	**SEGMENT C-3** **Alternative 2.1A**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

In the vicinity of Greenleaf Boulevard, the trainway would begin its ascent, returning to grade at a point between Artesia Boulevard and SR-91.

Within Segment C, trainway crossings and dual left turn movements would provide for on at-grade bridge structures at the following locations: Southern Avenue, Tweedy Boulevard (an existing "T" intersection from the east side), 103rd Street (an existing "T" intersection from the west side), Martin Luther King Boulevard, Imperial Highway, El Segundo Boulevard, Compton Avenue, Alondra Boulevard, Greenleaf Boulevard, and Auto Center Drive. All other east-west streets would be configured as "T" intersections with Alameda Street.

Segment D

The improvements proposed under this alternative within Segment D would be identical to those proposed under Alternative 1.0.

3.4 ALTERNATIVE 2.1S

Alternative 2.1S is the third of four build alternatives to be considered for the Alameda Corridor. It is the second of three alternatives calling for a depressed trainway configuration. The alternative would modify the trainway trench by using sloped walls for a portion of the vertical rise. This variation of the basic trench design was offered as a means of reducing construction costs. Grade separations in this alternative would also be provided by means of at-grade bridges over the trainway.

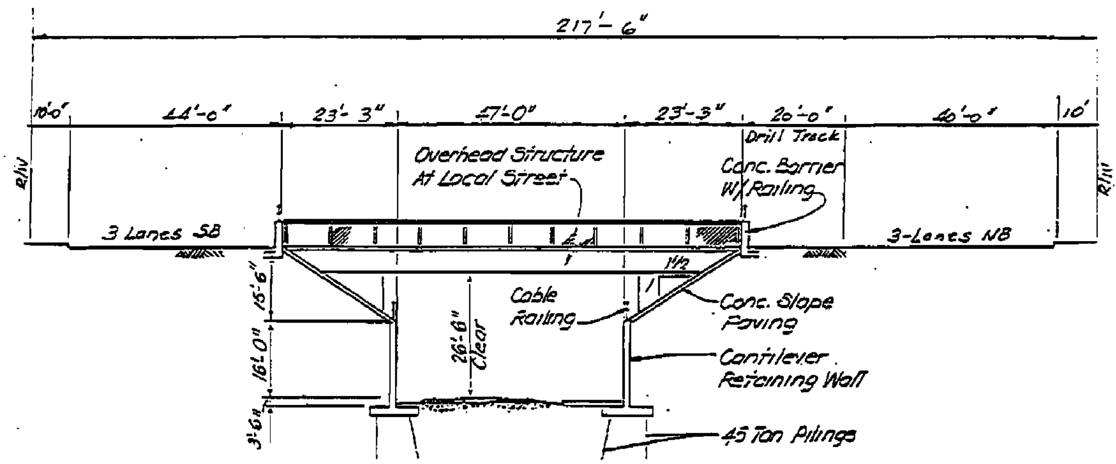
3.4.1 Typical Sections

Figure 3-18 illustrates the typical cross sections that would be used in this alternative.

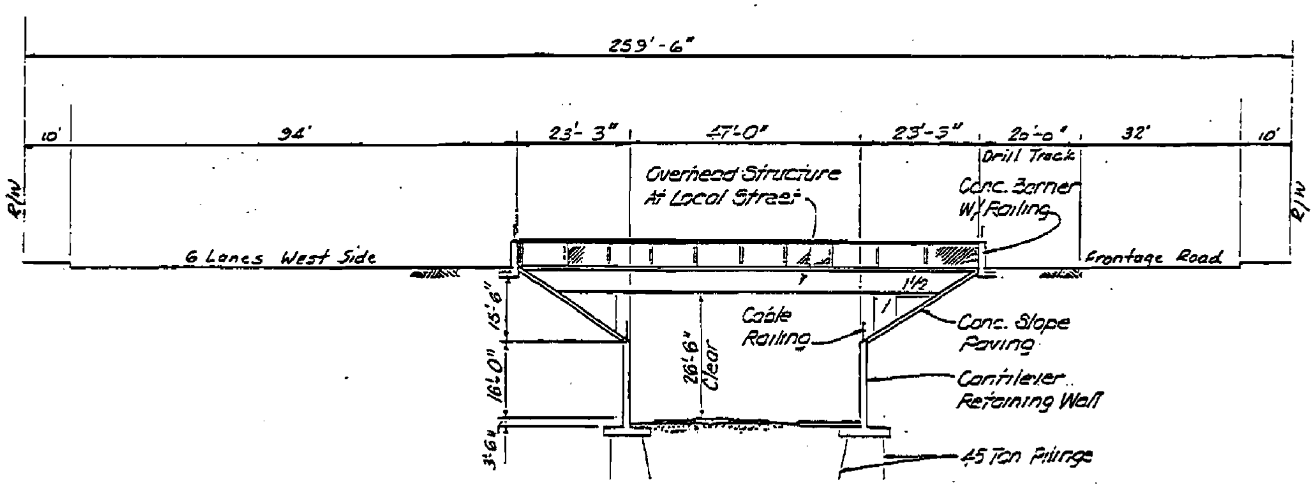
Two typical sections may be used for this alternative, depending upon the location along the corridor. The two sections differ in the manner in which the roadway portion is accommodated. In the first section, a trench width of 47 feet would begin at the bottom of the trainway, rising vertically a distance of 16 feet, supported on either side by vertical concrete retaining walls. From 16 feet above the bottom to grade above (a vertical distance of 15 feet, 6 inches), the walls of the trench would be sloped outward at a rise of one foot for every 1.5 feet of horizontal run. The resulting width of the trench at the surface would then be 93 feet 6 inches. A bridge structure would span the trench opening where needed to provide for vehicular traffic across the trainway.

One way traffic lanes would be located on either side of the trainway and immediately adjacent to the trainway at grade would be the drill track. The total right-of-way required for this section would be 217 feet 6 inches.

The second section would be the same as the first, except that it would provide for a six-lane two-way roadway on the west side of the trainway, rather than the one way couplet, together with a frontage road on the east side. The total right-of-way required for this section would be 259 feet 6 inches.



PARTIAL RETAINING WALL AND CONCRETE SLOPE
ONE - WAY COUPLET



PARTIAL RETAINING WALL AND CONCRETE SLOPE
6 LANES WEST SIDE

Source: DMJM/M&N, 1992

FIGURE 3-18	**Alternative 2.1S - Typical Sections**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

3.4.2 Corridor Configuration

Segment A

The configuration of this alternative within Segment A would be identical to the configuration under Alternative 2.1A.

Segment B1

The configuration of the alternative would be essentially the same as under Alternative 2.1A, namely, a depressed trainway with at-grade roadways and drill track. Crossings over the trainway would be accomplished through the use of bridges at the same locations as those in Alternative 2.1A.

Because the trench would be constructed using a combination of retaining and sloped walls, the right-of-way requirements would be more extensive in some areas. In particular, right-of-way in addition to that required under Alternative 2.1A would be needed in the following reaches:

- East Side: (1) 25th Street to Vernon Avenue
  (2) north of 48th Street to Randolph Street

- West Side: (1) Martin Luther King Boulevard to north of 55th Street

Segment B2

The configuration of the alternative would be essentially the same as under Alternative 2.1A. The following reaches would experience greater right-of-way requirements:

- East Side: (1) Randolph Street to Saturn Avenue (n/o Florence Avenue)
  (2) L.A. County line (n/o Firestone Boulevard to Firestone Boulevard

- West Side: (1) Gage Avenue to north of Florence Avenue

Segment C

The alternative would be configured essentially the same as Alternative 2.1A. The following reaches would experience greater right-of-way requirements:

- East Side: (1) Firestone Boulevard to Southern Avenue
  (2) North of Rosecrans Avenue to Poplar Street

- West Side: (1) Tweedy Boulevard to El Segundo Boulevard
  (2) Alondra Boulevard to Greenleaf Avenue

Segment D

The configuration of this alternative in Segment D would be identical to that of Alternative 2.1A.

3.5 ALTERNATIVE 2.2

Alternative 2.2 is the fourth of four build alternatives to be considered for the Alameda Corridor. It is the third of three alternatives calling for a depressed trainway configuration. The primary distinguishing feature of this alternative is the fact that the trainway would be routed along the SP Wilmington Branch, between 25th Street and Randolph Street, rather than along Alameda Street. In most other respects, it would have essentially the same configuration as Alternative 2.1A.

3.5.1 Typical Section

Figure 3-19 illustrates the typical section used in this alternative.

Alternative 2.2 has one typical section, which would provide a depressed trainway for two main line tracks that would be located in a trench that would be 47 feet wide and approximately 30 feet deep. This alternative would be located along Long Beach Boulevard in proximity to two existing SP tracks (one of which would remain) and the Metro Blue Line. These facilities would be located at grade, adjacent to the west side of the trainway, in a right-of-way width of 53.5 feet. Just to the west of the Blue Line tracks would be the southbound roadway of Long Beach Boulevard. The northbound lanes of Long Beach Boulevard would be located at grade on the east side of the trainway, in a 38-foot-wide right-of-way, beyond which would be a 10-foot wide side walk.

3.5.2 Corridor Configuration

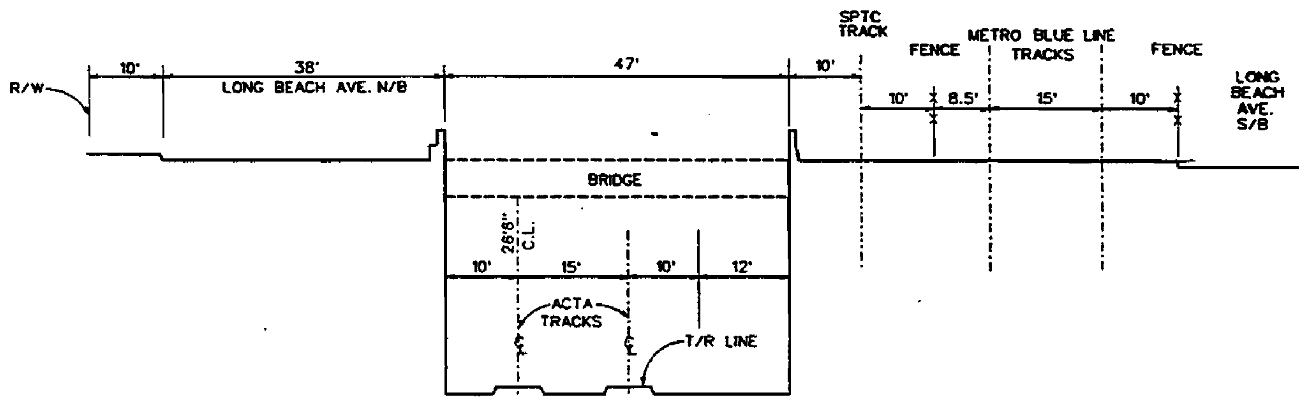
Segment A (See Figure 3-20)

Rather than curving to the south and entering the center portion of Alameda Street in the vicinity of 25th Street, this alternative would continue the depressed trainway westerly across Alameda Street, north of 24th Street, curving to the southwest and crossing beneath 24th Street, along a six degree curve, to Long Beach Boulevard.

In all other respects, this alternative has the same configuration as Alternative 2.1A in this segment.

Segment B1 (See Figure 3-21)

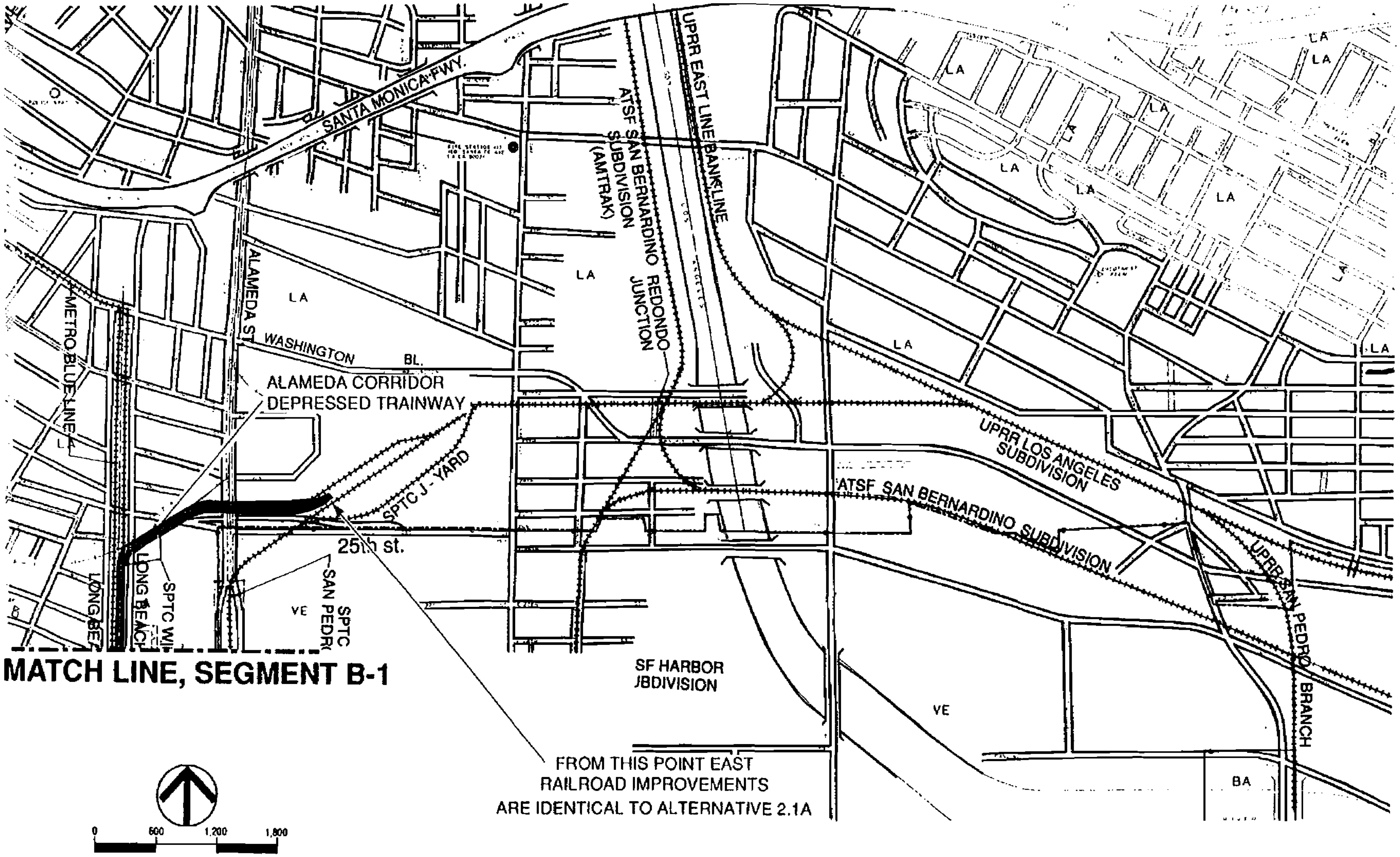
The trainway would cross beneath Long Beach Boulevard to assume an alignment east of one remaining SP Wilmington Branch track and the Blue Line tracks. Two northbound lanes of Long Beach Boulevard cross the trainway on an oblique bridge structure. From this pint south, the northbound lanes of Long Beach Boulevard are located on the east side of the trainway. This configuration continues south until Slauson Avenue.



LOOKING SOUTH
ALONG LONG BEACH AVENUE

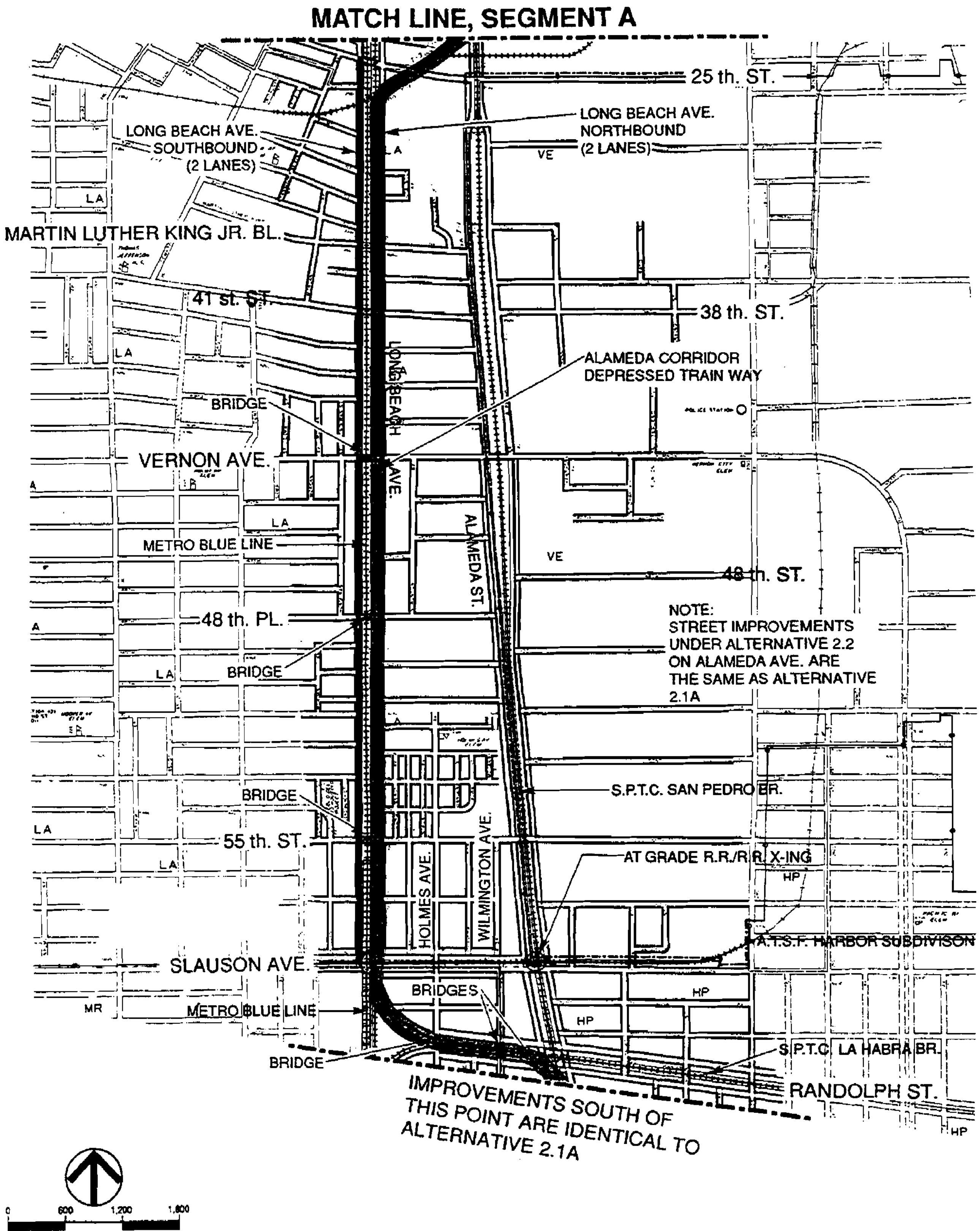
Source: DMJM/M&N, 1992

FIGURE 3-19	Alternative 2.2 - Typical Section	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-20	SEGMENT A Alternative 2.2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



SOURCE: Myra L. Frank & Assoc.

FIGURE Fig. No. 3-21	SEGMENT B-1 Alternative 2.2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

At Slauson Avenue, the trainway would begin a 700-foot radius curve to the southeast, and at the intersection of Holmes Avenue and Randolph Street, at which point the trainway would be located within Randolph Street. At Wilmington Avenue, the trainway begins a second curve to the south along an 8 degree curve that would transition the trainway back to its primary location in the center of Alameda Street.

Between Holmes Avenue and Alameda Street, Randolph Street would be reconstructed as a one way couplet of two lanes in each direction, with the roadway straddling the trainway. Shortly after Alameda Street, Randolph would transition back to its present configuration.

Crossings over the trainway along Long Beach Boulevard would be accomplished on bridges over the trainway at 41st Street, Vernon Avenue, 48th Place, 55th Street, and Slauson Avenue. Bridge crossings over the trainway along Randolph Street would be provided at Holmes Avenue and Wilmington Avenue.

Segments B2 through D

The configuration of Alternative 2.2 would be identical to that of Alternative 2.1A in these segments.

3.6 CONSTRUCTION SEQUENCE AND METHODS

The purpose of this section is to describe the activities that would likely be involved in the construction of the Alameda Corridor Project. The section is divided into two parts. In the first part, a suggested overall sequence of projects that might be needed to complete the entire corridor, is presented. The approach to constructing the depressed trainway would differ from that used to construct the at-grade alternative, and therefore two sequences are discussed. In the second part, the anticipated construction methods are outlined. This discussion is of necessity general, because a significant amount of detailed engineering and design will not be added until subsequent stages of final design.

3.6.1 Construction Sequence

The actual sequence of construction projects, and the time frames in which they would be conducted, are dependent on the funding stream. For purposes of this discussion, two assumptions are made.

The first is that the project would be completed and made operational by 2010. This assumption is based on the 1991 Air Quality Management Plan which identifies the Alameda Corridor project as one of its Transportation Control Measures (Measure 11 - Rail Consolidation to Reduce Grade Crossings), and it suggests that the project should be under construction by late 1993 and be 100 percent effective by the year 2010.

Second, it is assumed that a sequence of projects can be defined which would permit completion of the entire corridor in an orderly manner, generally proceeding from the southern portion to the northern. The actual sequence of projects could well differ from the sequence discussed herein, but the following discussions should be regarded as examples useful for illustrating the general sequence of events.

Alternative 1.0

Alternative 1.0 would provide an at-grade trainway and street improvements along Alameda, together with east-west grade separations at a number of locations throughout the corridor. Three general construction phases can be outlined.

In the first phase, projects in the southern portion of the corridor would be undertaken, extending as far north as Thenard Junction, together with railroad improvements in the northernmost portion of the corridor. The projects to be undertaken during this first phase would include the following (Ports Access Demonstration Projects are indicated with an asterisk):

- *Henry Ford Avenue/Terminal Island Freeway interchange/grade separation
- *Reconstruction of the Anaheim Street Bridge
- *Pacific Coast Highway grade separation
- *Sepulveda Boulevard grade separation
- *Widening East Alameda, from Del Amo to SR 91
- Construction of the trainway from the Badger Avenue Bridge to Thenard Junction
- Greenleaf Boulevard grade separation
- Alondra Boulevard grade separation
- Compton Boulevard grade separation
- Construction of the SPTC Wilmington Branch MC-5 connection and corridor railroad improvements between Thenard Junction and Rosecrans Avenue
- Santa Fe Avenue/Washington Boulevard grade separation
- Construction of railroad improvements from 25th Street to Hobart Junction

In the second phase of corridor construction, improvements would be undertaken north of SR 91. These projects would include:

- El Segundo Boulevard grade separation
- Widening Alameda and constructing the railroad drill track, from SR 91 to El Segundo Boulevard
- Imperial Highway grade separation
- Firestone Boulevard grade separation

- Widening Alameda and constructing the railroad drill track, from El Segundo Boulevard to 85th Street
- Florence Avenue grade separation
- Gage Avenue grade separation
- Slauson Avenue grade separation
- Widening Alameda and constructing the railroad drill track, from 85th Street to Slauson Avenue
- Vernon Avenue grade separation
- 25th Street grade separation
- Widening Alameda from Slauson Avenue to I-10; constructing the railroad drill track from Slauson Avenue to 25th Street

The third phase of corridor construction would complete the remaining grade separations and the trainway. The projects would include:

- Weber Avenue grade separation
- Tweedy Boulevard grade separation
- Southern Avenue grade separation
- Nadeau Avenue grade separation
- 38th/41st Street grade separation
- Construction of the trainway, from Rosecrans Avenue to J-Yard

At the end of the third phase of construction, the corridor would be complete.

Alternatives 2.1A, 2.1S, 2.2

Alternative 2.1A would provide a depressed trainway and street improvements in Alameda, together with bridge crossings for each of the major east-west streets crossing the corridor. Alternative 2.1S would do the same, except it would result in a trench with partially sloped walls. Alternative 2.2 would construct a portion of the corridor along the SPTC Wilmington Branch. For purposes of illustration, Alternative 2.1A has been selected as representative of the general approach to constructing a depressed trainway. The depressed trainway would also be generally constructed from south to north. South of SR 91, the corridor would be an at-grade facility. Two phases of construction are suggested.

In the first phase, corridor improvements would begin at the southernmost portion of the corridor and proceed northerly to the vicinity of El Segundo Boulevard. The projects would include (Ports Access Demonstration Projects are indicated by an asterisk):

- * Henry Ford Avenue/Terminal Island Freeway interchange
- * Reconstruction of the Anaheim Street Bridge
- * Pacific Coast Highway grade separation
- * Sepulveda Boulevard grade separation
- Construction of the trainway from the Badger Avenue Bridge to Thenard Junction
- Reconstruction of the highway improvements in Alameda, from Del Amo Boulevard to El Segundo Boulevard
- Construction of the trainway from Thenard Junction to El Segundo Boulevard

The first phase of construction would result in a completed trainway extending from the ports to the vicinity of the SPTC Mealy Street Diversion (MC-5). The second phase of construction would proceed from El Segundo Boulevard northerly. Projects would include:

- Widening Alameda and constructing the railroad drill track, from El Segundo Boulevard to 85th Street
- Constructing the depressed trainway from El Segundo Boulevard to 85th Street
- Widening Alameda and constructing the railroad drill track from 85th Street to Slauson Avenue
- Constructing the depressed trainway from 85th Street to Slauson Avenue
- Widening Alameda and constructing the railroad drill track, from Slauson Avenue to 25th Street
- Constructing the depressed trainway from Slauson Avenue to 25th Street
- Santa Fe Avenue/Washington Boulevard grade separation
- Constructing the trainway from 25th Street to Hobart Junction
- Widening Alameda from Rosecrans Avenue to I-10

At the end of the second phase of construction, the corridor would be complete.

3.6.2 Construction Methods

The following section provides a description of the general steps that would be taken in the construction of projects throughout the corridor. Where appropriate in the discussion that follows, a distinction is drawn between the two major alternatives under consideration, namely the at-grade alternative (Alternative 1.0) and the depressed trainway (Alternatives 2.1A, 2.1S and 2.2).

The major steps in construction would be similar for most project components and most locations along the corridor. They would be as follows:

1. Relocation of utilities
2. Installation of safety fencing
3. Clearing right-of-way
4. Detouring traffic
5. Removing street improvements
6. Excavating cut sections
7. Constructing subsurface facilities
8. Constructing embankments
9. Installation of piles for foundations
10. Constructing footings
11. Constructing above ground structures
12. Constructing retaining and railroad walls
13. Restoring street improvements
14. Installation of landscaping
15. Installation of signage, pavement marking, and lighting
16. Installation of signals
17. Construction of railroad track and related facilities
18. Construction of soundwalls

The precise sequence of construction tasks and the length of time required to complete each of them would vary somewhat, depending on the particular task and location. The total length of time to accomplish these tasks would also vary with the alternative chosen, and it would be influenced in part by the area in which the construction would be taking place.

In general, for Alternative 1.0, construction in any given area would extend over an estimated two-year period. In addition to the direct effects of construction activity at a given location, indirect effects may also occur, such as those resulting from traffic detours. It is thus possible that some areas could be subjected to the inconveniences associated with construction activity for a substantial portion of the entire construction period.

For Alternatives 2.1A, 2.1S or 2.2, the construction time in any one location north of the Artesia Freeway is anticipated to be as long as three to four years. This is due to the additional construction steps needed to complete a depressed trainway, one substantial portion of which is the need to first relocate Alameda Street for vehicular traffic before trench construction can begin. In addition, in order to accommodate vehicular traffic along and across the corridor, as well as enable the railroads to continue to function during construction, complex construction staging at the major cross streets would be required, thus increasing the length of construction.

Trains would not be able to use the trench until the entire corridor was completed north of the Artesia Freeway, a time frame anticipated to be at least eight to perhaps ten years.

One aspect of the depressed trainway construction that could have a significant bearing on the ease or difficulty of the construction process is the manner in which excavated material would be removed from the area. One approach that has been discussed would use rail cars which would transport the excavated material south to the ports for use as landfill. The other more common option would be to remove the material by means of trucks. For the at-grade corridor alternative, trucks would be used to haul a much smaller amount of excavated material away from the construction area. As the beginning of construction nears, specific disposal sites and truck routes for hauling dirt will be determined.

The following sections present a more detailed discussion of each of the construction steps.

1. Relocation of utilities

Both above and below ground utilities which interfere with the project would be relocated. These utilities, such as gas, water, electricity, and telephone lines, would be kept in service during the time that they are relocated by constructing temporary by-pass connections where necessary, until such time as the permanent lines can be again placed in service.

Relocation of underground pipelines would involve the use of backhoes or trenching machines to excavate ditches, either sloping the sides or shoring the ditches if they are deeper than 5 feet. Following this, new pipe or conduit would be placed, covered with dirt and compacted. The construction area would be resurfaced, if it is not subject to further immediate construction. Those pipelines that may be replaced by new ones would be either removed or abandoned by being filled with sand and then capped and left in place. New maintenance holes for access to the underground facilities may be required. These would be located in sidewalks or streets. If they are constructed in streets which are open to traffic, traffic would need to be diverted around the construction site while they are being installed.

During the utility relocation process, adjacent businesses and residences could experience reduced accessibility, but the duration of these inconveniences could be minimized by providing plates covering small trenches, and by constructing relatively short segments (on the order of a few hundred feet) at a time, of larger trenches.

2. Installation of safety fencing

In order to prevent people from gaining access to construction sites and thus subjecting themselves to potential injury, the sites would be typically enclosed by a chain link fence. Where this is not possible, holes, trenches, or other potentially dangerous features would be barricaded. Where the construction activity would be adjacent to a sidewalk which cannot be closed, shields would be constructed to prevent falling objects from injuring pedestrians.

One result of almost any kind of construction operation is that people have a tendency to stop and observe; passing vehicles would slow down, possibly resulting in a traffic hazard. If necessary, the construction activity could be screened from view.

3. Clearing right-of-way

In those areas where property must be acquired for the project, it would be purchased, and the business or residents relocated. Buildings which need to be removed would either be dismantled, or in some isolated cases moved to a different location. Dismantling buildings would involve a variety of construction equipment (trucks, loaders, bulldozers, cranes, etc.). Right-of-way clearance may occur over extensive portions of the corridor, or it may be focused on small areas, depending upon the construction task involved.

4. Detouring traffic

Traffic would be maintained along Alameda and the major cross streets throughout the construction period, although it may be constrained to less than the current number of lanes. In order to accomplish this, street detours would be constructed where necessary. Rail service would also be maintained, either along the SPTC San Pedro Branch or the SPTC Wilmington Branch. Detour plans for railroad operations have not been established but would involve extensive coordination with the SPTC.

For Alternative 1.0, where the major cross streets would be carried over both Alameda and the railroad, detours would be required only for traffic that would normally use the street for which a grade separation structure is being constructed. For construction adjacent to the traveled lanes on Alameda, eliminating on-street parking and restriping travel lanes would likely be required. Where Alameda would be realigned, normally the realignment would be constructed first and then traffic moved over to the new alignment.

For locations along Alternative 1.0 where the major cross street would be carried under Alameda and the railroad, detours and staging would be required for the cross street and Alameda, but probably not for the railroad. Alameda and the cross street would be constructed in two or three stages. The railroad should be able to use the existing track until the drill track is constructed, then use the drill track until the main lines are completed. Construction in areas such as this would last as much as 50 percent longer than those in which the cross street would be carried over Alameda.

For Alternatives 2.1A, 2.1S and 2.2, detours and multiple staging would be required at every major cross street. The number of stages required, and correspondingly the length of time required for construction, would be dependent on the space available. A constrained construction area would result in more stages and a longer construction time, whereas more spacious areas would require a less complicated process and less time.

Construction of detours would involve the use of a substantial number of pieces of heavy construction equipment. Construction noise and dust would result.

5. Removing street improvements

Pavement, curbs, sidewalks, and other street facilities which are not to be incorporated into the reconstructed Alameda Corridor would be removed and disposed of. Asphalt and concrete may be recycled and reused in the new work, usually in the base courses for the street pavement.

Removal and disposal of these facilities would involve the use of heavy construction equipment and trucks.

6. Excavating cut sections

For Alternative 1.0, the primary areas of excavation would be at the approaches to the major cross streets which would be underpasses beneath both Alameda and the railroad. The excavated material would be disposed of either at a location on the project where embankments would be constructed, or at a location off the project site. Haul routes would be identified for off-site truck movements. For Alternative 1.0, because there are a number of cross streets which would be overpasses, therefore requiring embankment construction, many opportunities to dispose of the excavated material exist within the corridor, and as a result off-site hauling may not be a substantial concern.

For Alternatives 2.1A, 2.1S and 2.2, the major area of excavation would be the railroad trench. For these alternatives, the excavated material must be removed from the project. If the material were to be removed entirely by truck, approximately 490,000 truck loads would be required, as compared to approximately 75,000 truck loads of material for Alternative 1.0. Soil testing for contamination and appropriate disposal procedures would be undertaken.

Impacts associated with this activity would include noise, dust, and increased traffic congestion on truck routes. In certain locations, flagmen would be utilized to facilitate the orderly flow of traffic.

7. Constructing subsurface facilities

Upon completion of excavation and prior to placement of embankments in fill areas, sewers, storm drains, or other subsurface facilities would be constructed. Normally this would involve cutting small trenches, laying the pipelines and filling and compacting dirt to the top of the trench. While the trenches are open, barricades or fencing would be used to keep the public away.

8. Constructing embankments

Embankments would be constructed at the approaches to bridges which carry the major cross streets over Alameda and the railroads. Between the Artesia Freeway (Rte. 91) and Washington Boulevard, this type of construction would occur only for Alternative 1.0. Embankment construction consists of hauling, placing, and compacting dirt, either from excavated areas within the project, or from "borrow" sites off the project.

Embankment construction uses heavy construction equipment and trucks, resulting in construction noise and dust, and an increase in truck traffic and traffic congestion and corresponding emissions. Mitigation measures would be similar to those used to control noise and dust in other construction steps. Flagmen would be used when necessary to facilitate the orderly flow of traffic.

9. Installation of piles for foundations

Pilings would be used to support bridge and retaining wall foundations in a number of areas. They would also be used for temporary support of cut slopes while a permanent retaining wall is being constructed. Pilings (essentially long slender poles) are usually made of precast concrete or steel. Piles would be driven into the ground by means of "drivers" supported by large cranes. Piles may be driven either by hammering them into place or in some instances through drilled holes. A typical bridge or retaining wall requires hundreds of piles.

The noise and vibration associated with driving piling is distinctive and could become a substantial annoyance. Pile driving would be restricted to daytime hours, and an average production rate might be eight to ten concrete piles per day, perhaps a little higher for steel piles. Production rates would vary widely depending on soil conditions, the arrangement of the piling, accessibility to the pile locations, and so on. However, at best pile driving would continue for a number of weeks.

For Alternative 1.0, pile driving would occur primarily in the vicinity of the major cross street intersections with Alameda, and it would be less extensive than the pile driving required for Alternatives 2.1A, 2.1S, or 2.2. For Alternatives 2.1A, 2.1S and 2.2, it may be necessary to install piling for the entire length of the trench. It is probable that piling would be needed for the railroad trench at least to support the cut slopes during construction.

Under certain conditions, concrete piling may constructed by drilling a hole in the soil and filling it with concrete. These are called "Cast-in-drilled-hole" (CIDH) piles. They are used as permanent foundation piling, are usually less expensive to construct and place, and do not have the noise impacts associated with driving. Soil conditions must be such that the hole would retain its shape while the concrete is being placed. The presence of ground water is a major factor in whether or not CIDH pile can be used. Given present knowledge regarding soil conditions and a relatively low water table elevation on the Alameda Corridor, there would probably be many locations where CIDH piling can be used. CIDH piling is not normally used for temporary retention of cut slopes, however, and therefore would not be used for that purpose in the railroad trench for Alternatives 2.1A, 2.1S, or 2.2.

10. Constructing footings

Construction activities associated with structure footings consist of excavating, forming, placing reinforcing steel, and pouring concrete. If piling is used, the footing would be poured around the tops of the piles. If piles are not used, the footing would be poured in an excavation in the soil, called a "spread" footing. Impacts associated with this operation would be noise and dust associated with excavating for the footing, and an increase in truck traffic due to the delivery of concrete.

Most structures have some type of footing. Exceptions are certain types of retaining walls ("Crib" walls and walls supported with lateral anchors), certain types of short span bridges for which the deck or superstructure is constructed directly on extended piling, and bridges which utilize "pile columns" for support of the superstructure.

11. Constructing above ground structures

Abutments and bents are the support structures which rest on the footings and support the superstructure or deck of bridges and overpasses. Abutments and bents for the Alameda Corridor structures would be constructed of reinforced concrete. Superstructures may be constructed of reinforced concrete or steel. Nearly all of the Alameda Corridor structures would likely be constructed of reinforced concrete.

The construction process would begin with installing forms, and then proceed to placing reinforcing steel, placing concrete, removing the forms, and sometimes grinding off irregularities from the concrete surfaces. Primary construction impacts would be added truck traffic during delivery and placing of the concrete. Grinding of the irregularities would result in small amounts of dust. Above ground structures would be constructed for all alternatives south of SR 91, and primarily for Alternative 1.0 north of that point.

For bridges which are to be constructed over existing traffic, openings in the false work (supports for the superstructure forms) would be provided for traffic and lighted at night. Pedestrian openings would also be provided where needed. In some instances, it may be necessary to detour traffic to another parallel street while the above ground structure is being built.

12. Constructing retaining and railroad walls

Retaining walls and trench walls would be used to permanently support the earth in embankments or cuts. They are also used to provide as narrow a project width as possible, and thus reduce the amount of property required for the project.

The walls are usually constructed of reinforced concrete. However, a large variety of retaining wall systems using a variety of materials are available. Height of wall, soil and foundation conditions, accessibility to the construction site, and aesthetics are important considerations for determining the type of wall construction. This determination would be made during the final design process for the project.

The construction impacts related to retaining wall construction would be similar to those of bridge construction and would be mitigated in similar ways.

For Alternative 1.0, most retaining wall construction would be associated with the major cross street intersections with Alameda. For Alternates 2.1A, 2.1S and 2.2, retaining wall construction north of the Artesia Freeway would be associated with a continuous lining of the railroad trench.

13. Restoring street improvements

Upon completion of the embankment or cut sections, the various layers of material which comprise the pavement structural section would be placed and compacted. These normally consist of a layer of sandy soil (subbase), a layer of crushed rock (aggregate base), sometimes a layer of cement treated base, sometimes a layer of asphalt treated permeable base (to prevent the accumulation of water in the structural section materials) and finally the surface courses. Surface courses consist of either Portland cement concrete or asphalt concrete. On the

Alameda Corridor, the surface courses would probably be asphalt concrete, although that determination would be made during final design.

All of these operations would involve trucks for delivery and heavy construction equipment for spreading and compacting the materials. Impacts would be similar to other construction operations, particularly during the asphalt or concrete paving operations.

All of the Alameda Corridor alternatives involve the reconstruction of Alameda. Alternative 1.0 would involve the additional paving of approach embankments or cuts at the major cross street intersections with Alameda and possibly the resurfacing of some local streets because of damage produced by the use of heavy equipment.

14. Installation of landscaping

Plantings are used to prevent embankment and cut slopes from eroding. The type and number of plantings would be determined during final design of the project. The construction process would involve constructing a water pipe and sprinkler irrigation system where needed, spreading seed and fertilizer and straw (often by spraying the mixture over the slopes) and planting individual plants. The construction impacts of this operation would be minimal.

Alternative 1.0 would primarily involve planting on the approach embankments or cuts at the major cross street intersections. Alternatives 2.1A, 2.1S and 2.2 would require almost no planting along Alameda, but planting at embankment and cut slopes at Washington and Santa Fe, and at the major cross streets south of the Artesia Freeway.

Decorative landscaping is not envisioned to be a major design element of the project. Use of native and drought resistant vegetation will be encouraged where feasible.

15. Installation of signage, pavement marking, and lighting

Finishing touches for the streets would include placing signs, striping the lane lines on the streets, painting crosswalks and stop bars, and installing conduit, wires, and electroliers for street lighting. Street lane closures of short duration would be required for the street markings and lane lines. Otherwise, these activities can normally be accomplished without disruption of traffic and without substantial amounts of noise, dust, or traffic congestion.

For Alternative 1.0, these activities would occur on the major cross streets for a distance of about 1,000 feet both east and west of Alameda, as well as on Alameda itself. If local streets need to be resurfaced because of increased traffic, then these streets would also receive new lane or centerline striping and pavement markings.

For Alternatives 2.1A, 2.1S and 2.2, the major cross street intersections with Alameda and Alameda itself would be involved.

16. Constructing signal systems

For Alternatives 2.1A, 2.1S and 2.2, all of the existing traffic signal systems at the intersections of the major cross streets and Alameda would have to be moved and upgraded. For Alternative

1.0, signal system upgrading may be required at major street intersections east or west of Alameda beyond the ends of the grade separation structures. In addition, at a few locations on Alameda, new signal systems may be required to facilitate turning movements onto or off of Alameda to or from local streets.

Typically, reconstruction of the signal system would involve placing a temporary system in operation during the construction of the intersection. Conduits for the new system would be put in place before the final paving, curb and sidewalk construction are completed. After completion of the curbs and sidewalks, the signal standards would be set, and the electrical wiring pulled and connected. Detector loops would then be placed in the pavement, and connected to the signal controller. Finally, the temporary signal system would be removed and the new system placed in operation.

The construction impacts of this activity would be minimal, as most of the work would be performed outside the traffic lanes and without major construction equipment. Temporary lane closures would be required to install the detector loops. However, this work would be of relatively short duration and could be done in off-peak hours.

17. Constructing railroad track and related facilities

This step would involve placing ballast upon a prepared subgrade, placing track drainage pipes, laying railroad ties and rails, installing switches, crossovers, signal equipment at railroad grade crossings and other signals. It would involve the use of specialized construction equipment, much of which would operate within the railroad right-of-way.

All project alternatives assume the construction of a "drill" track (adjacent track utilized for access to local businesses) along the west side of the northbound lanes of Alameda, with spur tracks into the yards of the railroad customers. The spur track crossings of Alameda would be constructed during the reconstruction and widening of the street.

For Alternative 1.0, construction of the drill track would not involve significant interference with street traffic. The track would be constructed after the grade separation bridges are completed, so that the cross street traffic would not be crossing the tracks. Where detours of the cross streets are required, temporary track crossings with signals and gates would be installed.

For Alternatives 2.1A, 2.1S and 2.2, drill track crossings of the major cross streets would be modified as the intersections are reconstructed. Staging detours would require temporary signals and gates.

For Alternative 1.0, the mainline railroad tracks can be constructed as soon as the interfering portions of Alameda are removed. While construction sequences may differ for a variety of reasons, the mainline track construction would probably take place near the end of the construction period in any given location. For Alternative 1.0, construction and train operation on a section of track would not need to await the completion of the entire project. For Alternatives 2.1A, 2.1S and 2.2, the track could be constructed in any portion of the project after the railroad trench is completed, but operation of the trains would have to remain on the drill track until the entire trench is completed between the Artesia Freeway and the railroad yards at Washington Boulevard.

Construction impacts from the track and railroad building should be similar to the roadway construction, although probably less severe. Some noise would be generated from operation of the construction equipment. Some dust may be generated by the grading and ballast placement. Mitigation would be similar to that for the other construction activities.

18. Constructing soundwalls

In those areas requiring soundwalls to mitigate project-related operational noise, the soundwalls would be constructed after the railroad facilities are completed. Footings would be placed and concrete blocks would be set and reinforced with steel reinforcing bar and concrete. Alternative 1.0 would require soundwalls for a distance of approximately 50,000 lineal feet. The expected height of the walls would be 15 feet where they are adjacent to the railroad and 12 where they are adjacent to the street. Alternatives 2.1A, 2.1S and 2.2 would require very few soundwalls.

The above descriptions are representative of "current normal practice," but some of the sequences and methods may change for the actual construction of the project. These would be determined during the final stages of design and, in some cases, after construction contracts have been awarded for particular sections of the project. In general, the public safety safeguards and construction impact mitigation would be at least as stringent as described here.

3.7 CORRIDOR RAIL OPERATIONS

This section provides an overview of current and projected daily rail operations in the corridor study area, as well as the geographic layout of the corridor and the railroad traffic consolidation proposed by the Alameda Corridor.

The rail operations described are based on data developed by Leachman & Associates (Appendix B, Railroad Capacity and Operation Analysis for the concept Study of Railroad and Highway Improvements for the Alameda Corridor, December 3, 1991) and the operating philosophies of the three common carriers serving Southern California, namely the Atchison, Topeka, and Santa Fe Railway (AT&SF), the Southern Pacific Transportation Co. (SPTC), and the Union Pacific Railroad (UPRR). Representatives of each carrier have reviewed the description that follows.

3.7.1 Current Operations

Southern Pacific Transportation Co. (SPTC)

SPTC has the most rail freight trackage and related facilities of the three carriers serving Southern California. It has several alternative means of access to the ports, including trackage in the Alameda Corridor. SPTC links Pacific Rim shipping to U.S. population centers via its Southern California routes to Kansas City, Chicago, St. Louis, and New Orleans. SPTC also has the most direct rail route from the ports to the Gulf of Mexico. This route to the Gulf ports has established SPTC as a land bridge carrier to handle goods originating in Asia ultimately destined for Europe. While this land bridge concept appears at first to be costly, it is a considerably faster means of travel than the ocean transport alternatives using either the Panama Canal or a route around South America.

SPTC's current routes to the ports are its San Pedro and Wilmington branches which are parallel lines between the ports and rail yards located near downtown Los Angeles. Both are direct routes through South Central Los Angeles. SPTC also routes trains from the City of Industry over its La Habra and Santa Ana branches to the San Pedro and Wilmington branches. All routes pass through congested areas with many grade crossings. SPTC's port activity is supported by its Dolores Yard and its Intermodal Container Transfer Facility, both of which are located near the ports. (See Figure 3-2).

SPTC's operating center for Southern California is located in Roseville, California. The chief dispatchers office is responsible for coordination with shipping and on-dock services companies for the operation of SPTC port-destined trains.

Union Pacific Railroad (UPRR)

UPRR also has long-standing port related business. Its main line extends from the ports through Southern California to the gateway cities of Omaha, Chicago, New Orleans, Kansas City, and St. Louis.

UPRR serves the Ports along its San Pedro Branch. (See Figure 3-3). It extends from its main line connection at the East Los Angeles Yard (near Vernon), traversing industrial, commercial and residential areas on the way to Mead Yard and Terminal Island near the ports. The route includes many street crossings at grade. UPRR interchanges some of its traffic to the Harbor Belt Line (HBL) for handling within the vicinity of the ports. UPRR crews handle unit trains over HBL trackage. UPRR handles some intermodal traffic directly at the ports, but most intermodal port traffic is first carried by truck to the East Los Angeles Yard and then transferred to rail.

All UPRR trains are dispatched from a central facility in Omaha, Nebraska. From that location coordination with shipping and on-dock services companies is maintained.

Atchison, Topeka, and Santa Fe Railway (AT&SF)

AT&SF has the most direct rail route between Los Angeles and Kansas City and Chicago. At Chicago and Kansas City AT&SF rail traffic is interchanged with other rail carriers serving population centers in the South, Southeast, East, Northeast and Midwest.

The current AT&SF route to the ports is called the Harbor Subdivision line. (See Figure 3-4). It extends from a main line connection at Redondo Junction, south of downtown Los Angeles to the southwest and then east on a very indirect routing to the port area, through El Segundo, Inglewood, Torrance, and Wilmington. The route is lengthy and has numerous street crossings at grade. Most AT&SF intermodal business now is trucked from ports to the Hobart Yard Intermodal Transfer Facility, in the City of Commerce. From its Watson Yard in the Wilmington portion of the City of Los Angeles, the AT&SF interchanges carload traffic to the Harbor Belt Line (HBL) and SPTC for movement to the ports. AT&SF crews handle unit trains destined directly to the ports.

The AT&SF Manager of Operations and Planning (MOP) works with representatives of shipping and on-dock services companies to coordinate the movement of port traffic. The MOP manages independent party own and operate the corridor. This entity would maintain separate offices to handle the day-to-day rail traffic operations, conduct maintenance and also serve as a liaison for community relations. Another option would be continued ownership by the SPTC, coupled with guaranteed access to each of the other two carriers.

<u>Corridor Description</u>

The proposed consolidated corridor would consist of two main tracks with train dispatch controlled by a centralized traffic control (CTC) system, designed for 40 mph operation. Tracks and dispatcher's controls would be arranged so that trains could ... ther direction. Cross-overs remotely controlled by ... nile intervals, permitting trains to transfer from one ... on, train movements would be governed by wayside ... by the dispatcher. Also, continuous radio communi ... ws and dispatchers.

The corridor would extend from the Los Angeles ... rts and then to Terminal Island via the Badger Aven ... nit is the north side of the Badger Avenue Bridge. ... le from Redondo Junction to the SPTC J-Yard; the ... n; and the AT&SF Harbor Subdivision to the west b ... nt connection to the corridor would diverge to foll ... o POLB and the corridor would continue along a n ... d along the west side of the channel to join the UP ... e Badger Avenue bridge and a new alignment from t ... n the HBL Interchange Yard.

Industry leads and switching areas currently served from the SPTC San Pedro branch would be accommodated by an industry drill track, constructed generally parallel to and east of the corridor.

In order to maximize corridor efficiency trains would have to operate over the corridor and into the ports to transfer back to their own main lines as efficiently as possible. Real estate for facilities for long range storage and heavy servicing of equipment and locomotives is not available in the ports area. Should long range storage be necessary for a particular situation, the equipment would have to be dispatched out of the corridor to serve another location. Light repair of equipment required to keep the corridor in good working order would be performed along the corridor by personnel working from trucks which would drive to the needed location. In general, any equipment released from a carrier's last inspection/servicing point in good condition would be assumed capable of completing a round trip to the ports. The carriers would be responsible for ensuring that equipment is adequately maintained.

While long-term train storage could not be accommodated by a consolidated corridor, some staging facilities would be necessary to handle the projected high volume of trains. As required, port-bound trains could be held on staging tracks until the port terminals and the corridor were available to handle them. One objective of the consolidation concept is to ensure that once a train enters the corridor, it would be able to complete a trip unimpeded. Also, some necessary

AT&SF operations to insure that port traffic is staged and moved to match the railroad resources with port needs.

3.7.2 Status Quo Operation

The rail traffic currently operating into the ports moves over several routes owned by the three carriers (AT&SF, SPTC, and UPRR). The different routes vary in suitability of alignment and geographic location; however, they are similar in character. For example, they are all relatively low speed lines that pass through highly congested areas with a great number of at-grade road crossings and industry switching areas. Status Quo is defined as a continuance of current railroad companies providing service on their own routes through the year 2020. With their present capacity, by the year 2020 these lines will not be able to handle projected rail traffic without serious delays to both rail operations and vehicular traffic at grade crossings. Rail and vehicle traffic delays at some at-grade crossings are unacceptable at the present time.

One approach to providing sufficient rail capacity to meet future needs would be to upgrade the existing lines. Improvements such as additional passing sidings, centralized traffic control (CTC) signal systems and rehabilitated track can significantly increase rail capacity on these existing routes. However, railroad improvements, while improving capacity, would do little to mitigate other problems. For example, in order to significantly reduce grade crossing delays a great number of grade separation structures would be required along all the affected branch lines. Many of them would be in locations where massive structures would be undesirable. Additional measures would be required to mitigate sound and vibration problems, and to reduce hazards to pedestrians from exposure to railroad operations.

3.7.3Consolidated Corridor Operation

<u>Operating Concept</u>

The principal objective of the Alameda Corridor is to concentrate rehabilitation and reconstruction efforts on one rail corridor that would be used by the three rail carriers for transporting port-related cargo. Some form of operating agreement would have to be entered into by the three common carriers who would use the corridor in order for this concept to become a reality. While the vast majority of freight rail traffic would be handled in the corridor, the remaining railroad lines would likely remain in place in order to handle local switching operations, for the foreseeable future.

In order to be successful, the corridor must be attractive to the carriers. Three issues have been identified as being fundamental to this attractiveness:

1) Fair and equal access. No railroad should be given preferential treatment in train dispatching to and from the ports.

2) Economics. Railroad operating costs (charges per train, car, or ton, maintenance of way costs and liability costs) should be competitive.

3) Ownership. The owner of the corridor should be established so as to not create a competitive advantage of one carrier over another. One option would be to have an

servicing or refueling could be handled along the staging tracks. The carriers would be responsible for establishing and operating their own staging facilities, which would likely be developed at locations where existing yards, services, and crew change points are situated. These areas are likely to be:

CARRIER	STAGING LOCATION
AT&SF	Barstow, 159 miles from the corridor
SPTC	Colton, 59 miles from the corridor
UPRR	Yermo, 170 miles from the corridor

Corridor Trains

The corridor would handle all types of commodities and train configurations as "through freight trains." No trains serving local industries, yard switching or passenger trains would be handled on the corridor. An adjacent drill track would be provided for these movements.

Locomotives would continue to be owned and maintained by the individual carriers, and intermodal train equipment would be owned by the railroads and/or shipping companies. Some arrangement involving a pool operation or some other sort of joint use of equipment should be in place to avoid under-utilizing large fleets of equipment. Excessive equipment inventories would affect storage facilities and generate costly and unnecessary movements of empty trains to and from storage locations.

Projected increases in import/export traffic to and from the ports are expected to continue. Traffic volumes for 1989 and for the years 2010 and 2020 are presented in Table 3-1. The lengths and tonnage of the through trains operating within the corridor would vary with the commodity type and traffic volume. The maximum length would be approximately 8,000 feet and maximum weight would be about 10,000 tons, but most trains would be shorter and weigh less. Detailed assumptions regarding train lengths are discussed in Section 3.1.2.

For the foreseeable future, trains operating in Southern California should continue to be powered by standard diesel locomotives. The 1991 Air Quality Management Plan for the South Coast Air Basin envisions electrification of both passenger and freight rail service. The corridor has been designed to permit electrification, should it become a reality. Generally, the power required to operate between the ports and the San Bernardino/Colton area is less than the power required to operate over the grades such as the Cajon and Beaumont passes. Currently, the carriers add or remove power from some cross country trains as needed. To expedite schedules, some trains run through with excess power. Whether locomotives would be added or subtracted from trains using the corridor, those changes would occur outside of the corridor and would not compromise corridor operating efficiency.

To ensure adequate power for corridor operation, trains would have to be powered at the rate of 2 horsepower per ton (hp/ton). Assuming modern locomotives having a capability to generate 3,600 hp, an 8,000-foot/8,000-ton train would require 5 locomotives.

Corridor trackage has been designed for maximum train speeds of 40 mph; however, practical speeds would be about 30 mph. Trains conducting movements within the ports area would likely be operating in the 10-20 mph range. Trains moving cars to specific locations in terminals would operate below 5 mph. Trains operating at Redondo Junction would be restricted to 10-20 mph.

TABLE 3-1
EXISTING AND PROJECTED DAILY TRAIN COUNTS FOR ALL CARRIERS BY YEAR AND COMMODITY

	1989		2010		2020	
COMMODITY TYPE	TRAINS PER AVERAGE DAY	PEAK DAY TOTAL	TRAINS PER AVERAGE DAY	PEAK DAY TOTAL	TRAINS PER AVERAGE DAY	PEAK DAY TOTAL
White Bulk (Potash, Soda Ash, etc.)	1.0	1.0	1.4	1.4	2.3	2.3
Coal	2.0	2.0	8.0	8.2	14.1	14.4
Steel	0.7	1.0	0.7	1.0	0.9	1.3
Oil	2.9	4.0	2.9	4.0	2.9	4.0
Intermodal (Containers)	5.5	10.7	22.1	43.2	31.7	55.5
Automobiles	1.4	2.0	3.6	5.1	6.6	9.2
Municipal Refuse (Containerized)	0.0	0.0	1.4	2.0	1.4	2.0
Carload (Misc. Other Freight)	5.7	8.0	5.7	8.0	5.7	8.0
TOTAL	19.2	28.7	45.8	72.9	65.6	96.7

Source: DMJM/M&N, 1992.

Corridor Train Crews

All carriers would operate with their own train crews over the corridor. By federal law, train crews are allowed to be on duty no longer than twelve continuous hours. This begins from the time a crew reports for duty to the time it is released. If a crew exceeds the 12-hour limit, it cannot legally move a train except in an emergency, and a relief crew must be called. For this reason, when a train will not be able to complete a trip within 12 hours, it is typically dispatched to a siding where it will not tie up the main track, for subsequent handling by the relief crew.

The 12-hour time limit would not be a constraint for trains making a round trip from Colton (SPRR) or San Bernardino (AT&SF). However, crews could probably not make the round trip from Barstow (AT&SF) or Yermo (UPRR). Round trips would require that an inbound crew would be quickly assigned to a different outbound train. Shipping schedules and other factors may make some round trips impractical. The method of crew assignment would probably require revision once the corridor becomes operational.

Train crew assignments are governed by complex union agreements, and changes to these agreements would be subject to negotiations between the carrier and the unions.

Corridor Train Dispatching

The corridor train dispatcher would have direct control over all train movements using the corridor. Given the relatively short length of the corridor and the high volume of trains to be handled, trains would usually enter the corridor and proceed without delay, inbound (portbound) on one track, outbound on the other. However, should track maintenance work or mechanical problems with a preceding train occur, the corridor dispatcher would arrange for trains to cross over to avoid the area of concern. Should an extended shutdown of the corridor occur due to a derailment or other emergency, the carriers could be transferred to their existing routes under the direction of the corridor dispatcher.

The corridor dispatcher would have extensive and continuing communications with the chief dispatchers of each of the carriers. The corridor dispatcher would coordinate with the carrier dispatchers regarding when trains could enter the corridor, and therefore, when they could be released from the staging areas. The greatest effort in train control would occur for trains operating between the staging areas and the downtown connections to the northern end of the corridor. Outbound trains that have left the corridor would no longer be the concern of the corridor dispatcher and would be handled by the carrier. Similarly, an inbound train would be handled by the carrier dispatcher until it reached the staging area. At that time, the train would be controlled by the carrier dispatcher with coordination from the corridor dispatcher. When the train moves onto the corridor it would be under the complete control of the corridor dispatcher.

Operation of a Typical Train

The following description is an example of typical corridor operations involving the movements of an approaching inbound train.

As the train proceeds toward the staging facility, the carrier's dispatcher would be in contact with the corridor dispatcher to determine if the train can proceed or should be held at the staging site.

If the port destination is ready to receive the train, it would be allowed to proceed as soon as its servicing and crew change is complete. If the carrier delays this train beyond its available corridor window, the corridor dispatcher may instruct the carrier to hold it at the staging site for the next available time slot. Assuming all goes well, the train would proceed toward the corridor under control of the carrier dispatcher. As the train approaches the corridor, the carrier and corridor dispatchers should have maintained sufficient coordination to allow various switches to be preset, permitting the train to enter the corridor without delay.

Once it is on the corridor, the train would be under control of the corridor dispatcher. The train would proceed over the corridor at 30 to 40 mph. As the train approaches the Thenard Junction area it would decelerate and encounter signals indicating that all switches had been appropriately set and the track is clear to its destination. At this time, radio communication between the corridor dispatcher and train crew would occur to verify routing, destination and other circumstances. In case of any unusual events, radio communications would be used to inform all affected trains of the situation and appropriate actions to be taken.

South of Thenard, the train would follow the appropriate routing to POLA, Terminal Island, or POLB. The train would proceed to its destination and be switched into its terminal by the inbound crew. The corridor dispatcher would be advised that the train had been secured and the crew would make any required shuttle movements of the locomotives. The crew would then be picked up and taken to an outbound train. An outbound train would be controlled in a similar manner, but once it left the corridor it would no longer be of concern to the corridor dispatcher.

3.7.4 Passenger Trains

No passenger trains would operate on the Alameda Corridor. However, corridor operations would need to be coordinated with Amtrak and Metrolink passenger operations on tracks immediately to the north and east of the corridor.

Passenger trains would have priority in cases of direct conflict. However, the volume of expected corridor traffic would be such that dispatchers would have to cooperate. Excessive delays to corridor trains would result in so much track being occupied by waiting trains that automobile traffic could be substantially affected.

The area of greatest potential conflict, Redondo Junction, could be removed as a bottleneck by construction of a grade separation to elevate the passenger line over the corridor trackage. Other conflicts would be resolved by schedule and dispatcher coordination.

3.8 RELATED PROJECTS

A large number of projects are being contemplated or implemented currently that could be considered related to the Alameda Corridor freight rail consolidation project. The following sections identify four sets of projects considered related within the context of the present environmental document: 1) Ports master plans, 2) Ports Access Demonstration Projects, 3) other port access projects, and 4) local projects being implemented in the corridor.

3.8.1 Ports Master Plans

Master planning of the Ports of Los Angeles and Long Beach is a continuing process that is discussed in Chapter 1. The most recent developments include the Ports 2020 Plan and the 582-acre federally sponsored dredging project for which an EIS/EIR is currently being prepared by the U.S. Army Corps of Engineers for the Port of Los Angeles. A Draft EIS/EIR was released for public review on June 12, 1992. The Alameda Corridor project would serve as a land-side transportation mitigation measure for economic growth at the ports through the year 2020. This land-side mitigation is acknowledged in past and present environmental documents associated with the ports master plans and will require a master plan amendment.

3.8.2 Ports Access Demonstration Projects

As discussed previously, the No Build Alternative assumes the completion of the Ports Access Demonstration Projects (PADP), Phases I and II. The specific projects included in the PADP are listed in Tables 3-2, 3-3 and 3-4. The first four projects under Phase III are part of the Alameda Corridor project and are therefore evaluated in this EIR. The fifth project under Phase III is the interchange at Ocean Boulevard and the Terminal Island Freeway, which is not considered part of the Alameda Corridor project, but is considered as a related project.

The history of the PADP and the status of the various demonstration projects are described in Chapter 1.

3.8.3 Other Port Access Projects

The Port of Long Beach has completed a "Master Highway and Railroad Improvement Plan," which includes several grade separations within the Harbor District in anticipation of the development of several new on-dock rail yards in the port. Also included in the plan is the realignment of Pico Avenue and double tracking the rail line into the port.

The Port of Los Angeles (POLA) is designing grade separations at Seaside Avenue and Navy Way and at New Dock Street as part of the Pier 300 container terminal, Pier 300 dry bulk terminal and Terminal Island container transfer facility EIRs. The POLA is also designing improvements to "B" and "C" Streets in Wilmington.

3.8.4 Local Projects

A number of local projects are in various stages of implementation within or adjacent to the Alameda Corridor. These projects have been inventoried and are shown in Table 3-5 and Figure 3-22. Implementation of the Alameda Corridor project could affect some of these projects. Both positive and negative effects are possible.

3.8.5 Pacific Pipeline Project

Recently a proposal has been put forward by Pacific Pipeline Systems, Inc., a sister company of the Southern Pacific Railroad, to develop an underground pipeline to transport crude oil from the Santa Barbara outer continental shelf area to Los Angeles Basin refineries. The project would be 170 miles in length and a portion of it would be located within and along the Alameda Corridor

TABLE 3-2
PORTS ACCESS DEMONSTRATION PROJECTS - PHASE I

PROJ. NO.	STATE RT. #	AGENCY AND LOCATION	IMPROVEMENT
		PORT AND CITY OF LONG BEACH	
1	N/A	Anaheim Street ("I" Street to Harbor Scenic Drive)	A.C. overlay, restripe 4 lanes, median, parking lane
5	710	Ocean Boulevard (T.I. Fwy. to Gerald Desmond Bridge)	A.C. overlay, 6 lanes, median, signalize Gate 3
6	710	Gerald Desmond Bridge	Operational improvements
7	710	Ocean Boulevard (Gerald Desmond Bridge to Ocean Boulevard/ Harbor Scenic Drive interchange)	A.C. overlay, 6 lanes, median
9	47	Ocean Boulevard (City limits to T.I. Freeway)	Const. 6 lanes, median, signalize Gate 1, Henry Ford, Rt. 47
12	710	Ocean Blvd./ Harbor Scenic Drive interchange	Const 2 lanes E/B to N/B and S/B to W/B
13	710	Harbor Scenic Drive (Ocean Blvd. to PCH)	Realign, repave, and upgrade
		PORT AND CITY OF LOS ANGELES	
2	N/A	"I" Street (T.I. Freeway to Anaheim Street)	Reconstruct 4 lanes
3a	47	Intersection of Henry Ford Avenue and Anaheim Street	Construct 6 lanes, signalize
3b	47	Alameda Street (PCH to Henry Ford Avenue)	Construct 6 lanes, R.R. work, signalization
3c	47	Henry Ford Avenue (Alameda Street to Anaheim Street)	Construct 6 lanes, R.R. work, signalization
3d	47	Henry Ford Avenue (Anaheim Street to T.I. Freeway)	Construct 6 lanes, R.R. work, signalization
3e	47	Alameda Street (PCH to Lomita Boulevard)	Construct 6 lanes, R.R. work, signalization
8	47	Seaside Avenue (Toll Plaza to city limits)	Construct 6 lanes, median, Signalization at Gate 9
		CALTRANS	
4	47	Henry Ford Avenue/ T.I. Freeway interchange	Construct 2-lane ramps, signalization, R.R. crossing
10	47	Toll plaza	Intersection modification
14	103	Terminal Island Freeway (PCH to Willow Street)	Prepare for relinquishment
		CARSON/LOS ANGELES COUNTY	
11	47	Alameda Street (Lomita Blvd. to San Diego Freeway)	Construct 6 lanes, signalization
11a	47	Alameda Street (San Diego Freeway to Del Amo Blvd.)	Widen to 6 lanes, signalization
11b	47	Alameda Street (Del Amo Blvd. to Artesia Freeway)	Widen to 6 lanes, signalization

TABLE 3-3
PORTS ACCESS DEMONSTRATION PROJECTS - PHASE II

PROJ. NO.	STATE RT. #	AGENCY AND LOCATION	IMPROVEMENT
		CARSON/LOS ANGELES COUNTY	
21*	47	Alameda/Carson Street	Grade separation
22*	47	Alameda/Del Amo	Grade separation
23*	47	Alameda, Del Amo to Artesia Freeway	Widen to 6 lanes
		CITY OF LOS ANGELES	
24*	47	Alameda, N/O PCH	Widen to 6 lanes, replace railroad bridge (combined with 3e)
		PORT OF LONG BEACH	
25	710	Gerald Desmond Bridge	Widen to 5 lanes
		CALTRANS	
27	47	Seaside Toll Plaza	Eastbound grade separation

Notes:
* Alameda Corridor design accommodates this project.

TABLE 3-4
PORTS ACCESS DEMONSTRATION PROJECTS - PHASE III

PROJ. NO.	STATE RT. #	AGENCY AND LOCATION	IMPROVEMENT
		COUNTY OF LOS ANGELES	
31*	47	Alameda - Del Amo to Artesia Freeway	Construct 6 lanes, grade separation near Laurel Park Road
		CITY OF CARSON	
32*	47	Alameda/Sepulveda	Grade separation
		CITY OF LOS ANGELES	
30*	N/A	Anaheim Street/Dominguez Channel	Reconstruct/widen bridge
		CALTRANS	
28*	1	Pacific Coast Highway	Grade separation
29	47	Ocean Boulevard/ Terminal Island Freeway	Construct interchange

Notes:
* Alameda Corridor design accommodates this project.

TABLE 3-5
RELATED LOCAL PROJECTS

Number	Project Description	Project Status
1	North Spring St. Viaduct at LA River	Structural design ongoing. Preliminary plans to be approved June 1992. Construction to begin July 1992.
2	Alameda and North Spring Street Reconstruction	Project on hold pending Metro Rail construction plans.
3	Metro-Rail Union Station Joint Development Project	Active development agreement established between SCRTD and Catellus Corporation to provide transportation improvement element including bus plaza interface with the El Monte busway and 2,500 parking spaces. Gateway Center, Inc. to implement terms of development agreement. Design phase well on its way to completion. Construction to begin by Summer 1992.
4	Macy Street and Vignes Street Improvements	Project in preliminary planning stages. To be coordinated with new RTD station adjacent to Union Station.
5	1st Street viaduct over LA River	Design in preliminary stages. Construction estimated to begin by end of 1993.
6	Metro-Rail Yard and Shop	Metro-Rail is main yard facility for MOS-1. SCRTD exploring feasibility of developing site for as yet unspecified purpose. Ultimate design and function of facility contingent on implementation of Metro Rail Orange Line East extension.
7	LAUPT Rail Access Study between North Main Street/LA River and Washington Street/LA River	LACTC pursuing dedication of area for passenger rail service.
8	Alameda-Olympic to 25th Street Reconstruction	Project plans have been prepared.
9	Olympic Boulevard Street Widening from east of Soto Street to Rio Vista Avenue	Project plans have been prepared.
10	California Reception Center - LA County at Washington Boulevard and Santa Fe Street	State of CA Department of Corrections waiting for CA Court of Appeals decision on facility EIR. Potential for City of LA to take case to CA Supreme Court. No construction scheduled pending completion of litigation.
12	Alameda St.- 25th St. to 41st St. Street Widening	Project plans have been prepared by the City of Los Angeles
13	Long Beach Avenue Street Widening from Martin Luther King Boulevard to Vernon Avenue	Project plans have been prepared.
14	Fiesta Pacifica Development between Pacific Avenue and Slauson Boulevard	Construction of all buildings completed.
15	Garment Manufacturing Development at corner of Alameda Street and Slauson Ave.	Construction of project completed January 1991.
16	Golden State Truck Sales Development	No specific information available.
17	Gage Center Commercial/Manfng Development between Alameda Street and Wilmington Avenue	Construction completed August 1991.
18	Robin Plaza Development between Gage and Alameda Streets	Construction completed January 1990.
19	Balenchovic Office Building Development between 64th and 65th Streets	Project to be complete by May/June 1992.
20	Picture Frame Industrial Complex Development between Zoe and Saturn Streets	Construction of first of six buildings completed January 1991. Plans for remaining five structures in design phase. Construction timetable for remaining structures uncertain.
21	Goldberg Cold Storage between 69th and Wilson Streets	Project completed July 1991.
22	LAUSD Bus Yard/Repair Facility between Florence Avenue and 67th Street	LAUSD currently occupies facilities. Basic maintenance ongoing.
23	"Sizzler" Retail Center Development near Alameda Street and Florence Avenue	Sizzler currently operating, as well as retail mini-mall at north end of property. Development of remaining 6,000 square feet delayed for one year.

TABLE 3-5 (continued)

Number	Project Description	Project Status
24	Nadeau Street Traffic Signalization	Project completed. No further improvements anticipated.
25	Manchester/Firestone (LA-105) Street Improvement	Evaluating street design before relinquishing contract to the City of Lynwood, expected to occur in Fall 1993.
26	Southgate Industrial Park Dev	Site intended for industrial/manufacturing purposes.
27	Project 4 (Parcels 1-15) Dev (partially former GM plant)	Two parcels developed with warehousing activities in 1990. No construction to take place on remaining 13 parcels until tenant demand improves.
28	103rd Street Widening from LA City boundary to Wilmington Ave.	Project plans have been prepared.
29	I-105 Freeway, Project 25 construction and street improvement at Imperial/Alameda	Construction of viaduct across Alameda Street and realignment of Imperial Highway estimated to be completed by January 1993.
30	Regional Justice Center	Project is 50 percent completed. Completion is expected by Summer 1994.
31	Phase II - Alameda Distribution Center (industrial warehousing)	Seven-acre industrial/warehousing project under development.
32	TELACU Warehouse Development between Rosecrans Avenue and Oaks Street	140,000 sq.ft. warehouse completed.
34	Rosecrans Avenue (C-420) street widening/utility relocation	Project completed in 1990.
35	Rosecrans Avenue (C-421) Overpass	Project was completed and opened in April 1992.
36	North Side Shopping Center (between Compton Blvd. and Elm Street)	Construction is 53 percent complete. Estimated date of completion is December 1992.
37	Freight Forwarding in redevelopment area	Four-acre site for proposed redevelopment project.
38	MC-5 (C-235) railroad relocation project (SPTC line)	Design drawings have been completed. Public hearing held April 7, 1992. Summary report sent to Caltrans on the project.
39	Retail Shopping Center (East) between Greenleaf Boulevard and Santa Fe Street	No action taken, since Compton City Council did not accept project.
40	Retail Shopping Center (West) between Greenleaf Blvd. and the Artesia Freeway (SR 91)	Status uncertain.
42	Dominguez Technology Center	Specific Plan and developer agreement approved. Street and utility plan approved by the City of Carson. Street and utility construction anticipated for Spring 1993. Building construction expected to begin by mid-1993.
45	New Street between Carson and Dominguez Streets	City of Carson negotiating with owner for southern portion of property; construction on southern portion expected to begin in three years. No R-O-W yet obtained for northern portion.
46	United Warehouse - NYK Industrial Development near Carson and Alameda Streets	Construction of Phase I (400,00-square-foot distribution center) completed November 1989. Design of Phase II (130,000-square-foot concrete tilt-up to existing building, with rail siding along western side of Alameda Street) completed. Phase II construction anticipated to begin January 1993.
49	Sepulveda Boulevard Widening Improvement	Public hearing held May 19, 1992; Carson City Council voted for bond issue to finance project. Construction activities expected to begin late 1992.
50	Thenard Tower Track Connections	Project temporarily on hold, awaiting outcome of Alameda Corridor Study.
56	Port of LA Rail & Highway Improvements	Terminal Island Container Transfer Facility (Phase I) ending design stage; construction to begin within one year. Terminal Island Container Transfer Facility (Phase II) design phase in initial stages. Pier 300 ICTF (Inter-Modal Container Transfer Facility) design phase in initial stages.

Source: DMJM/M&N, Concept Study Appendix F, 1991.

Source: DMJM/M&N, 1991

FIGURE 3-22	Local Projects in the Alameda Corridor Study Area	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

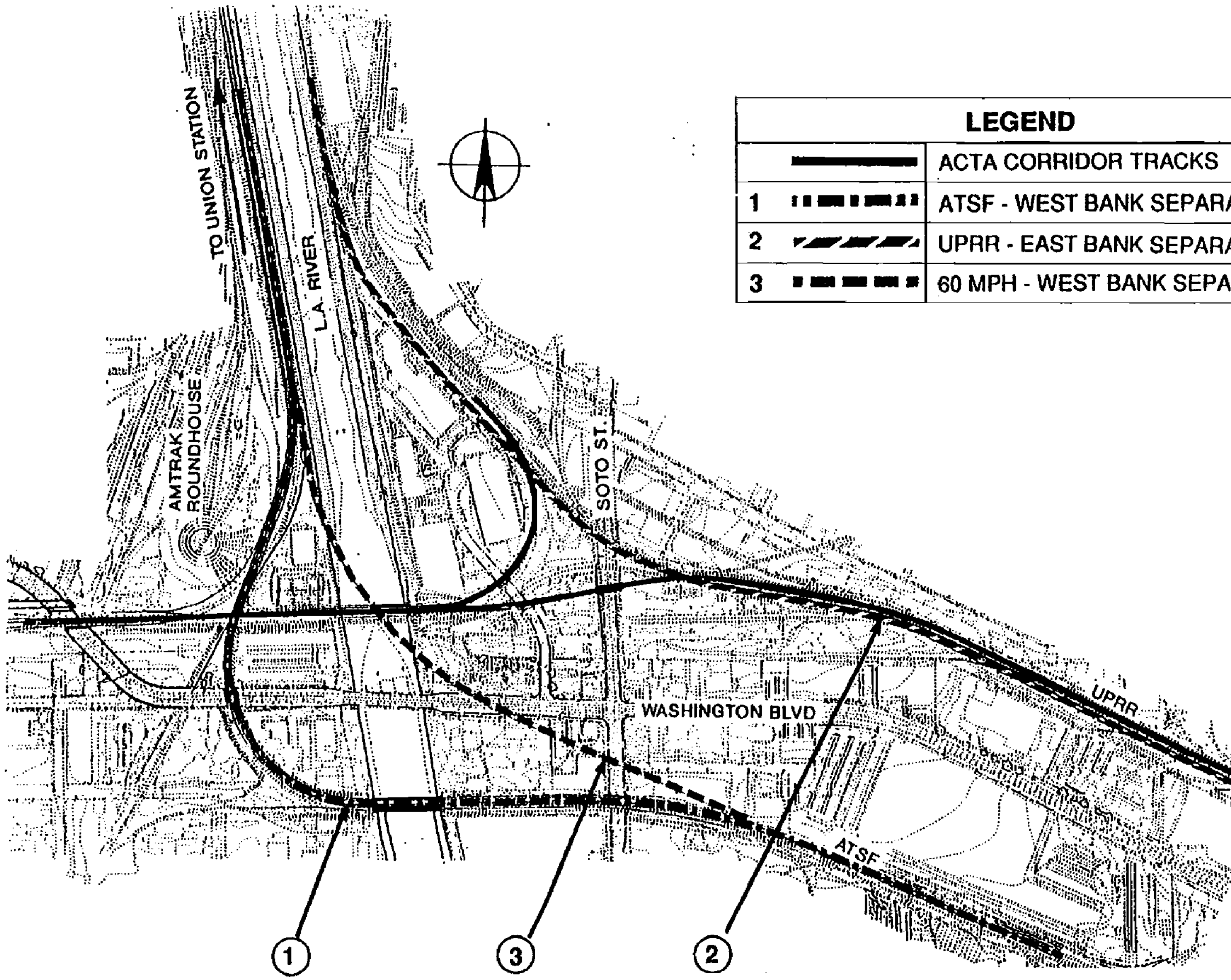
as far south as Sepulveda Boulevard. The project would transport up to 130,000 barrels per day of crude oil in a 20-inch diameter pipe. An environmental report is currently being prepared for this project.

3.8.6 Passenger/Freight Grade Separation at Redondo Junction

As stated in Section 3.1.3, the LACTC is implementing a program of passenger rail service throughout Southern California. One significant portion of this program concerns trackage entering the Los Angeles downtown area from the north along UP & AT&SF tracks that straddle the Los Angeles River between Redondo Junction and Pasadena Junction. The UP line along the east bank of the river is already under the ownership of the LACTC. Depending upon how passenger service would enter the downtown area, different configurations would be indicated for a needed grade separation between passenger service and Alameda Corridor freight service at Redondo Junction. Figure 3-23 shows the options that would need to be considered.

3.8.7 Potential Transportation Uses of the Los Angeles River

The Los Angeles River has been the focus of many suggested transportation projects, ranging from monorail concepts to a new freeway corridor. The LACTC recently concluded a study of the River (February 1991) to evaluate the feasibility of using it for a range of fixed guideway and highway modes. The study concluded that a two-lane (at a minimum) track facility from the L.A. downtown area to the ports, perhaps operating as a toll facility is sufficiently feasible that it should be considered. No action has been taken on this proposal.



LEGEND	
	ACTA CORRIDOR TRACKS
1	ATSF - WEST BANK SEPARATION
2	UPRR - EAST BANK SEPARATION
3	60 MPH - WEST BANK SEPARATION

Source: DMJM/M & N, 1992

FIGURE

3-23

Alternative Passenger/Freight Grade Separations At Redondo Junction

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

CHAPTER 4

THE NATURAL ENVIRONMENT

4.0 THE NATURAL ENVIRONMENT

4.1 TOPOGRAPHY, GEOLOGY AND SOILS

Information for this section was obtained primarily from a report prepared for the proposed project by Law/Crandall and Associates (Concept Study, Appendix C, 1991). This report is fully referenced in the bibliography of this document.

4.1.1 Setting

The proposed project is located within the northerly end of the Peninsular Ranges geomorphic province. The Peninsular Ranges Province extends from the Los Angeles basin south of the Santa Monica Mountains to the tip of Baja California. It includes the San Jacinto and Santa Ana Mountain Ranges and Santa Catalina Island. This geomorphic province is characterized by elongated northwest-trending mountain ranges separated by straight-sided sediment floored valleys (Yerkes et al. 1965). The northwest trend is further reflected in the direction of the dominant geologic structural features of the province, which are northwest-trending faults and folds. These include the Newport-Inglewood fault zone, the Paramount syncline, the Dominguez anticline, the Gardena syncline, the Wilmington anticline, and the Wilmington syncline, all of which cross the corridor. Geologic units of the northern Peninsula Ranges province consist of Jurassic and Cretaceous age basement rocks overlain by as much as 32,000 feet of marine and non-marine sedimentary strata ranging in age from late Cretaceous to Holocene. The corridor will extend across materials deposited during the early Pleistocene through Holocene epochs.

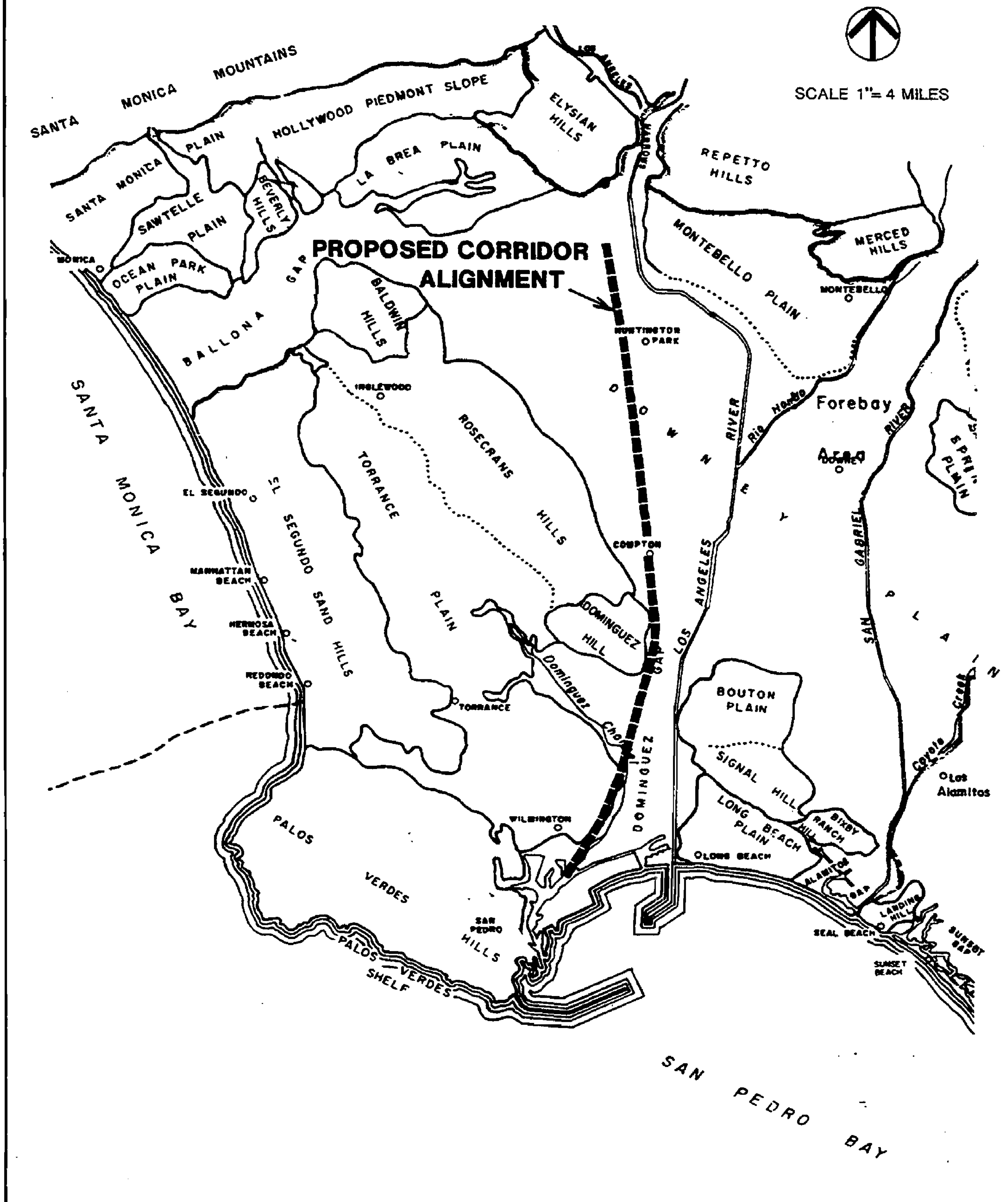
Physiographic Features

The corridor is situated in the northern part of the physiographic basin known as the Los Angeles Basin (Yerkes et al. 1965), or the Coastal Plain of Los Angeles (Mendenhall 1905). The most prominent landforms within the area of the corridor are the Dominguez Hills and Signal Hill, which represent the central portion of the Newport-Inglewood fault zone (or uplift), and the Palos Verdes Hills. Other important landform features along the corridor are the Downey Plain and the Dominguez Gap. Figure 4-1 illustrates the prominent physiographic features in the vicinity of the corridor.

- Dominguez Hills and Signal Hill

The central portion of the corridor crosses the Newport-Inglewood uplift, which is evidenced by the Dominguez Hills and the northwesterly extension of Signal Hill.

The Dominguez Hills lie immediately west of the corridor, between the Artesia Freeway on the north and Del Amo Boulevard on the south. The Dominguez Hills are a feature consisting of an elliptical, northwest-trending anticlinal dome that ranges in elevation from 20 to 195 feet above sea level.



Source: Law/Crandall and Associates, 1992.

FIGURE 4-1	Prominent Regional Physiographic Features	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Signal Hill is the central feature of the Newport-Inglewood uplift. It spans three distinct elements: an eastern segment that includes Alamitos Heights, a central segment of strong relief including Signal Hill and Reservoir Hill, and a northwesterly segment. This northwesterly segment lies closest to the corridor, about 1 mile to the east in the vicinity of the San Diego Freeway and the Los Angeles River.

- Downey Plain

The majority of the project would extend across the Downey Plain, a Holocene age plain formed by coalescing alluvial fans of the Los Angeles and San Gabriel-Rio Hondo River systems (California Department of Water Resources 1961). The Downey Plain ranges in elevation from as high as 275 feet above sea level to sea level; the surface of the plain slopes from 7 to 23 feet per mile, but is generally less than 18 feet per mile.

- Dominguez Gap

The Dominguez Gap constitutes a portion of the Downey Plain lying between Dominguez Hills and the northwestern extension of Signal Hill. The gap is about 1.6 miles wide at its narrowest point and approximately 7 miles long. It was entrenched mainly by an ancestral San Gabriel River, which has a southward-flowing ancestral Los Angeles River as a tributary. An estimated 150 feet of Holocene materials has been deposited into the Dominguez Gap.

- Palos Verdes Hills

The extreme southerly end of the corridor is adjacent to the eastern flank of the Palos Verdes Hills. Within this area, the hills consist of a low lying wave cut terrace that gradually rises from about 50 feet above sea level near San Pedro to about 400 feet above sea level on the eastern and northern flanks of the hills (Poland and Piper 1956).

Existing Geology

The corridor is underlain by geologic units ranging in age from the Miocene to Holocene epochs (see The Geologic Time Scale shown on Table 4-1). A discussion of the project stratigraphy is presented in the following sections in order of decreasing age.

- Monterey Formation

Marine sedimentary rock units of the Monterey Formation are exposed in the Palos Verdes Hills at the southerly end of the corridor. Within this area, the Monterey Formation consists of two members: the middle to late Miocene age Altamira Shale and the late Miocene age Valmonte Diatomite.

- San Pedro Formation

The San Pedro Formation underlies most of the Los Angeles Basin as well as the Santa Monica and San Pedro shelves offshore. Within the corridor, outcroppings of the San Pedro Formation are found in San Pedro along the eastern portion of the Palos Verdes Peninsula. The San Pedro Formation is composed primarily of marine, semi-consolidated sand, gravel, silt, and clay.

TABLE 4-1
GEOLOGIC TIME SCALE

ERA	PERIOD	EPOCH	AGE IN YEARS
Cenozoic	Quaternary	Historic	0-200
		Holocene	0-11,000
		Pleistocene	11,000-2 million
	Tertiary	Pliocene	2-5 million
		Miocene	5-24 million
		Oligocene	24-38 million
		Eocene	38-58 million
		Paleocene	58-66 million
Mesozoic	Cretaceous		66-141 million
	Jurassic		141-205 million
	Triassic		205-240 million
Paleozoic	Permian		240-290 million
	Pennsylvanian		290-320 million
	Mississippian		320-360 million
	Devonian		360-410 million
	Silurian		410-438 million
	Ordovician		438-500 million
	Cambrian		500-570 million
Pre-Cambrian			Older than 570 million

Notes:

1. Age in years is arbitrarily rounded. In the Quaternary Period, times are aligned with usage in California seismicity practices.

2. Data modified from AGI Data Sheet 1.1 and USGS Geologic Names Committee, 1980; Decade of North American Geology Geologic Time Scale, Geologic Society of America, 1983; American Heritage Dictionary, 1982; Fault Rupture Zones in California, Special Publication 42, California Division of Mines and Geology.

Source: Law/Crandall and Associates, 1991.

- Lakewood Formation

The Lakewood Formation overlies the early Pleistocene San Pedro Formation and extends beneath most of the Los Angeles Basin. Within the project area, it is exposed in Dominguez Hills, Signal Hill, and in the Wilmington/San Pedro area. It is composed of continental and marine deposits of sand, silt, clay, and gravel. Its character varies locally as a result of the differing source rocks from which sediments are derived.

- Alluvium

The majority of the corridor will be 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.

Seismicity

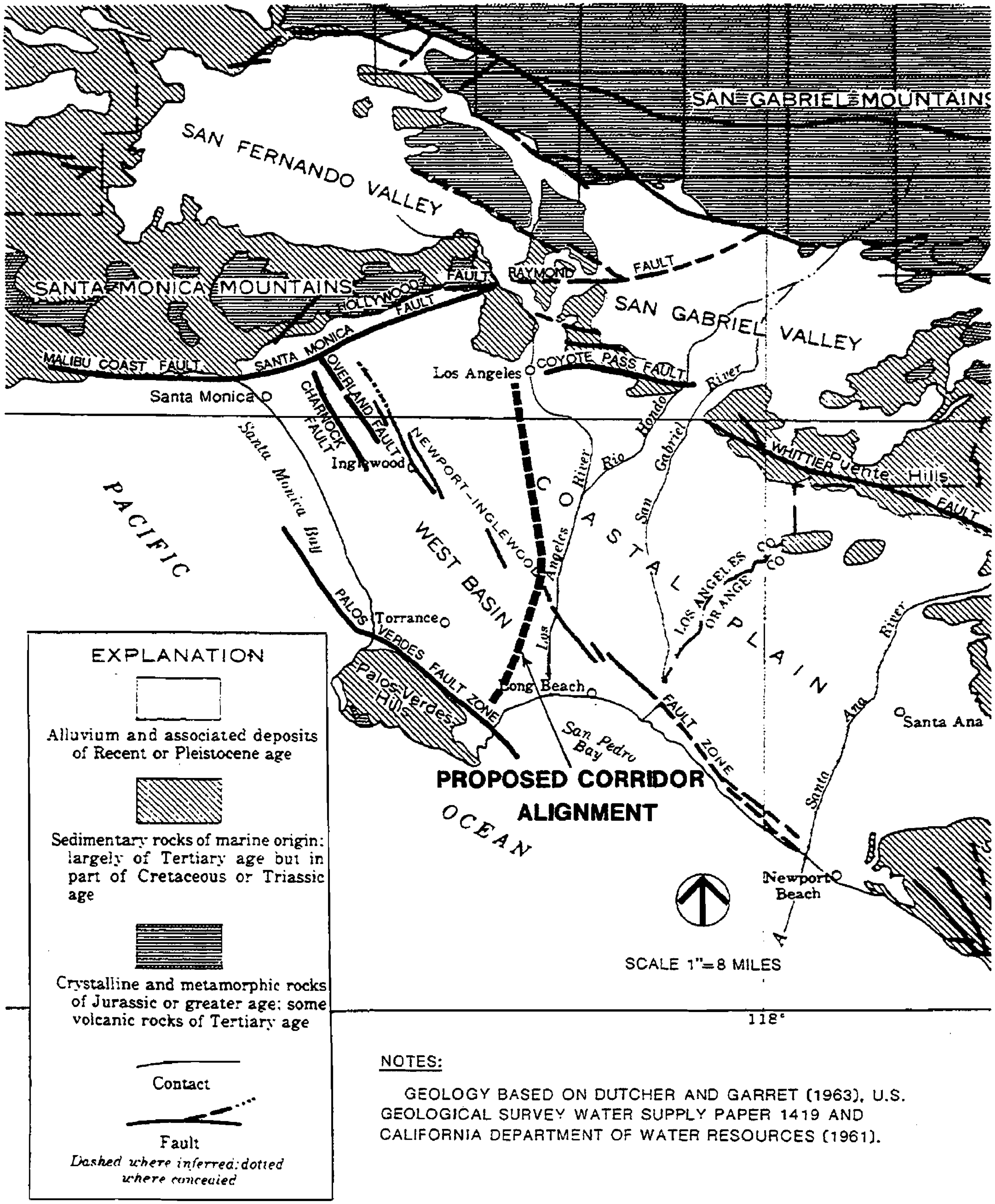
Faults are fractures or lines of weakness in the earth's crust, along which rocks on one side of the fault are offset relative to the same rocks on the other side of the fault. Sudden movement along faults results in an earthquake. Several major faults are present within 50 miles of the project area. Numerous smaller faults are located throughout the Los Angeles Basin. Some directly underlie, or are in very close proximity to the corridor. Some of these faults are considered active and capable of generating large damaging earthquakes. These faults are shown in Figure 4-2.

Seismic activity of a fault is measured by the frequency and magnitude of past earthquakes associated with that fault. An active fault is a fault that exhibits movement or shows evidence of movement within the last 11,000 years. A potentially active fault is a fault that has exhibited evidence of movement within the last two-million years. Historical records indicate that the faults described below are considered active and capable of generating earthquakes that could affect the project area. Historical records indicate extensive seismic activity in the southern California area, particularly in the Los Angeles area. Table 4-2 presents a listing of active faults in Southern California with the distance in miles between the corridor and the nearest point on the fault, and the maximum credible earthquake for the fault.

An earthquake is classified by the amount of energy released, which is quantified using the Richter scale. This is a logarithmic scale where each whole number increase in Richter magnitude (M) represents a tenfold increase in the wave amplitude generated by an earthquake, which is a representation of an earthquake's size. Also, for each full point increase in Richter magnitude, the corresponding amount of energy released increases 31.6 times. Thus, a M 6.3 earthquake is 10 times larger than a M 5.3 earthquake and releases 31.6 times more energy. In contrast, a M 7.3 event is 100 times larger than a M 5.3, and releases almost 1,000 times more energy. Earthquakes of Richter magnitude 6.0 to 6.9 are classified as "moderate". Earthquakes between M 7.0 and 7.9 are classified as "major", and M 8.0 and larger are classified as "great".

- Newport-Inglewood Fault Zone

The closest active fault to the corridor is the Newport-Inglewood fault zone. This zone traverses the corridor in the vicinity of the Dominguez Gap. The Newport-Inglewood fault extends from the southern edge of the Santa Monica Mountains southeastward to an area offshore of Newport Beach. This zone, commonly referred to as the Newport-Inglewood uplift or zone of deformation, can be traced at the surface by following a line of geomorphically young anticlinal hills and mesas formed by the folding and faulting of a thick sequence of Pleistocene and tertiary age sedimentary rocks (Barrows, 1974). These hills and mesas include the Baldwin Hills, Dominguez Hills, Signal Hill, Huntington Beach Mesa and Newport Mesa. Recent earthquake focal mechanisms for 39 small earthquakes (1977 to 1985) show faulting along the north segment (north of Dominguez Hills) and along the south segment (south of Dominguez Hills to Newport Beach) (Hauksson 1987).



NOTES:

GEOLOGY BASED ON DUTCHER AND GARRET (1963), U.S. GEOLOGICAL SURVEY WATER SUPPLY PAPER 1419 AND CALIFORNIA DEPARTMENT OF WATER RESOURCES (1961).

Source: Law/Crandall and Associates, 1992.

FIGURE 4-2	**Fault Location Map**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

TABLE 4-2
Major Named Faults Considered to be Active (a)
In Southern California

Fault (in alphabetical order)	Date of Latest Major Activity	Maximum Credible Earthquake	Distance From Corridor (miles)	Direction From Corridor
Big Pine	1852	7.5 (b)	72	NW
Cucamonga	(e)	6.5 (b)	32	ENE
Elsinore	1910	7.5 (b)	32	ESE
Elysian Park Structure	1989	6.75 (c)	4.7	NNE
Garlock	(d)	7.75 (b)	65	NNW
Helendale	(e)	7.5 (b)	73	NE
Malibu Coast	1973	7.0 (c)	16	W
More Ranch	(d)	7.5 (b)	91	WNW
Newport-Inglewood	1933	7.0 (b)	0	Crosses CTC
Palos Verdes	1982	6.6	0.75	SW
Pinto Mountain	(e)	7.5 (b)	86	E
Raymond	(e)	6.6 (c)	7.6	N
San Andreas Zone	1857	8.25	35	NNE
San Cayetano	(e)	6.75 (c)	43	NW
San Fernando Zone	1971	6.5 (b)	17	NNW
San Gabriel	(e)	7.5 (c)	18	NNE
San Jacinto Zone	1968	7.5 (b)	17	NNW
White Wolf	1952	7.75	80	NNW
Whittier	1987	7.1 (c)	10.7	E

(a) Historic movement (1769 to present).
(b) Greensfelder, C.D.M.G. Map Sheet 23, 1974.
(c) Mark (1977) Length-Magnitude relationship.
(d) Intermittent creep.
(e) Movement within the last 11,000 years; zoned by the State Geologist for the Alquist-Priolo Program.

Source: Law/Crandall and Associates, 1991.

The 1933 Long Beach earthquake has been attributed to movement on the Newport-Inglewood fault zone. Based on historic earthquakes along the corridor, the fault zone is considered active. The Newport-Inglewood fault zone is considered capable of generating a maximum credible earthquake of a magnitude 7.0.

The Cherry Hill branch of the Newport-Inglewood fault zone traverses the corridor in the area of Dominguez Gap just to the north of Del Amo Boulevard. Apparent movement along the fault is northeast side up, resulting in vertical displacement of waterbearing sediments extending for several miles.

- Raymond Fault

The active Raymond fault is located 7.6 miles to the north of the corridor. The Raymond fault is a high-angle reverse fault thrusting basement rocks north of the fault, over alluvial sediments located south of the fault. It has long been recognized as a ground water barrier in the Pasadena/San Marino area, and numerous geomorphic features along its entire length (such as fault scarps, sag ponds, springs, and pressure ridges) attest to the fault's activity during the Holocene epoch. Within the last 36,000 years, eight separate earthquake events have been recognized along the Raymond fault (Crook et al. 1987) The most recent surface fault movement, based on radiocarbon dating of materials collected in an excavation exposing the fault, occurred sometime between 1,630 and 2,160 years ago (plus or minus 100 years) (LeRoy Crandall and Associates 1978; Crook et al. 1987).

- San Andreas Fault Zone

The San Andreas fault zone is California's most prominent structural feature, trending in a general northwest direction for almost the entire length of the state. The southern segment, situated closest to the corridor, is approximately 280 miles long. It extends from the Mexican border into the transverse ranges west of Tejon Pass. Along this segment, there is no single traceable fault line (Iacopi, 1977); rather, the fault is composed of several branches. At its nearest point, the San Andreas fault is approximately 35 miles north-northeast of the corridor. At this point the fault is considered capable of generating a maximum credible earthquake of magnitude 8.25 (Greensfelder 1974).

- Palos Verdes Fault Zone

The closest potentially active fault zone to the corridor is the Palos Verdes fault zone. Located 1.6 miles to the southwest of the project area, the fault is traceable in the subsurface along the northern front of the Palos Verdes Hills. Zielbauer et al. (1962) report that early Pleistocene age San Pedro Formation beds are sharply upwarped along the fault trace, but that the fault does not cut materials younger than middle Pleistocene at the surface. Offshore data, consisting of acoustic and reflection profiles, show offset in the base of the holocene material, suggesting very recent movement along the Palos Verdes Fault (Darrow and Fisher 1983).

- Coyote Pass Fault

The potentially active Coyote Pass fault is located about 2.7 miles northeast of the corridor at its closest point. The Coyote Pass fault trends east to west across the southerly flank of the

Repetto Hills for a distance of about 3 miles (California Department of Water Resources 1961). Based on available information, the fault is a northerly dipping reverse fault with Pliocene rocks north of the fault thrust over younger Pleistocene sediments south of the fault.

- Charnock Fault

The potentially active Charnock fault is located 5.6 miles west of the corridor at its closest point. The Charnock fault trends northwest-southeast, subparallel to the trend of the Newport-Inglewood fault zone and the Overland fault. Differential water levels occur in the San Pedro Formation across the fault and, therefore, it is concluded that the fault has experienced some movement during early Pleistocene time (approximately 500,000 to 2 million years ago).

- Elysian Park Structure

The 1987 Whittier Narrows earthquake (Richter magnitude 5.9) has been attributed to subsurface thrust faults that are reflected at the earth's surface by a west-northwest trending anticline known as the Elysian Park Anticline (Lamar 1970), or the Elysian Park structure. The axial trace of this structure extends approximately 12 miles through the Elysian Park-Repetto Hills from about Silver Lake on the west to the Whittier Narrows on the east. The Elysian Park structure is located about 4.7 miles to the north-northeast of the corridor at its closest point. The subsurface faults that create the structure are not exposed at the surface, and do not present a potential surface rupture hazard; however, as demonstrated by the 1987 earthquake and two smaller earthquakes on June 12, 1989, the faults are a source of future seismic activity. As such, the structure should be considered an active feature capable of generating future earthquakes.

Other potentially active faults include the Santa Monica-Hollywood, Norwalk, and Overland faults located 6.7 miles north-northwest, 7.8 miles east, and 8.5 miles west of the corridor respectively.

<u>Liquefaction and Other Soil Instability Issues</u>

Liquefaction potential, which is associated with earthquakes, has been found to be greatest where the ground water level is shallow and loose fine sands occur within a depth of about 50 feet or less. Liquefaction potential decreases with increasing grain size and clay and gravel content, but increases as the ground acceleration and duration of shaking increase.

Water level measurements from the Los Angeles County Department of Public Works (LACDPW) indicate that shallow ground water exists along the corridor in the vicinity of Dominguez Gap and the Los Angeles Harbor area along Alameda Street, south of Pacific Coast Highway, and in the vicinity of Henry Ford Avenue. Shallow ground water was also encountered in two observation wells dug for this project by LeRoy Crandall and Associates for this project. Ground water levels in Observation Wells 4 and 5 (in the vicinity of the intersections of Pacific Coast Highway and Alameda Street and Henry Ford Avenue and Anaheim Street) were at depths of 41 feet and 8 feet respectively. These depths correspond to elevations of approximately 2.5 and 11 feet below sea level.

According to the County of Los Angeles Seismic Safety Element (1974, revised 1990), historically high ground water has existed along almost the entire length of the corridor from the harbor area, extending north to Huntington Park. However, the only areas of the corridor indicated to have liquefaction potential are between Del Amo and Sepulveda Boulevards and in the vicinity of Imperial Highway. The Seismic Safety Elements of the cities of Compton, Los Angeles, South Gate, Huntington Park, and Lynwood indicate that ground water levels at present are generally deeper than 50 feet and that the liquefaction potential in the vicinity of the corridor is low. LACDPW water level measurements verify that ground water levels are generally greater than 50 feet deep in these areas. However, these data do not always take into account perched ground water or shallow aquifers. Additionally, the cities of Huntington Park, Lynwood, and South Gate recommend site-specific studies to verify the potential for liquefaction.

- Seismic Settlement

Seismic settlement often occurs when loose to medium dense granular soils densify during ground shaking. If such settlement were uniform beneath the proposed project, damage would be minimal. However, such settlement is generally not uniform because of variations in distribution, density, and confining conditions of the soil. Such seismically induced settlement can occur in both dry and partially saturated soils, as well as in saturated granular soils. Differential settlement may also be induced by ground failures such as liquefaction, flow slides, and surface ruptures. Generally, differential settlements due to such conditions would be more severe than those due to densification alone.

- Subsidence

The proposed project would pass through the Dominguez and Wilmington oil fields. There is no documented ground subsidence associated with the Dominguez oil field. However, the historic withdrawal of oil has been known to cause subsidence in the area of the Wilmington oil field. Total subsidence reached a maximum of 29 feet over the crest of the Wilmington anticline, where most of the oil has been withdrawn. Water injection to halt the subsidence was started in the late 1950's in the areas of maximum subsidence but did not become a significant factor until 1971-72. In the vicinity of the proposed corridor, subsidence reached a maximum of six feet (Randall et al. 1983).

- Landsliding and Lurching

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 strong ground shaking).

<u>Flooding</u>

- Flooding

The majority of the corridor is located within a designated "Zone C" flood hazard area. "Zone C" is defined by the Federal Insurance Administration as an area of minimal flooding. The portion of the corridor south of Anaheim Street and north of B Street is within a "Zone B" flood hazard area. "Zone B" is an area between the limits of a 100-year flood and 500-year flood, or areas that could be subject to shallow 100-year flooding (less than 1 foot) where the contributing drainage area is less than 1 square mile.

- Tsunamis

Tsunamis are seismically generated sea waves which are capable of considerable destruction in certain coastal areas. Only the northern portions of the proposed alignment north of the Badger Avenue Bridge could be affected by a tsunami.

Oil Wells

The Los Angeles Basin is a major oil-producing district in Southern California. Oil, first discovered in the basin in 1889, occurs chiefly in Pliocene and Miocene strata, with lesser amounts in Pleistocene strata and in fractured schist (Cretaceous or older) of the basement complex. The Dominguez and Wilmington oil fields underlie the proposed project.

Hazardous Materials Deposition

Information for this section was obtained from a report prepared for the proposed project by MAA Engineering Consultants, Inc (Preliminary Environmental Site Assessment, 1991). This report is fully referenced in the bibliography of this document.

The area along the proposed project has been in use for many years as a transportation corridor. Land uses existing along the corridor are predominantly industrial, and as a result, in many cases require the use of hazardous materials or result in the creation of hazardous materials. In some cases these materials may have entered the soil or ground water and led to contamination of the soil and ground water. A preliminary environmental site assessment was performed for the corridor by MAA Engineering Consultants, Inc. This assessment was performed to identify potential problems in design and construction due to the presence of toxic or hazardous substances, including contaminated soil or groundwater. The preliminary assessment consisted of a database search, contacts with local agency officials, data narrowing, a field check of potentially contaminated sites, and synthesis of the data to provide conclusions with respect to potential problems and recommendations for the next phase of work.

An initial search was made of 9 state and federal databases for potentially contaminated sites within a 4,000 foot-wide zone along the project corridor. The database search included the following sources:

CERCLIS - Comprehensive Environmental Response Compensation and Liability Information System (1990). A federal database listing potential hazardous waste sites which will be reviewed by EPA or one of its contractors. It includes verified sites listed or proposed for the National Priority List (NPL), or Superfund list. This list is updated quarterly.

BEP - California Bond Expenditures Plan (1989 and 1990 update). A California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC) database listing all verified sites that are or will be targeted for abatement by DTSC under the Cleanup Bond Act of 1984.

CORTESE - (AB 3750) 1989. An annual statewide listing of all known confirmed or potential hazardous sites based upon input from the DTSC, State Water Resources Control

Board (SWRCB), Regional Water Quality Control Board (RWQCB), and California Integrated Waste Management Board (CIWMB).

LUST - Leaking Underground Storage Tanks (October 1990). A statewide database maintained by the SWRCB identifying all known leaks of hazardous substances from underground tanks, including type of contaminant and status of remediation. Additional information was obtained from the local (Los Angeles) Regional Water Quality Control Board where release of contaminants from underground tanks and surface impoundments to groundwater is known or suspected. Information from the local Los Angeles office is updated quarterly.

ASPIS - Abandoned Sites Program Information System (1990). A list of potentially hazardous sites generated through the DTSC Toxic Substances Control Program (TSCP) via the use of Standard Industrial Classification (SIC) codes, historic phone book reviews, site drive-bys, citizen complaints, and other leads. Site sampling is often required to determine the actual site condition.

SWIS - Solid Waste Information System (July 1990). A statewide inventory of active, inactive, and closed solid waste disposal and transfer facilities compiled and maintained by the California Integrated Waste Management Board (CIWMB).

SWAT - Solid Waste Assessment Test Program (1990). A statewide database listing solid waste disposal sites testing by their owners/operators to study the extent of air and ground water contamination at such facilities. CIWMB and DTSC are required to coordinate with Air Resources Board (CRB) and SWRCB to determine appropriate remedial actions.

TANNER - (1990). A statewide inventory of generators of hazardous waste developed and maintained by the DTSC. This report is generated from the Hazardous Waste Information System (HWIS).

RCRA - Resource Conservation and Recovery Act (1990). A federal list of reporting facilities that generate, store, transport, treat or dispose of hazardous waste. The list is developed and maintained by EPA.

Following the database search, all sites identified within the 4,000-foot zone were entered into the project database. The data were then narrowed to all sites within a 400-foot wide corridor along the alignment, under the assumption that beyond this distance, the potential effect on the project would not be significant. All sites within the 400-foot corridor were then field checked and plotted on aerial photographs at a scale of 1 inch equals 50 feet.

The narrowed site list was then screened on the basis of a field check, aerial photographs, and information available from the above databases to identify sites that would have the greatest potential affect upon the design and construction of the proposed project. Table 4-3 provides a summary of the 1,326 sites compiled for the project. The table gives the number of sites from each available database. It should be noted that many sites are included on more than one list. Within 400 feet of the proposed project, there are a total of 142 sites that are shown on one or more of the published lists.

TABLE 4-3
Summary of Hazardous Waste Sites Within Corridor

DATABASE	NUMBER OF SITES	
	4000 FEET ZONE	400 FEET ZONE
CERCLIS	86	1
CORTESE	112	18
BEP	9	2
LUST	143	27
SWIS	8	1
ASPIS	294	76
SWAT	1	0
Total sites in above data base	508	142
TANNER	150	-
RCRA	668	-
Total sites in all data bases	1326	-
Source: MAA Engineering Consultants, Inc., 1991		

4.1.2 Construction Impacts

Impacts of the proposed project on the geological environment would be considered significant if: (a) unique geologic features or geologic features of unusual scientific value would be disturbed or otherwise adversely affected, (b) known mineral resources would be rendered inaccessible, (c) geologic processes such as landsliding or erosion would be triggered or accelerated, or (d) substantial alteration of topography beyond that resulting from natural erosion and deposition would occur.

Physiographic Features

No impacts during either construction or operation of the proposed project are expected to result from the existing physiographic features in the area.

Geology and Seismicity

No surface evidence of faults or fault-associated features have been identified in the immediate vicinity of the corridor during field reconnaissance conducted for the proposed project. The corridor does however traverse the active Newport-Inglewood fault zone in the area of the Dominguez Gap. The fault zone in this area, concealed by recent Holocene age alluvium, is not reflected at the surface, but is believed to be present at depth. An Alquist-Priolo Special Studies Zone for surface fault rupture hazard had not been established along the segment of the fault zone that crosses the corridor. It is believed that the possibility of surface rupture occurring along the segment of the Newport-Inglewood fault zone that traverses the corridor during the construction period of the project is low (Law/Crandall and Associates 1991).

The seismic hazard along the corridor during the construction period is generally limited to those hazards caused by earthquakes. The major cause of damage from earthquakes along the corridor would be violent shaking from earthquake waves; damage due to actual displacement or fault movement is less frequent, but could occur where the active Newport-Inglewood fault zone crosses the corridor.

Liquefaction and Other Soil Instability Issues

- Liquefaction

Areas of high groundwater do exist along the corridor. The areas along the corridor believed to have liquefaction potential are found between Del Amo and Sepulveda boulevards and in the vicinity of Imperial Highway. Encountering these areas is not considered a significant impact.

- Seismic Settlement

Soils encountered during LeRoy Crandall and Associates investigation indicate that the granular materials underlying the corridor are generally of medium density. As a result, the probability of problematic settlement associated with an earthquake is considered to be low, and is therefore not considered a significant impact.

- Subsidence

In the vicinity of the corridor, maximum subsidence has been about 6 feet (Randall et al. 1983). Positive vertical elevation changes of only a few tenths of a foot are expected to affect a relatively large area subsequent to water injection. Elevation changes are typically gradual and are not expected to adversely affect specific areas along the corridor and therefore the effects are not considered significant.

- Landsliding and Lurching

Slopes exist adjacent to the corridor in the Dominguez Hills between Del Amo Avenue and the Artesia Freeway (State Route 91). This area would have to be evaluated with regard to gross geologic stability during the comprehensive geotechnical investigation to be performed for the proposed project. Low-angle sliding or flowage can occur under special circumstances in areas, if any, where liquefaction potential is present. This is not considered a significant impact.

Flooding and Tsunamis

The Los Angeles Harbor area in the vicinity of the corridor could be affected by a 100-year tsunami (seismic sea wave) to approximately 5.3 feet above sea level. Run-up from a tsunami with a return interval of 500 years would reach an elevation of about 8.2 feet. Elevations along the proposed project vary from 7 feet at it lowest (in the Los Angeles Harbor area) to approximately 225 feet (in the City of Vernon). Accordingly, there is low risk that portions of the proposed project below elevation 8.2 could be inundated by a 500-year tsunami and therefore the potential effects are not considered significant.

Oil Fields

A review of maps compiled by the California Division of Oil and Gas (DOG) indicates oil wells have existed along the project corridor. These wells have been recorded as being abandoned. Although unlikely, some construction activities could disturb or expose previously abandoned oil wells. This may require reabandonment if disturbed, especially if the well was not properly abandoned initially. Improper exposure of these wells could result in the inadvertent release of hydrogen sulfide gas and could have other consequences. This is not considered a significant impact.

Hazardous Materials Deposition

The Preliminary Environmental Site Assessment identified a total of 1,326 potential hazardous waste sites along the corridor. As shown in Table 4-4 a total of 46 sites were classified as high priority sites. These high priority sites are plotted on Figure 4-3, sheets 1 through 3. Sites with soil contamination, groundwater contamination, and unidentified contamination are distinguished by the type of symbol used. Of the 46 sites identified within the 400-foot zone, 41 are not currently undergoing remediation, or they have been remediated but are not yet certified.

Plotting of the 41 potential impact sites along the corridor revealed four relatively distinct concentrations of "problem" sites. The first concentration is in Los Angeles at the northern terminus of the corridor (see Figure 4-3, sheet 1), where 9 sites are in relatively close proximity. A second concentration exists along the portion of the route passing through Huntington Park (see Figure 4-3, sheet 1), where 8 sites are grouped together. From Lynwood south to Compton is a third concentration of 11 sites (see Figure 4-3, sheet 2). In Carson, around the I-405 Alameda Street interchange, is a fourth concentration of 7 sites (see Figure 4.1-5). There are 6 additional sites at isolated locations along the route, including 3 in South Gate (see Figure 4-3, wheet 1) and 3 in Wilmington (see Figure 4-3, sheet 3).

Of particular note with respect to potential impacts are the 2 state superfund Bond Expenditure Plan (BEP) sites along the corridor, Electro Sheen Industries at 1300 Alameda Street South, in Compton, and the TCL Corporation (currently owned by Union Pacific Resources) at 420 Henry Ford Avenue, Wilmington, and a third non-superfund site, Sanders Service Inc., at 5921 Wilmington Avenue South in Los Angeles County (in the Huntington Park cluster), that is currently included on the CERCLIS database. These represent some of the most serious cases of contamination along the corridor.

At the Electro Sheen site, the soil is contaminated with heavy metal. The site is currently overseen by the Los Angeles County Health Department and is awaiting remediation. The estimated time required for cleanup is approximately 20 months. At the TCL Corporation site, soil and groundwater contamination include heavy metals, organic solvents, resins, oils, paints, dyes and acids. The landowner has signed a consent decree to conduct remedial activities under the direction of the DTSC.

TABLE 4-4
Summary of High Priority Hazardous Waste Sites Along Corridor

ID#	SITE NAME	ADDRESS	CITY	ZIP	COMMENTS
POTENTIAL IMPACT SITES: LOS ANGELES CLUSTER					
216	Industrial Wire Products Co.	2417 23rd St.	Los Angeles	90058	Potentially hazardous site.
221	Kellogg Oil Co.	2465 25th St. E	Los Angeles	90058	Potentially hazardous site.
223	Pacific Pioneer Plastic Co.	1642 41 St. E	Los Angeles	90011	Preliminary assessment required - medium priority.
237	The Boys Market	2652 Long Beach Ave.	Los Angeles	90058	Tank leak. groundwater contamination. Pollution characterization in progress.
282	EKCO Metals	1700 Perrino St.	Los Angeles	90023	Tank leak. Soil contamination. Pollution characterization in progress.
328	Flo-Tronic Metal Mfg. Inc.	2885 Washington Blvd.	Los Angeles	90023	Potentially hazardous site.
391	So. Ca. Edison Co. Vernon District	2323 Vernon Ave.	Vernon	90058	Potentially hazardous site.
517	Stinnes-western Chemical Corp.	3270 Washington Blvd. E	Vernon	90023	Tank leak. Groundwater contamination. Pollution characterization in progress.
477	Williams Warehouse	1925 Vernon Ave. E	Vernon	90058	Tank leak being confirmed.
POTENTIAL IMPACT SITES: HUNTINGTON PARK CLUSTER					
118	Cyclo Products Inc.	1922 64th St. E	Huntington Park	90001	Tank leak. Soil contamination. Pollution characterization in progress.
120	Cold Investments	6820 Wilson Ave.	Huntington Park	90255	Tank leak. Soil Contamination. Preliminary site assessment workplan underway.
121	Blue Coral Inc.	1920 Randolph St.	Huntington Park	90001	Tank leak. Soil contamination. No action taken.
127	Alameda Truck	5925 Alameda St. S	Huntington Park	90255	Tank leak. Soil contamination. Preliminary site assessment workplan submitted.
128	City of Huntington Park	2431 Florence Ave. E	Huntington Park	90255	Tank Leak. Soil contamination. Preliminary site assessment workplan underway.
149	Sanders Service Inc.	5921 Wilmington Ave. S	L.A. County	90001	Potentially hazardous site.
227	Modern Springs Co.	1842 58th Place E	Los Angeles	90001	Site is undergoing investigation or mitigation activities.
229	Oil Process Co.	5756 Alba St.	Los Angeles	90058	Potentially hazardous site.

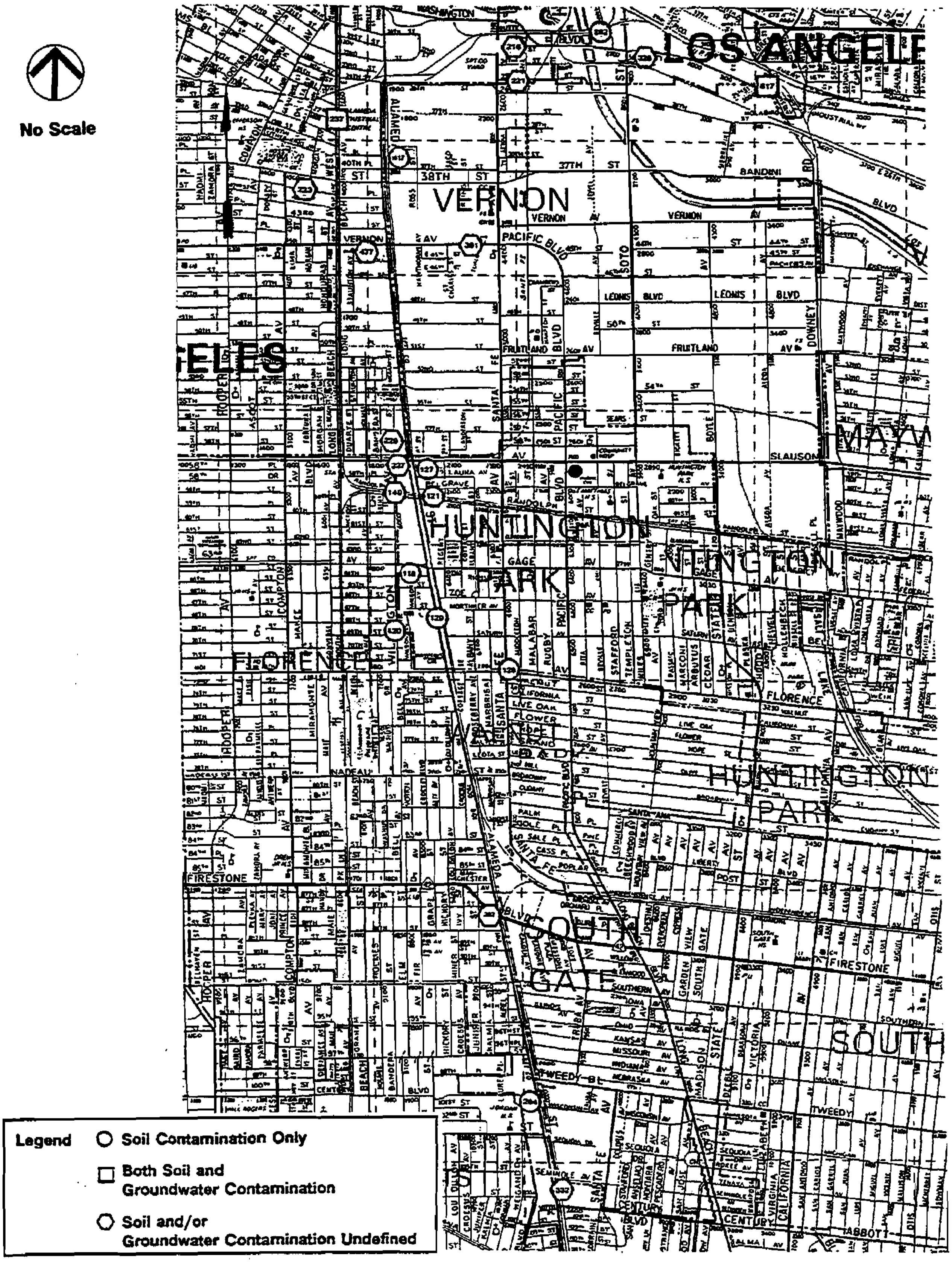
Table 4-4 (Cont'd)

ID#	SITE NAME	ADDRESS	CITY	ZIP	COMMENTS
POTENTIAL IMPACT SITES: LYNWOOD-COMPTON CLUSTER					
47	Cherokee Trucking	414 Banning St. e	Compton	90222	Site is undergoing investigation or mitigation activities.
49	Compton Forge	1721 Alameda St. N	Compton	90222	Tank leak. Contamination type undetermined. Pollution characterization in progress.
51	Treasure Craft	220 Alameda St N	Compton	90222	Contamination not yet confirmed.
53	MacClatchie MFG. Co	2120 Alameda St. N	Compton	90221	Site inspection required - low priority.
54	Brown and Brown Machine Co.	3200 Alameda St. N	Compton	90220	Tank leak. Soil contamination. Preliminary site assessment workplan underway.
75	Owens-Corning Fiberglass	1501 Tamarind St. N	Compton	90224	Tank leak. Groundwater contamination. Remedial plan submitted.
76	Shell Station (former)	611 Alameda St. S	Compton	90220	Tank leak. Soil contamination. Pollution characterization in progress.
82	Clets Plating Co.	507 El Segundo Blvd.	Compton	90222	Potentially hazardous site.
95	Electro Sheen Industries Inc.	1300 Alameda St. S	Compton	90221	Site listed on California BEP or Federal National Priorities list.
97	Compton Foundry	1320 Alameda St.	Compton	90221	Potentially hazardous site.
337	Marin Metal Finishing	12150 Alameda St. S	Lynwood	90262	Tank leak. Groundwater contamination. Pollution characterization in progress.
POTENTIAL IMPACT SITES: CARSON CLUSTER					
13	Alameda St. San LDFL	22700 Alameda St.	Carson	90810	Potentially hazardous site.
17	Commercial Carriers Inc.	22440 Alameda St. S	Carson	90810	Tank leak. Soil contamination. Pollution characterization in progress.
30	Domingues Water company	21718 Alameda St. S	Carson	90810	Tank leak. Contamination type undetermined. No action taken.
34	Air Products & Chemical Inc.	23320 Alameda St.	Carson	90745	Potentially hazardous site.
35	State Salvage	22500 Alameda St. S	Carson	90810	Tank leak being confirmed.
36	Arco Credit Union	1907 Sepulveda Blvd. E	Carson	90749	Tank leak. Contamination type undetermined.
205	Duralite Compressed Fiberglass	21100 Alameda St.	Long Beach	90810	Potentially hazardous site.

Table 4-4 (Cont'd)

ID#	SITE NAME	ADDRESS	CITY	ZIP	COMMENTS
POTENTIAL IMPACT SITES: SOUTH GATE CLUSTER					
262	Alloy Die Casting Co.	2211 Firestone Blvd.	Los Angeles	90002	Preliminary assessment required - low priority.
264	Sphinx Manufacturing	2401 103rd St. E	Los Angeles	90002	Tank leak. Soil contamination. Preliminary site assessment workplan submitted.
332	Jorgensen Steel	10650 Alameda St.	Lynwood	90262	Tank leak. Contamination type undetermined. No action taken.
POTENTIAL IMPACT SITES: WILMINGTON CLUSTER					
113	Mobil Station	410 Henry Ford Ave.	Wilmington	90710	Groundwater contamination. Pollution characterization in progress.
537	TCL Corporation	420 Henry Ford Ave.	Wilmington	90744	Possible groundwater contamination from underground tank. Site targeted for cleanup.
546	Ashbury Systems Inc.	1605 Alameda St.	Wilmington	90744	Potentially hazardous site - solid waste disposal.
CONTAMINATED SITES WHERE REMEDIAL ACTION HAS BEEN TAKEN					
15	Warren Trucking Co Inc.	20500 Alameda St. S	Carson	90810	Tank leak. Contamination type undetermined. Case closed.
129	General Motors	6901 Alameda St. S	Huntington Park	90255	Tank leak. Soil contamination. Remedied.
277	Flask Chemical Co.	11642 Mona Blvd.	Los Angeles	90059	Tank leak. Soil contamination. Remedied.
336	Quality Metal Refinishing	11754 Alameda St. S	Lynwood	90262	Tank leak. Soil contamination. Remedied.
417	Crescent Truck Lines	2910 Ross St.	Vernon	90058	Tank Leak. Soil contamination. Case closed.

Source: MAA Engineering Consultants, Inc., December 1991.



Source: MAA Engineering Consultants, Inc., 1992.

Sheet 1 of 3

FIGURE 4-3	Hazardous Waste Sites	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

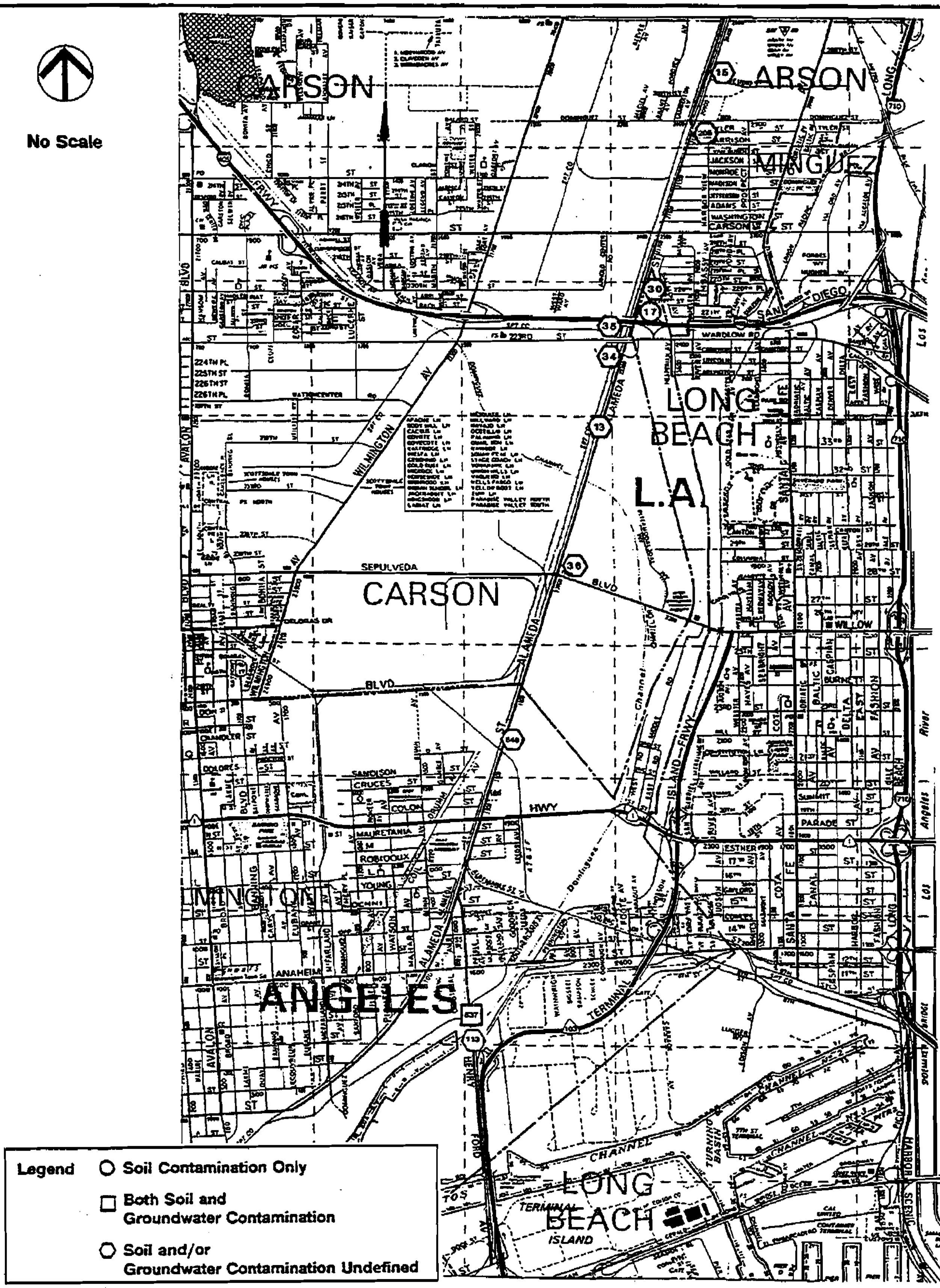
No Scale

Legend
- ○ Soil Contamination Only
- □ Both Soil and Groundwater Contamination
- ⬡ Soil and/or Groundwater Contamination Undefined

Source: MAA Engineering Consultants, Inc., 1992.

Sheet 2 of 3

FIGURE 4-3	Hazardous Waste Sites	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: MAA Engineering Consultants, Inc., 1992.

Sheet 3 of 3

FIGURE 4-3	Hazardous Waste Sites	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

The potential impacts associated with existing contaminated sites located along the proposedcorridor would be significant. Construction along the corridor, including the depressed trainway, may encounter sites with contaminated soils and groundwater. These sites should be remediated. See mitigation measures.

4.1.3 Operational Impacts

Geology and Seismicity

The proposed project would be located in a seismically active area. A moderate to major earthquake on any of the major faults in the area during the operational lifetime of the proposed project would subject the project to strong groundshaking. Such groundshaking could result in the failure of structures along the proposed corridor and could disrupt service along the corridor. Actual displacement or fault movement is less likely, but could occur where the active Newport-Inglewood fault zone crosses the corridor.

Oil Fields

No operational impacts to oil fields are anticipated.

Liquefaction and Other Soil Instability Issues

Some areas along the corridor may be subject to liquefaction in the event of an earthquake during the operational lifetime of the proposed project. Soil liquefaction could cause overlying structures to fail through the loss of load bearing capacity, lateral spreading, and settlement. The failure of structures along the corridor could result in a disruption of service along the corridor.

Flooding and Tsunamis

Portions of the corridor are located in areas that have the potential for periodic inundation from various sources during the operational lifetime of the project. Flooding associated with tsunamis is highly unlikely. However, flooding as a result of a 100 or 500 year storm may affect portions of the corridor. In general, such flooding would be of limited duration and is not expected to have significant affects upon the proposed project. If such flooding did occur it could temporarily disrupt service along the alignment.

Hazardous Materials Deposition

A potential source of hazardous waste deposition during the operational lifetime of the proposed project would spills of materials in transport. These materials could potentially be extremely hazardous to those in close proximity to the spill area. A detailed discussion of this matter is provided in section 5.6 of this EIR.

4.1.4 Mitigation Measures

Construction

- Geology and Seismicity

The likelihood of a severe earthquake occurring during the construction period is low, however, the possibility does exist and should not be discounted. If the area is subject to a substantial seismic event and associated severe ground shaking during the construction period the effects of the shaking can be minimized through appropriate construction techniques. All available construction techniques for the safety of workers, pedestrians, motorists, and nearby residents should be implemented. These measures include shoring and falsework. Despite these measures, in the event of an earthquake during the construction period, damage to structures under construction could be extensive.

Oil Fields

Any undocumented and/or improperly abandoned wells encountered during construction along the corridor would be abandoned according to requirements set forth in Title 14, Chapter 4, Subsection 1, Article 3, Section 1723, of the California Administrative Code.

Liquefaction and Other Soil Instability Issues

All areas of historically high or perched ground water levels along the corridor (Huntington Park, South Gate, Lynwood, Compton, Carson, and the harbor area south of Anaheim Street should be analyzed in detail during project design to verify the potential for liquefaction. Should soils subject to liquefaction be found below any of the alternatives, then site specific engineering techniques (e.g. importation of stable material, compaction of soils, permanent dewatering, and attachment of deep-set piles to bedrock or lower, denser soils), should be implemented.

- Flooding and Tsunamis

Potential impacts anticipated are not considered significant and further mitigation beyond that already imposed by building codes and other applicable regulations and guidelines are not proposed.

- Hazardous Materials Deposition

Sites along the corridor that would be disturbed by corridor construction and that are known to contain contaminated soil or groundwater would be cleaned prior to or during construction of the project. Clean-up activities would be conducted in accordance with all applicable regulations and guidelines governing the removal and disposal of hazardous materials. In most cases these clean-up efforts would remediate the problem and no further work would be required. However, in some cases continued monitoring of particular sites may be required to ensure that no migration of existing contamination has occurred subsequent to the primary clean-up operations. Responsibility for clean up (including Phase I assessments) and monitoring of individual sites has not been established.

The results of the hazardous materials study performed along the corridor are useful for preliminary evaluation purposes. However, the study does not represent a comprehensive environmental site assessment for the proposed transportation corridor. Once the design becomes more fully established a complete Phase I Environmental Site Assessment should be conducted for parcels to be disturbed along the corridor prior to construction activities. The Environmental Site Assessment should include collection of detailed historical records of use and ownership for all parcels along the corridor. Screening for contaminated groundwater sites should also be conducted. Subsequent to the Phase I assessment, a number of site-specific investigations would be required due to the large number of abandoned and undefined sites along the corridor. These site specific assessments should be focused on the types of construction (i.e., at grade, elevated, or depressed) proposed for each locale. Once investigations are complete, plans for mitigating and monitoring the contaminated sites may be completed.

There are seven general steps required for a site specific investigation, these steps include the following:

1. Information review to include any existing technical reports on the site such as geology and hydrology.

2. Site reconnaissance and survey.

3. Record search to include a) underground tank search, b) land use history (chemical use), and c) major tenant list.

4. Exploration program to include a) boring to 40 feet or to level at which groundwater is encountered, b) hollow core auger and stem cleaning, c) soil sampling at 5 foot intervals, d) installation of monitoring wells if groundwater is encountered, e)groundwater sampling in the monitoring wells f) proper handling of drill cuttings, and g) surface water sampling if applicable.

5. Laboratory testing of samples. Samples are to be tested for the presence of chemicals at various depths based upon the concerns raised in previous steps.

6. Analysis of test results to establish the soil profile and the limits of the plume and to establish a groundwater gradient.

7. Prepare report. If contamination is encountered, the report should be submitted to the Cal/EPA Department of Toxic Substances Control (DTSC), the Regional Water Quality Control Board (RWQCB) and the South Coast Air Quality Management District (SCAQMD) for filing and review. If groundwater contamination is encountered, the RWQCB will be the lead agency. If contaminated groundwater is not encountered, the DTSC will be the lead agency. Reports are sent to all agencies however as a matter of practice.

If contamination is encountered a remediation plan must be developed and submitted to the lead agency for approval.

Operation

- Geology and Seismicity

Careful testing of soil foundations and correction of weakness in soil strength, coupled with state-of-the-art seismic design, would lessen the severity of the potential effect. The proposed project would be designed in accordance with all applicable codes and regulations and plans would be approved by a state licensed civil engineer.

- Liquefaction and Other Soil Instability Issues

The mitigation measures employed during the design and construction phase of the project would serve to minimize the risks associated with liquefaction during the operational lifetime of the proposed project. Further mitigation beyond that proposed for the construction and design period is not required.

- Flooding and Tsunamis

Potential impacts anticipated are not considered significant and further mitigation beyond that already imposed by building codes and other applicable regulations and guidelines is not proposed.

- Hazardous Materials Deposition

Prior to operation of the proposed project a hazardous waste spill response plan should be devised (see also section 5.6). This plan should include information about the types of materials likely to be transported along the corridor and the appropriate clean-up methodologies to be employed. The plan should also include specific guidelines for notification and evacuation of nearby residents and others who may be in danger. Further, this plan should include specific guidelines for notification of appropriate agencies and for coordination with adjoining communities. This plan should be developed in accordance with all applicable guidelines and regulations governing such plans and should be approved by all appropriate agencies prior to operation of the proposed project.

4.2 HYDROLOGY AND WATER QUALITY

4.2.1 Setting

Precipitation in the Los Angeles area is characterized by intermittent rain during winter months and negligible rain during summer months; 85 percent of the annual precipitation occurs from November to March. Although precipitation normally occurs as rainfall, winter snow is common in the higher elevations of the San Gabriel Mountains. As is typical of many semi-arid regions, the Los Angeles area experiences wide variations in monthly and seasonal precipitation totals.

Precipitation may flow into surface reservoirs or groundwater basins or run off to the ocean. Short-term water storage is in surface reservoirs and long-term storage is in groundwater basins. the amount of infiltration to groundwater basins is dependent upon the slope, soil type and intensity and duration of rainfall. Because most of Los Angeles is either paved and developed or steeply sloped, a great deal of runoff occurs. Structures have been constructed to channel the water safely through inhabited areas to minimize flooding and to aid in recharging water storage units.

The Los Angeles area is part of the Los Angeles River Basin. The Los Angeles River Basin, as defined in the Basin Plan of the State Water Resources Control Board (SWRCB), involves the coastal areas of Los Angeles County, south of the divide of the San Gabriel Mountains and Santa Susana Mountains, plus a small part of the coastal portion of Ventura County, south of the divide of the Santa Monica Mountains. This basin is drained by four major streams: The Los Angeles River, the Rio Hondo River, Ballona Creek, and the San Gabriel River. Numerous tributaries discharge into these major drainages, most of which have intermittent flow. Except for a few rivers in the mountainous areas, most have been converted to flood control channels lined with concrete and stone rip-rap. The drainages pertinent to this project are the Los Angeles River and Compton Creek.

<u>Surface Water Resources</u>

Surface water resources are shown in Figure 4-4 and are discussed below.

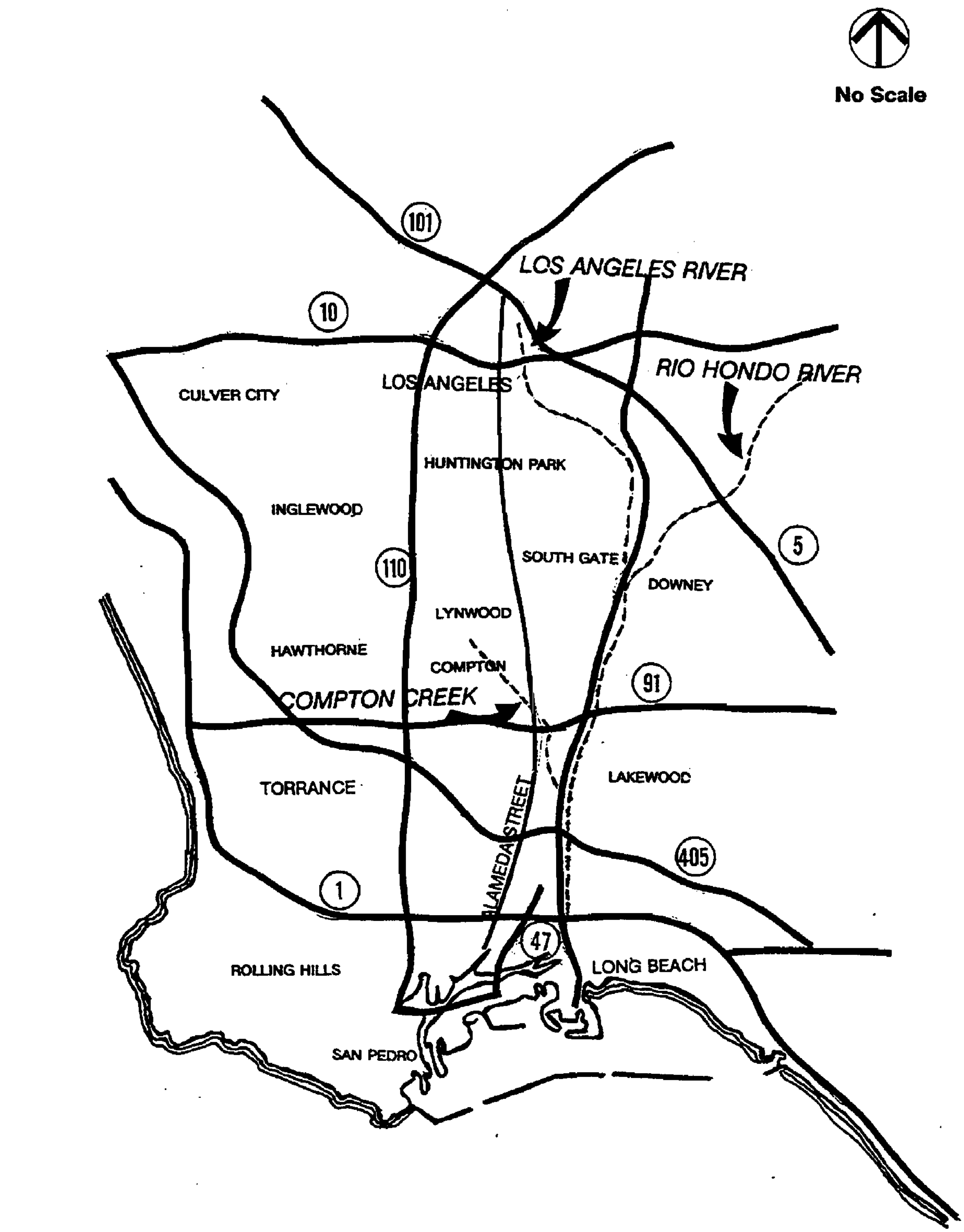
- The Los Angeles River

The Los Angeles River, which is channelized for flood control purposes, flows from the southwest side of the San Fernando Valley through the Los Angeles Coastal Plain to the San Pedro Bay. For the most part, the river drains the central Los Angeles area. From the beginning of the river in Calabasas in the San Fernando Valley to the opening between the Santa Monica and Verdugo Mountains, the Los Angeles River is called the Upper Los Angeles River Area. In this area, the river is mainly an unlined channel. In some areas the sides are concrete but the bottom is cobble and sand. With this permeable bottom, some water in the river may permeate to underlying groundwater basins. The river is fed by Arroyo Calabasas, Bell Creek, Aliso Wash, Browns Canyon Wash, Chatsworth Creek, Pacoima Wash, Tujunga Wash and Verdugo Wash. For the most part, these washes and creeks are concrete-lined within the urban areas.

From the opening between the Santa Monica and Verdugo Mountains to downtown Los Angeles, the Los Angeles River is called the Los Angeles Narrows. Most of this section of the river has

a permeable bottom and water may reach underlying groundwater basins. The Arroyo Seco from the northeast merges with the Los Angeles River in this area. Within this area is the Headworks Spreading Grounds, an area where water is allowed to percolate through the soil to the underlying groundwater basin.

The lower section of the Los Angeles River, from downtown Los Angeles to Willow Street in Long Beach, is completely concrete-lined. This section of the river has a low-flow trough built in the center of the channel into which dry weather flows run. This limits the accumulation or "ponding" of water which attracts debris, algae, and nuisance insects. The Rio Hondo merges with the Los Angeles River in this area.



Source: Myra L. Frank & Associates, 1992.

FIGURE 4-4	Surface Water Resources	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

From Willow Street in Long Beach to the San Pedro Bay, the channel is a "mixing zone" where the freshwater of the river and the salt water of the ocean meet. In this section, the river has rip-rap banks and a sediment and rock bottom.

The capacity of the Los Angeles River channel increases with distance from its origin. For example, the downstream design capacity at Los Angeles Flood Control District gaging station 290+00 is 146,000 cubic feet per second (cfs), and the upstream design capacity at gaging station 300+00 is 140,000 cfs. Until recently the U. S. Army Corps of Engineers regarded this flow as adequate for the 100-year flood event, but the Corps is in the process of revising this position. The revised required capacity being considered at gaging station 290+00 would be 182,000 cfs, and the revised required capacity at gaging station 300+00 would be 164,000 cfs. These figures indicate that the Corps believes there may be a shortfall in capacity in the event of a 100-year storm.

Flows in the Los Angeles River are highly variable. Based on average daily flows from water years (October to September) 1980 through 1985 at the Los Angeles County Flood Control District sampling location at Firestone Boulevard, the average daily dry season flow rate was 117.88 cfs. Dry season flows are comprised chiefly of excess irrigation water applied in urban areas, controlled release of reservoirs, municipal and industrial wastewater as well as effluent from the Tillman and Los Angeles-Glendale sewage treatment plants.

During the wet season, flows in the Los Angeles River are augmented by storm water runoff which varies with storm duration, intensity and frequency. Storm water runoff from the first storm of the season tends to contain high levels of contaminants, but when storms are frequent, contaminant levels decrease in the storm water runoff. Based on average daily flows from water years (October to September) 1980 through 1985 at the Los Angeles County Flood Control District sampling location at Firestone Boulevard, the average daily wet season flow rate was 399.26 cfs.

- Compton Creek

Compton Creek is a minor tributary of the Los Angeles River which joins the river just south of Del Amo Boulevard. The creek was channelized by the Army Corps of Engineers in the 1930s for flood control purposes. The maximum capacity of the creek is 13,750 cfs. As mentioned previously, until recently the U. S. Army Corps of Engineers regarded this flow as adequate for the 100-year flood event. The corps is in the process of revising this position and the revised required capacity of Compton Creek would be 17,500 cfs. This figure indicates that there may be a shortfall of capacity in the event of a 100-year storm.

The water quality of the creek is generally quite poor because it serves as a outlet for runoff from its drainage area. The runoff carries pollutants such as oil and grease, which are picked up from parking lots, yards, and cars.

- Dominguez Channel

The Dominguez Channel begins in the City of Hawthorne north of the Hawthorne Municipal Airport. It flows south through Gardena and Torrance and eventually enters the Los Angeles Harbor at the East Basin.

Groundwater Resources

Groundwater resources are shown in Figure 4-5 and are discussed below.

Freshwater permeates soils to varying degrees, depending on the composition of the soil. Coarsely grained, sandy, or gravelly strata comprise individual aquifers. These water-bearing deposits are readily capable of absorbing, storing, transmitting and yielding water to wells. Fine-grained sediments, such as silts and clays, are interbedded with the aquifers and form aquicludes which limit the transmission of water out of the aquifer. The aquicludes form discrete boundaries, and the aquifers may merge and coalesce with adjacent aquifers.

One or more permeable layers underlie groundwater basins. Basin boundaries do not necessarily coincide with drainage basins and are derived from political boundaries, surface features and/or geologic features such as faults, non-waterbearing rocks and natural or artificial divides in the water table surface. The elevation of groundwater varies with the amount of pumping and the amount of recharge occurring. Groundwater basins may be recharged naturally through percolation of precipitation or artificially with imported water or reclaimed water. Artificial recharge with imported water is practiced as a means of offsetting declining groundwater levels and providing storage for use in times of drought.

The groundwater basins of the Los Angeles Coastal Plain are incorporated into the Coastal Plain Hydrographic Subunit. The Coastal Plain Hydrographic Subunit contains the Central, West Coast, Santa Monica and Hollywood basins. The most important of these, with respect to the proposed project, are the Central and West Coast basins.

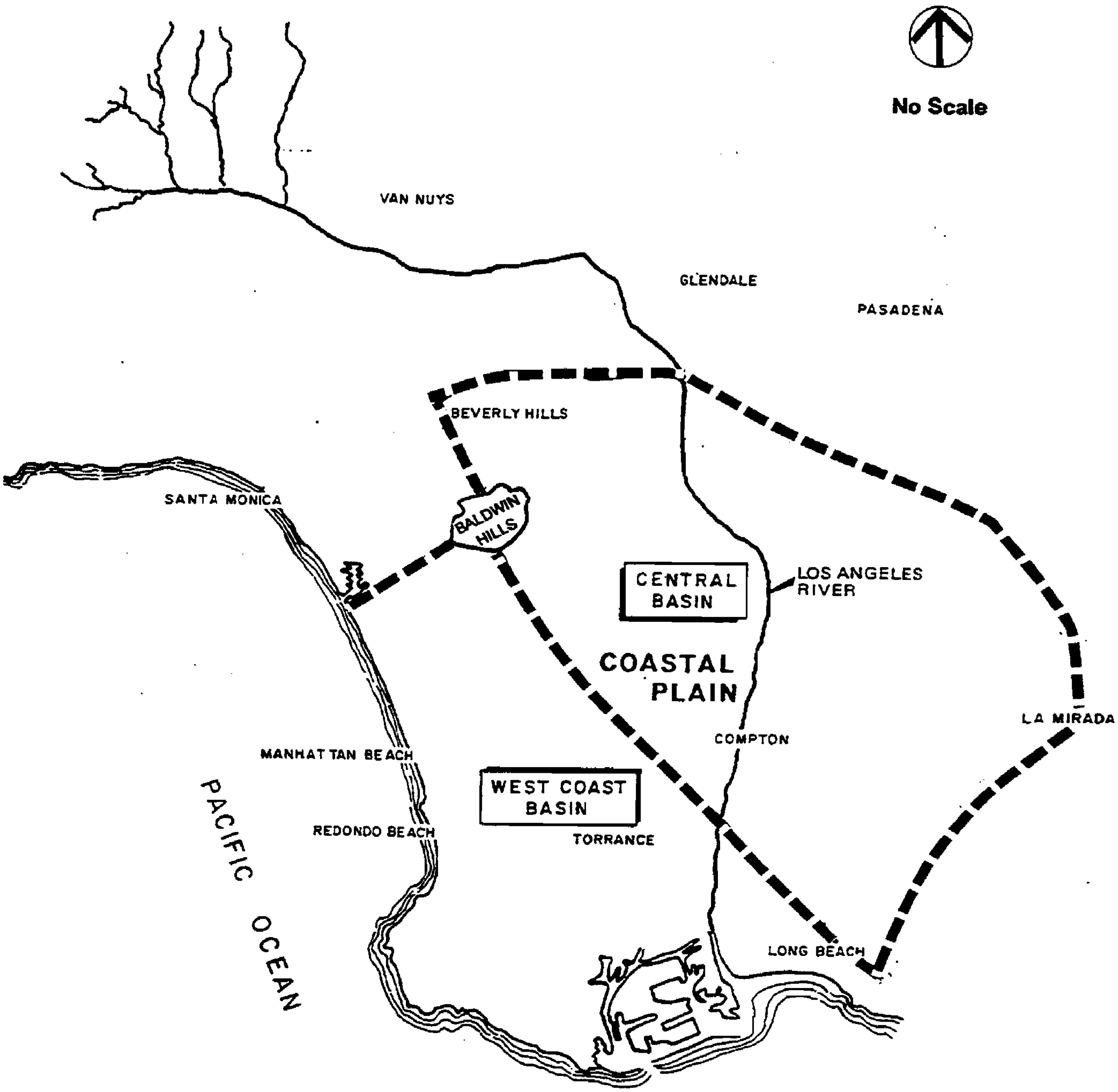
- Central Basin

The Central Basin extends over much of the Coastal Plain and holds most of its groundwater. Groundwater occurs within alluvium, Lakewood Formation and San Pedro Formation sediments. These sediments contain several very permeable layers of aquifers.

Groundwater enters the basin through percolation of precipitation, stream flow, and artificial recharge in spreading grounds such as those located along the Rio Hondo and San Gabriel Rivers. Groundwater movement within the basin is toward pumping depressions located in the Vernon area and at the point where the Los Angeles River crosses the Newport-Inglewood Fault. Some groundwater moves across the fault, replenishing the West Coast Basin. 194,900 acre feet of water were extracted from the basin between July 1, 1986 to June 30, 1987, for use as municipal potable supply. The basin capacity is considered stabilized, and all extractions of water are monitored by the Department of Water Resources.

- West Coast Basin

This basin occupies the area west of the Newport-Inglewood Fault and south of the Ballona Escarpment to the south of the Ballona Wetlands. Groundwater occurs in the same soil formation as in the Central Basin. Freshwater replenishment occurs as a result of subsurface



Source: Myra L. Frank & Associates, 1992.

FIGURE 4-5	**Groundwater Resources**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

flows from the Central Basin and from an injection well system. Because of its location immediately adjacent to the ocean, over-pumping has caused severe sea water intrusion into the basin. An injection well system, which injects freshwater into the basin, was installed to raise groundwater levels along the coast to above sea level in order to prevent sea water intrusion. This well system is maintained to prevent deterioration of the basin's water quality. A groundwater ridge is formed by this injection well barrier, and water flows westerly, toward the ocean, and southeasterly, toward a pumping depression along the Los Angeles River between the San Diego Freeway and Sepulveda Boulevard. Municipal water extractions from this basin between July 1, 1986, and June 30, 1987, consisted of 48,720 acre feet of water. The basin capacity is considered stabilized and all extractions are monitored by the Department of Water resources.

4.2.2 Construction Impacts

The project would be considered to have a significant adverse impact, if: (a) a substantial discharge into surface waters would create pollution, contamination, or nuisance, or (b) a substantial change in the quantity and/or quality of ground waters would occur, either by direct additions or withdrawals or by puncture of an aquifer.

Surface Water Resources

Construction impacts to surface water resources within the study area would be related to water run-off from the construction sites and erosion of barren rock and soil surfaces exposed during excavation. No further construction related impacts to surface waters are anticipated. These effects are characterized as not significant and they would be the same for all alternatives.

Groundwater Resources

The excavation required for the depressed alternatives could have an impact on groundwater quality and solid waste disposal. South of the Artesia Freeway, no dewatering would be required. In the best case, no dewatering would be required north of the Artesia Freeway, and in the worst case, perched groundwater could be encountered in approximately one third of the project area to the north of the Artesia Freeway. Excavation may intercept shallow groundwater and would require dewatering and muck disposal if contamination is encountered. The removed water and muck could necessitate wastewater treatment and possible transport of muck to a Class I or Class II landfill.

4.2.3 Operational Impacts

Surface Water Resources

During operation of the proposed project, possible surface water contamination could occur in the event of a spill of material in transport. The two major locations for such potential contamination are where the corridor crosses the Los Angeles River in the vicinity of Dominguez Boulevard and where the corridor crosses Compton Creek in the vicinity of State Route 91. If large amounts of hazardous or toxic materials were to spill and enter these two surface water systems, possible contamination of the Los Angeles Harbor could occur. This is not regarded as a significant adverse effect, however, because the likelihood of a major spill producing this situation would be low.

Groundwater Resources

Once constructed, the corridor would be completely separated from the water table and would have no effect on groundwater resources under normal operating conditions. In the event of an emergency, such as a spill of material in transport, some of these materials could permeate the surrounding soil and contaminate the groundwater. This is not regarded as a significant adverse effect.

4.2.4 Mitigation Measures

Surface Water Resources

Typical mitigation measures used to reduce potential impacts to surface waters from construction runoff and from erosion of barren material during the construction period include the use of proper grading techniques and appropriate sloping, shoring and bracing of the construction site. In the event of surface water contamination during the operation of the proposed corridor, appropriate emergency procedures would be followed to ensure a minimum of damage to surface water resources. An emergency procedure plan would be developed and approved prior to operation of the proposed project. This plan would include information on the nature of the materials likely to be transported along the corridor, the types of remedial actions required in the event of a spill of such materials, and an emergency notification and evacuation plan, if required. The plan would be developed in cooperation with adjoining jurisdictions and appropriate state agencies.

Groundwater Resources

During construction, groundwater control may be accomplished by temporarily lowering the groundwater level, a process termed dewatering. Dewatering, if it is necessary, would most likely only be required for the depressed alternatives. Dewatering is considered to be the most practical method of groundwater control. Other possible methods include the use of compressed air to balance the hydraulic pressure or creating a barrier to groundwater flow within the surrounding soil by freezing or grouting, but these methods are not desirable due to their increased complexity and associated high cost.

A series of soil borings would be undertaken prior to final design and construction. These borings would identify groundwater levels where dewatering would be necessary. The results would become part of the design process, thereby enabling proper groundwater control measures to be utilized.

During dewatering operations, it may occur that the groundwater encountered has become contaminated. Should this be the case, the disposal of water removed from underground areas containing oil and tar or other hazardous materials is expected to require wastewater treatment to remove hydrocarbons and other hazardous substances before discharge. Treatment could be accomplished by an oil/water separator, with the separated materials removed by truck to a Class I or Class II disposal site. This would require a National Pollutant Discharge Elimination System (NPDES) permit issued by the Regional Water Quality Control Board (RWQCB).

With regard to groundwater contamination resulting from a material spill after the project is operational, the same emergency response plan would be employed as discussed above.

4.3 AIR QUALITY

The purpose of this section is to discuss the potential impacts of the proposed project on regional and local air quality, during both construction and operation. These potential impacts are measured against the current state of air quality in the study area. Where necessary, mitigation measures are proposed to reduce impacts created by the project.

4.3.1 Regulatory Framework

Regulations for air pollutant emissions exist to protect human health and welfare and the environment. Various federal, state, and local regulatory agencies such as the U.S. Environmental Protection Agency (U.S. EPA), the California Air Resources Board (ARB), and the South Coast Air Quality Management District (SCAQMD) exist to research, develop, and enforce the regulations that help govern air quality. The major federal regulatory agency is the U.S. EPA, with responsibility for establishing national ambient air quality standards as well as developing and approving the implementation of plans developed by the state. The California ARB is responsible for establishing state ambient air quality standards, developing and approving local district air quality management plans and establishing truck and automotive regulations. The SCAQMD is the local agency responsible for the enforcement of rules and regulations pertaining to stationary and some mobile sources.

Federal Clean Air Act

The 1970 Federal Clean Air Act established National Ambient Air Quality Standards (NAAQS) for the protection of human health and welfare. Presently, the following six criteria pollutants are addressed in the NAAQS: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), and lead. NAAQS are tabulated in Table 4-5. After the enactment of the Federal Clean Air Act, it became apparent that many air districts were not complying with the NAAQS. Subsequent amendments to the Federal Clean Air Act require states to submit State Implementation Plans (SIPs) to the EPA that describe how and when compliance with the NAAQS will be achieved. The most recent 1990 Amendments address nonattainment, mobile source emissions, air toxics, acid rain, a new federal permit program, enforcement, and protection of stratospheric ozone.

Non-criteria pollutants, also regulated under the Federal Clean Air Act, include asbestos, beryllium, mercury, vinyl chloride, fluorides, sulfuric acid mist, hydrogen sulfide, total reduced sulfur, and reduced sulfur compounds. None of these are expected to be released in measurable quantities from the proposed project.

TABLE 4-5
FEDERAL AND STATE AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	CALIFORNIA STANDARD[1]	FEDERAL STANDARD[2] PRIMARY[3]	FEDERAL STANDARD[2] SECONDARY[4]
Ozone	1 Hour	0.09 parts per million (ppm)	0.12 ppm	Same as primary
Carbon Monoxide	1 Hour	20 ppm	35 ppm	Same as primary
	8 Hours	9.0 ppm	9.0 ppm	
Nitrogen Dioxide	1 Hour	0.25 ppm	No Standard (NS)	NS
	Annual	NS	0.053 ppm	Same as primary
Sulfur Dioxide	1 Hour	0.25 ppm	NS	NS
	3 Hours	NS	NS	1300 micrograms per cubic meter ($\mu g/m^3$)
	24 Hours	0.05 ppm	365 $\mu g/m^3$	NS
	Annual	NS	80 $\mu g/m^3$	NS
Suspended Particulates (PM_{10})	24 Hours	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as primary
	Annual Arithmetic Mean	NS	50 $\mu g/m^3$	
	Annual Geometric Mean	30 $\mu g/m^3$	NS	NS
Lead	30 days	1.5 $\mu g/m^3$	NS	NS
	Calendar Quarter	NS	1.5 $\mu g/m^3$	Same as primary
Sulfates	24 Hours	25 $\mu g/m^3$	NS	NS
Hydrogen Sulfide	1 Hour	0.03 ppm	NS	NS
Vinyl Chloride	24 Hours	0.010 ppm	NS	NS
Visibility[5]	8 Hours	Reduce visibility below 10 miles	NS	NS

Notes:

1. California standards for ozone, carbon monoxide, sulfur dioxide (1-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility are values that are not to be exceeded. The sulfur dioxide (24-hour), sulfates, lead, hydrogen sulfide, and vinyl chloride standards are not to be equaled or exceeded.
2. Federal standards, other than ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
3. National Primary Standards: the levels of air quality necessary to protect the public health with an adequate margin of safety.
4. National Secondary Standards: the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
5. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range when relative humidity is less than 70 percent.

Source: California Air Resources Board Air Quality Data - General Summary, 1989.

California Clean Air Act

As a parallel to the Federal Clean Air Act, California enacted the California Clean Air Act (CCAA) of 1988 to adopt and enforce regulations to achieve and maintain California ambient air quality standards (CAAQS). State standards (listed in Table 4-5) exist for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter less than 10 microns in diameter (PM_{10}), lead, hydrogen sulfide, sulfates, and vinyl chloride. The CCAA makes the ARB responsible for establishing criteria for designating air basins as "attainment," "non-attainment," or "unclassifiable" in accordance with State standards.

The CCAA requires air districts to submit plans for attaining and maintaining the CAAQS to the ARB. Plans will be submitted every three years until the air district is considered to be in attainment of the State standards.

California Air Resources Board

The ARB is responsible for developing the State Implementation Plan and assuring that districts are in compliance; it is directly responsible for non-stationary sources and vehicular emissions controls, and implementing specific statutory programs, including the California Clean Air Act.

South Coast Air Quality Management District Responsibilities

- Prohibitions

  The SCAQMD regularly publishes rules and regulations regarding air quality, and it has many prohibitory regulations to minimize the local impact of stationary emission sources. Rules pertinent to the proposed corridor are as follows:

  1. Rule 401 -- Visible Emissions -- Degree of opacity may not exceed established standards for more than 3 minutes in any one hour.

  2. Rule 402 -- Nuisance -- Air contaminants must not endanger the comfort, repose, health, or safety of any considerable number of persons or the public and must not cause injury or damage to business or property.

  3. Rule 403 -- Fugitive Dust -- Fugitive dusts must be minimized; visible emissions of fugitive dust are not allowed beyond the property line. Total suspended particulate matter must not exceed 100 micrograms per cubic meter ($\mu g/m^3$) when determined as the difference between upwind and downwind samples at the property line for a minimum of five hours. Reasonable precautions must also be taken to prevent visible particulate matter from being deposited on public roadways.

  4. Rule 1166 -- VOCs from soil decontamination -- Emissions of volatile organic compounds (VOCs) resulting from contaminated soil must be limited. Excavating underground tanks containing VOCs must be done with proper notification and procedures. Persons treating or handling VOC - contaminated soils must follow

certain procedures for the collection and disposal of VOCs. Exemptions are available for small quantities.

- South Coast Air Basin Air Quality Management Plan

Local air pollution control districts such as the SCAQMD must provide input into the State Implementation Plan (SIP) by submitting an Air Quality Management Plan (AQMP). Several local and state agencies are responsible for completing the South Coast Air Basin (SCAB) Air Quality Management Plan (AQMP). The SCAQMD is responsible for completing the overall AQMP; the Southern California Association of Governments (SCAG) is responsible for developing regional plans for transportation management, growth, and land use; and the ARB is responsible for developing mobile source control measures (e.g., vehicle emission standards and fuel specifications).

The AQMP has been subject to periodic revisions since it was originally altered in 1979. The purpose of the 1991 revision to the AQMP was to initiate a comprehensive control program that will lead the SCAB into compliance with all federal and state air quality standards within a 2010 timeframe. The 1991 AQMP targets the attainment of the federal and state nitrogen dioxide standard by 2000. The AQMP targets the attainment of federal PM_{10} standard by 2006 and federal ozone standard by 2010. For carbon monoxide, the AQMP calls for the attainment of federal standards by 2005. Table 4-6 summarizes the expected dates for attainment of the state and federal standards for the four criteria pollutants.

The AQMP's attainment strategy includes control methods categorized into three tiers, depending upon their readiness for implementation. The three tiers are as follows:

1. Tier I- Full implementation of known technological applications and effective management practices. Adoption and implementation within the next few years.

2. Tier II- Significant advancement of today's technological applications and vigorous regulatory intervention. Adoption and implementation within the next ten to fifteen years.

3. Tier III- Development of new technology. Development, adoption, and implementation within the next twenty years.

Among its attainment strategies the AQMP includes stationary source control, mobile source control, land use-related control and market incentives, including the proposed rail corridor consolidation project. The emissions reduction estimates for the four criteria pollutants are presented in the AQMP assuming project adoption and implementation over the next ten to fifteen years.

4.3.2 Environmental Setting

The proposed project is located within the SCAB. The SCAB covers over 6,000 acres and is bounded on the west by the Pacific Ocean, on the south by the San Diego County line, and to the north and east by the San Gabriel, San Bernardino, and San Jacinto mountains.

TABLE 4-6
EXPECTED YEAR FOR ATTAINMENT OF THE STATE AND FEDERAL STANDARDS FOR THE FOUR CRITERIA POLLUTANTS

Pollutant	Standard	Concentration Level	Control Requirement (Tier)	Expected Compliance Year
Ozone	Federal 1-hour	12 pphm	I, II, III	2010
	State 1-hour	10 pphm		beyond 2010
PM_{10}	Federal Annual	50 $\mu g/m^3$	I, II	2006
	Federal 24-hour	150 $\mu g/m^3$	I, II	2000
	State Annual	30 $\mu g/m^3$	I, II, III	beyond 2010
	State 24-hour	50 $\mu g/m^3$	I, II, III	beyond 2010
CO	Federal 8-hour	9.5 ppm	I	2000
	Federal 1-hour	35 ppm	--	1990
	State 8-hour	9 ppm	I, II, III	2005*
	State 1-hour	20 ppm	I	2000
NO_2	Federal Annual	5 pphm	I	2000
	State 1-hour	25 pphm	I	2000*

* The compliance year is calculated based on the highest concentrations observed during a three-year period. ARB's recommended guidelines on design day calculations allow for the elimination of extreme concentrations; and the ARB and the District will further review the data to determine if the design values should be adjusted based on this consideration. If lower concentrations are used in the analysis, the basin will be in compliance with all CO and NO_2 standards before 2000.

Source: South Coast Air Quality Management District 1991 Air Quality Management Plan, 1991.

Climate

In general, Southern California has a Mediterranean climate that is characterized by warm dry summers and mild winters. This climate is a result of Southern California's location on the southeastern edge of the Pacific High Pressure Area, which forces most of the low meteorological formations to follow a course northward of the United States, bringing about a stable weather pattern that would not otherwise exist.

Infrequent interruptions of this climatological pattern are characterized by extreme periods of hot weather, winter storms or Santa Ana winds. Santa Ana winds are predominantly strong north or northeasterly winds blowing from inland deserts. These conditions occur occasionally, dispersing air contaminants within and around the basin; however, when the Santa Ana conditions are weak, air stagnates along the coastline and air quality at the coast, which is generally better than in inland areas, may become worse than at inland sites.

Temperatures in the basin are generally mild, increasing inland from the coast. Average annual high and low temperatures measured near the project, were 74 and 53° F, respectively, over the last 30 years of record (SCAQMD, 1980).

Most of the annual rainfall occurs between November and April. Rainfall totals have averaged approximately 9 inches per year near the project over the last 40 years. Rainfall totals are variable in the basin, ranging from 5 to 21 inches per year over the same reporting period for differing areas. (SCAQMD, 1980).

Winds in the vicinity of the project blow predominantly from the southwest and west, with relatively low velocities. Wind speeds measured in the area average about 5 miles per hour. Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the basin.

During the summer, the dominant climatic feature is the Pacific High, a high pressure cell that results in air being heated by compression. This condition in turn creates a temperature inversion layer at an altitude of about 2,000 feet or less above sea level. This inversion, coupled with the presence of mountain ranges to the north, causes polluted air to be trapped in the basin. Prevailing sunny days further exacerbate this problem by inducing additional adverse photochemical reactions. Because the inversion layer is not prevalent during most other times of the year, air quality problems are typically reduced during seasons other than summer.

Throughout the SCAB, there are localized variations in these general climatic conditions which are referred to as "micro-climates." Micro-climates are caused by diversity of topography, altitude, etc. These physical differences result in variations in average wind speed, wind direction, temperature, rainfall, etc. The proposed project route may travel through several different micro-climates. As a result, it is expected that there will be some variance in air quality along the route.

<u>Major Pollutants and Associated Health Effects</u>

Both the federal and state governments have set health-based ambient air quality standards for the following six pollutants: sulfur dioxide (SO_2), lead (Pb), ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), and fine particulates of less than 10 microns in size (PM_{10}). The SCAB currently complies with the standards for both sulfur dioxide and lead but exceeds the standards for the remaining four pollutants. In addition, California has set standards for ethylene, hydrogen sulfide, sulfates, visibility and vinyl chloride. All but sulfates and visibility are controlled through permit requirements. Sulfates and visibility are addressed through control programs for the four pollutants discussed below.

- Carbon Monoxide

  Carbon monoxide is formed by the incomplete combustion of fossil fuels and is produced almost entirely by automobiles. Exposure to carbon monoxide can cause dizziness and fatigue and can impair central nervous system function. The number of days exceeding the carbon monoxide standards decreased substantially by the mid-1980s; however, since that time, there has been an increase in exceedances, which is probably due to increased vehicular travel. In 1990, Los Angeles County exceeded the federal carbon monoxide standard more than any other area of the United States.

- Nitrogen Dioxide

  Nitrogen dioxide and nitric oxide are formed as a result of fuel combustion under high temperature or pressure. These compounds are referred to together as nitrogen oxides or NO_x. Nitrogen dioxide contributes to other pollution problems, including concentration of ozone, fine particulate matter, poor visibility and acid deposition. It decreases lung function and may reduce resistance to infection. By 1990, the federal standard had been exceeded in only one location in Los Angeles County, and the highest concentration was four percent greater than the federal standard. Los Angeles is the only county in the United States that does not meet the federal standard.

- Ozone

  Ozone is formed by photochemical reactions between NO_x and reactive organic gases (ROG). Reactive organic gases are formed from the combustion of fuels and the evaporation of organic solvents. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in children. Ozone levels in the SCAB exceed the federal standard far more frequently than anywhere else in the country.

- PM_{10}

  PM_{10} refers to small suspended particles that are 10 microns or less in diameter. Nitrates and sulfates, as well as dust particles, are major components. These small particles can be directly emitted as a by-product of fuel combustion, through abrasion such as wear on tires or brake linings or through wind erosion of soil. They can also be formed in the atmosphere through chemical reactions. These particles may carry carcinogens and other toxic compounds which adhere to the particle surfaces and can enter the lungs. In 1989, state PM_{10} standards were exceeded in all areas, frequently by a wide margin. The less stringent federal PM_{10} standards were also exceeded in many areas.

- Sulfur Dioxide

  Sulfur dioxide is produced by the combustion of sulfur-containing fossil fuels. Its primary health effects include aggravation of respiratory diseases, such as asthma and emphysema, reduced lung function and eye irritation. Sulfur dioxide levels in the SCAB usually attain federal and state standards.

Sources of Pollution

At the present time, mobile sources account for approximately 98 percent of carbon monoxide production in the SCAB. On-road mobile sources (primarily autos and trucks) account for nearly all of this production. The remainder is attributable to stationary sources. Daily production of carbon monoxide in the SCAB in 1987 was 4,987 tons.

Slightly more than one half of the reactive organic gases produced in the SCAB come from mobile sources, and nearly all of this is attributable to on-road vehicles. The balance is produced in nearly equal amounts by residential, commercial/service industry sources, and the industrial/manufacturing sector. Daily production of reactive organic gases in the SCAB in 1987 was 1,375 tons.

Mobile sources account for 76 percent of daily nitrogen oxide production in the SCAB. Of this, 72 percent is attributable to on-road vehicles. Fuel combustion accounts for 91 percent of all stationary source contributions. In 1987, 1,208 tons of nitrogen oxides were produced daily in the SCAB.

In 1987, 1,075 tons per day of particulate matter (PM_{10}) were produced in the SCAB. Stationary sources accounted for about 94 percent of the total.

Current Air Quality

The SCAB currently exceeds federal and state standards for a number of criteria pollutants. Consequently, the SCAB has been designated a non-attainment area by the EPA, and the SCAQMD has prepared a plan for achieving national standards in the SCAB, as discussed in Section 4.3.1. Levels of ozone exceed federal and state standards everywhere in the basin. The Los Angeles urban area exceeds this standard more frequently than any other area in the U.S. and also records the highest peak readings.

The federal and state standards for carbon monoxide (CO) and nitrogen dioxide (NO_2) are also exceeded in Los Angeles County; however, the number of readings over the standard fluctuates from year to year, depending on weather patterns. Levels of fine particulates of less than 10 microns in size (PM_{10}) regularly exceed the federal standard in Los Angeles, Riverside and San Bernardino counties.

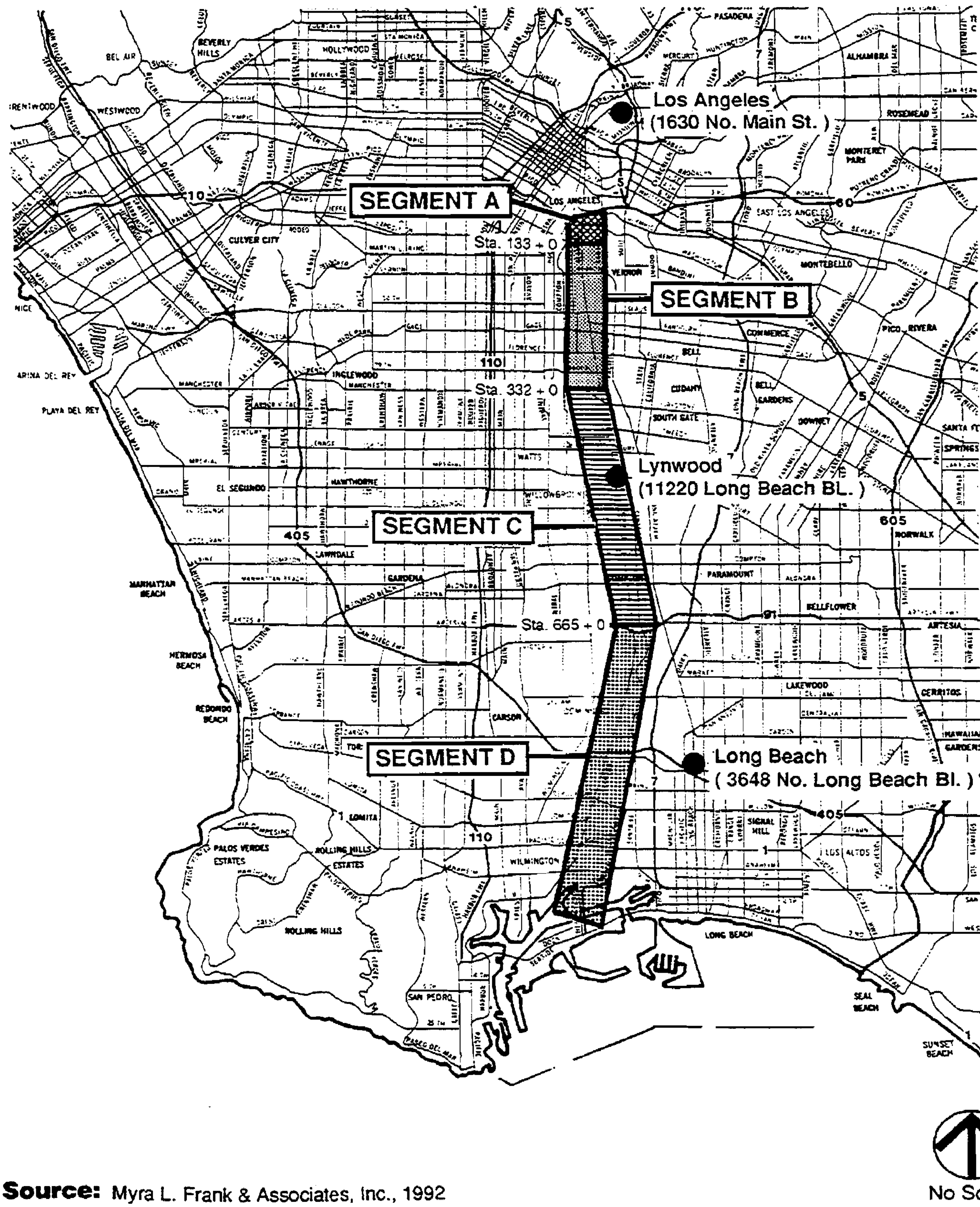
Air quality in the basin is monitored by the SCAQMD. Ambient air quality for criteria air contaminants is measured by a network of SCAQMD monitoring stations located throughout the basin. These data detail the current air quality status and progress toward attainment of federal and state air quality standards.

Monitoring stations which would provide data for this project are located in Los Angeles (near downtown), Lynwood and Long Beach (See Figure 4-6). These stations monitor for ozone, the primary ingredient in regional photochemical smog, and the other pollutant species, including CO, NO_2, and PM_{10}. Data for the last three years are given on Tables 4-7 through 4-9, describing the number of exceedances of the federal and state standards in the regional project area. It should be noted that there is some question as to the applicability of the Lynwood station data for this project. The ARB's recommended guidelines on AQMP design day calculation allow the elimination of extreme concentrations; and the ARB and the SCAQMD are further reviewing the data to determine if the design values should be adjusted based on this consideration.

4.3.3 Construction Impacts

Significance Criteria

The SCAQMD has established criteria emissions significance thresholds on a daily basis. These thresholds are currently being proposed for adoption, as follows: carbon monoxide, 274



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 4-6	**Air Quality Monitoring Stations in Proximity to the Alameda Corridor**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

TABLE 4-7
AIR QUALITY STANDARD EXCEEDANCES -- 1991, 1990, 1989
LOS ANGELES MONITORING STATION[1]

(Standard or Measurement)		1991	1990	1989
CARBON MONOXIDE[3]				
Federal:	(1 Hour)	0	0	0*
	(8 Hour)	0	1	2*
State:	(1 Hour)	0	0	0*
	(8 Hour)	0	1	2*
OZONE[3]				
Federal:	(1 Hour)	23	32	34
State:	(1 Hour)	59	70	76
NITROGEN DIOXIDE				
Federal:	(% above std.)[2]	0	0	3.3
State:	(1 Hour)[3]	4	3	1
SULFUR DIOXIDE[3]				
Federal:	(24 Hours)	0	0	0
State:	(24 Hours)	0	0	0
VISIBILITY[3]				
State:	(Los Angeles International Airport)	159	154	150
SUSPENDED PARTICULATES (PM_{10})[4]				
Federal:	(24 Hours)	1	1	0
State:	(24 Hours)	31	31	33
LEAD				
Federal:	(Quarters exceeding std.)	0	0	0
State:	(Months exceeding std.)	0	0	0
SULFATE[4]				
State:	(24 Hours)	0	1	0

Notes:

1 The Los Angeles monitoring station is located at 1630 N. Main Street.
2 The federal standard is an annual arithmetic mean value greater than 0.053 parts per million.
3 Number of days exceeding standard.
4 Number of samples exceeding standard.
* There are less than 12 full months of data available for this pollutant and these figures may not be representative.

Source: South Coast Air Quality Management District - Air Quality DataSheets, 1988-1990.

TABLE 4-8 AIR QUALITY STANDARD EXCEEDANCES -- 1991, 1990, 1989 LYNWOOD MONITORING STATION[1]				
(Standard or Measurement)		1991	1990	1989
CARBON MONOXIDE				
Federal:	(1 Hour)	0	0	0
	(8 Hours)	41	42	55
State:	(1 Hour)	4	7	16
	(8 Hours)	41	44	61
OZONE				
Federal:	(1 Hour)	1	3	7
State:	(1 Hour)	20	11	30
NITROGEN DIOXIDE				
Federal:	(% above std.)[2]	0	0	0
State:	(1 Hour)	2	1	2
SULFUR DIOXIDE				
Federal:	(24 Hours)	0	0	0
State:	(24 Hours)	0	0	0
VISIBILITY				
State:	(Long Beach Airport)	198	155	210
SUSPENDED PARTICULATES (PM_{10})				
Federal:	(24 Hours)	NM	NM	NM
State:	(24 Hours)	NM	NM	NM
LEAD				
Federal:	(Quarters exceeding std.)	0	0	0
State:	(Months exceeding std.)	0	0	0
SULFATE				
State:	(No. of samples exceeding std.)	0	1	0

Notes:

1 The Lynwood monitoring station is located at 11220 Long Beach Boulevard.
2 The federal standard is an annual arithmetic mean value greater than 0.053 parts per million.
3 Number of days exceeding standard.
4 Number of samples exceeding standard.

Source: South Coast Air Quality Management District - Air Quality Data Sheets, 1988-1990.

TABLE 4-9
AIR QUALITY STANDARD EXCEEDANCES -- 1991, 1990, 1989
LONG BEACH MONITORING STATION[1]

(Standard or Measurement)		1991	1990	1989
CARBON MONOXIDE				
Federal:	(1 Hour)	0	0	0
	(8 Hours)	1	0	2
State:	(1 Hour)	0	0	0
	(8 Hours)	1	1	2
OZONE				
Federal:	(1 Hour)	No data	0	3
State:	(1 Hour)	4	5	10
NITROGEN DIOXIDE				
Federal:	(% above std.)[2]	0	0	0
State:	(1 Hour)	2	1	1
SULFUR DIOXIDE				
Federal:	(24 Hours)	0	0	0
State:	(24 Hours)	0	0	0
VISIBILITY				
State:	(Long Beach Airport)	198	155	210
SUSPENDED PARTICULATES (PM_{10})				
Federal:	(24 Hours)	0	0	0
State:	(24 Hours)	10	14	26
LEAD				
Federal:	(Quarters exceeding std.)	0	0	0
State:	(Months exceeding std.)	0	0	0
SULFATE				
State:	(No. of samples exceeding std.)	0	1	0

Notes:

1 The Long Beach monitoring station is located at 3648 N. Long Beach Boulevard.
2 The federal standard is an annual arithmetic mean value greater than 0.053 parts per million.
3 Number of days exceeding standard.
4 Number of samples exceeding standard.
* There is less than 12 full months of data available for this pollutant and these figures may not be representative.

Source: South Coast Air Quality Management District - Air Quality Data Sheets, 1988-1990.

pounds; reactive organic, 55 pounds; nitrogen oxides, 55 pounds; sulfur oxides, 150 pounds; and particulate matter, 150 pounds. For purposes of this environmental document, these thresholds are presumed to be in effect.

Prototypical Approach and Scenarios

During the construction period, emissions would occur as a result of the operation of on-site construction equipment and machinery, the excavation process itself, the transport of excavated material, and travel to and from construction sites by construction workers and supervisors.

The construction activities would be somewhat different between the two major alternatives under consideration, the "railroad-at-grade" alternative (Alternative 1) and the "depressed trainway" alternatives (alternatives 2.1A, 2.1S and 2.2). The major steps in the construction of the project, or any segment of the project, however, would be similar. These construction steps would be experienced at nearly all locations throughout the corridor, and they would be as follows:

- Relocation of utilities;
- Installation of safety fencing around the construction area;
- Clearing right-of-way;
- Detouring traffic;
- Removing street improvements;
- Excavating cut sections;
- Constructing subsurface facilities;
- Installation of piles for foundations;
- Constructing footings;
- Constructing above grade structures;
- Constructing retaining walls, and railroad trench walls;
- Restoring street improvements;
- Installation of landscaping;
- Installation of signage, pavement marking, and lighting;
- Constructing signal systems;
- Constructing railroad track and related facilities; and
- Constructing sound walls.

The precise sequence and length of time to complete each of the above steps would vary. The total length of time to accomplish these steps in any given local area would also vary with the alternative chosen, and the nature of the construction in that particular area.

Both regional and localized impacts would be associated with these construction activities. Construction emissions were evaluated in two ways. First, regional criteria emissions were calculated and second, a localized analysis was conducted. The regional impact assessment was based on an analysis of prototypical construction segments in the "worst case" construction year. The localized impact assessment was on the basis of a "worst case" prototypical construction segment. The following sections describe these approaches in detail and present the results.

Regional Criteria Emissions

Based on the above major construction steps, a prototypical one mile construction segment (e.g. from Vernon Avenue to Slauson Avenue), was assumed to contain three construction steps among the highest responsible for construction emissions and fugitive dust. These construction steps included:

- Constructing embankments/excavating;
- Constructing railroad track and related facilities; and
- Restoring street improvements.

Construction emissions occurring in each of these steps were grouped into those associated with engine combustion exhausts and those associated with fugitive dust emissions. Fugitive dust was assumed to be generated by the following activities:

- Truck travel on unpaved and paved roads;
- Wind erosion of storage piles;
- Dirt pushing/bull-dozing;
- Dirt piling/material handling; and
- Grading.

Construction related mobile source emissions were calculated on the basis of project-estimated equipment usage and emission factors included in the draft SCAQMD CEQA Air Quality Handbook (Table 4-10). Fugitive dust emissions were determined on the basis of the amount and character of the soil exposed or moved and EPA and SCAQMD emission factors. The estimated exhaust, fugitive dust and architectural coatings emissions are presented in tables 4-11 and 4-12, respectively, for a prototypical construction segment.

For the "worst case" construction year, operational data for two active prototypical segments were defined by DMJM/M&N. Total "worst case" construction emissions were calculated by multiplying the emissions associated with a prototypical segment times the number of active segments (two) within the corridor.

The regional construction emissions projected for the "worst case" construction year would be anticipated to occur on an intermittent basis, over an approximate 10-year total construction period. The actual frequency and location of these occurrences cannot be estimated with a sufficient degree of certainty.

When compared with the SCAQMD thresholds only nitrogen oxides show an exceedance in Table 4-11, therefore for this pollutant a significant impact would result; for remaining pollutants, a less than significant impact would result. The SCAQMD significance threshold for fugitive dust is 150 lb/day. Table 4-12 shows that all alternatives would exceed this threshold by a substantial margin, therefore these impacts are considered significant.

TABLE 4-10
CONSTRUCTION EQUIPMENT[a]

Type of Equipment	Project Alternative 1		Project Alternatives 2.1A, 2.1S, 2.2	
	# Used	Time (hr/d)	# Used	Time (hr/d)
*** Fill Material ***				
Truck[b]	1[g]	8	NA	NA
Sheeps Foot Roller	1	8	NA	NA
Caterpillar[f]	1	8	NA	NA
Push Cat.[f]	1	8	NA	NA
Loader[c]	1	8	NA	NA
Grader[d]	1	8	NA	NA
*** Trenching ***				
Trucks[b]	NA	NA	1[g]	8
Backhoes[c]	NA	NA	2	8
Cranes[e]	NA	NA	2	8
Concrete Machine[e]	NA	NA	1	8
*** Track ***				
Truck[b]	1[g]	8	1[g]	8
Track Const. & Sub-ballast[e]	3	8	3	8
*** Paving***				
Truck[b]	1[g]	8	1[g]	8
Paver[e]	1	8	1	8
Grader[d]	2	8	2	8
Roller	2	8	2	8
*** Miscellaneous ***[e]	4	8	4	8

Source: DMJM/M&N, 1992.
[a] Activities assumed to occur over a 1-mile length of the proposed Alameda Corridor (DMJM, May 1992). Types of equipment, number used, and operating times provided by DMJM (May 1992).
[b] Off-highway truck emission factors for diesel-powered construction equipment assumed.
[c] Wheeled loader emission factors for diesel-powered construction equipment assumed.
[d] Motor grader emission factors for heavy-duty diesel-powered construction equipment assumed.
[e] Miscellaneous emission factors for diesel-powered construction equipment assumed.
[f] Wheeled tractor emission factors for diesel-powered construction equipment assumed.
[g] Assumed the equivalent of 1 truck continuously idling at the site throughout the day.
[h] Emission factors obtained from SCAQMD's "Draft CEQA Air Quality Handbook" (May 1992).

NA Not Applicable

TABLE 4-11 EXHAUST EMISSIONS FROM CONSTRUCTION-RELATED ACTIVITIES (LBS/DAY)[a][b]				
	SCAQMD Significance Thresholds	Project Alternatives		
Emittant		1	2.1A/S	2.2
Carbon Monoxide	274	159	119	119
Reactive Organic Gas	55	92	94	94
Nitrogen Oxides	55	267	295	295
Sulfur Oxides	150	27	29	29
Particulate Matter (<10 μm)	150	21	23	23

[a]Emission rate calculations provided in the Air Quality Technical Document.
[b]Emissions assumed to occur 8 hrs/day.
[c]Taken from Draft CEQA Handbook.

Source: Radian, 1992.

TABLE 4-12 FUGITIVE DUST (PM_{10}) EMISSIONS FROM CONSTRUCTION-RELATED ACTIVITIES (LB/DAY) [a][b][c]			
	Project Alternatives		
Activity	1	2.1A/S	2.2
Truck Travel			
Unpaved Roads	348	466	466
Paved Roads	174	234	234
Wind Erosion of Storage Piles	1	6	6
Dirt Pushing/Bull-dozing	65	6	6
Dirt Piling/Material Handling	62	162	162
Grading	444	416	416
Total	1,035	1,270	1,270

[a]Emission rate calculations provided in the Air Quality Technical Document.
[b]Emissions assumed to occur 8 hrs/day at two locations.
[c]SCAQMD significance threshold is 150 lbs/day.

Source: Radian, 1992.

Local Criteria Emissions

The "worst case" prototypical construction segment emissions were also evaluated for localized impacts. Approved EPA and SCAQMD regulatory air dispersion models were used to estimate the impacts from construction emissions. The specific methodology was approved by the SCAQMD prior to conducting the analysis. The Industrial Source Complex (ISC2) Model was used to estimate PM_{10} (the primary pollutant of concern) impacts due to construction emissions. Hourly meteorological data for the "worst dispersion year"--1981--were used.

Construction-related PM_{10} emissions were modeled for a prototypical section near the intersection of Alameda Street and Tweedy Boulevard. This location was chosen for modeling because of its close proximity to Jordan High School, one of the closest schools to Alameda Street. Meteorological data representing the Lynwood area was used for the ISC2 dispersion modeling.

The results of the PM_{10} modeling are presented in Table 4-13. Annual average concentrations were not assessed as the construction related impacts would be temporary and are not expected to affect one location for a long period of time. The projected 24-hour maximum concentrations exceed state and federal ambient air quality standards for PM10 without mitigation measures; however, all reasonable fugitive dust control features would be employed (See Mitigation Measures). These measures would primarily involve water spraying of exposed areas, operating areas, and paved/unpaved roads. The implementation of watering is expected to reduce the 24-hour maximum concentrations to below the federal ambient air quality standard. Any potential impacts would be temporary in nature.

Although this location is considered worst case, the air quality technical appendix contains a receptor grid which can be used to evaluate construction impacts at other sensitive receptors along the corridor.

TABLE 4-13
FUGITIVE DUST (PM_{10}) ESTIMATED MAXIMUM 24-HOUR AVERAGE CONCENTRATIONS FROM CONSTRUCTION-RELATED ACTIVITIES

Construction Scenario	Concentration* ($\mu g/m^3$)	
	Without Mitigation	With Mitigation
Project Alternative 1	241	121
Project Alternative 2.1A, 2.1S	277	139
Project Alternative 2.2	277	139

Notes:
Ambient air quality standard for state ($\mu g/m^3$) is 50.
Ambient air quality standard for federal ($\mu g/m^3$) is 150.
[a]Highest concentration 50 feet from construction activities (Alameda Street near the intersection of Tweedy Boulevard).
[b]Mitigation (watering) is assumed.

Source: Radian, 1992.

4.3.4 Operational - Regional Criteria Emissions

Approach

Once the project becomes operational, emissions would occur as a result of locomotive, truck, and automotive traffic. Both regional and localized impacts would be associated with these mobile sources. Two types of impacts were estimated; regional criteria emissions (examined in Section 4.3.4) and localized emissions (examined in Section 4.3.5). Also examined were effects associated with air toxics (Section 4.3.6). The regional impact assessment was based on anticipated changes in regional locomotive, truck, and automotive traffic levels. The localized impact assessment was based on "worst case" intersections or segments of the project corridor.

Mobile source emissions due to engine combustion exhausts from project-related traffic would affect regional emissions. Diesel engine locomotive emission rates were taken from the recently completed Southern California Accelerated Rail Electrification Report (LACTC 1992). Locomotive usage was taken from concept study rail simulation work performed by Leachman and Associates (Appendix B to the Concept Study). Numbers of locomotives operating on track segments throughout the region were estimated together with operating speeds and throttle notch settings. The resultant daily locomotive miles traveled were multiplied by speed-dependent emission factors to yield estimated emissions from locomotives. The study area used for this analysis extended from the ports to the City of Industry, in order to reflect impacts that might be expected within the air basin as a result of changes in locomotive routes and operating conditions. Truck and automotive emissions were calculated on the basis of traffic study area estimates (see Figure 5.4-2) of vehicle miles traveled and emission factors included in the draft SCAQMD CEQA Air Quality Handbook (September 1992).

Pursuant to the 1991 AQMP, it is assumed that the Alameda Corridor project will be fully operational by the year 2010, thereby achieving the ROG reduction target as of that year. The year 2010 is thus regarded as the build-out year for the Alameda Corridor project. It should also be understood that a fundamental purpose of the project, in addition to promoting regional air quality objectives, is to facilitate growth in economic activity focused on the ports of Los Angeles and Long Beach, such growth being planned to the year 2020. Therefore, the Alameda Corridor project has a second planning horizon year of 2020 in order to be consistent with planning at the ports.

Analysis

Estimated daily mobile source mileage associated with the proposed project is presented in Table 4-14 for the study area defined above. Locomotive and vehicular mileage data for the present and future years without and with the project are included. The project's implementation would decrease locomotive miles traveled and slightly increase vehicular miles traveled in the traffic study area in 2020.

On a regional basis, trains are projected to encounter delays. The projected accumulated daily idle times are as follows:

- 2010 (No Project) - 64.6 locomotive hours
- 2010 (Project) - 35.8 locomotive hours,
- 2020 (No Project) - 130.6 locomotive hours
- 2020 (Project) - 78.9 locomotive hours

TABLE 4-14
REGIONAL TRAFFIC STUDY AREA MOBILE SOURCE MILEAGE
(MILES TRAVELED/DAY)

		No Project		Project*	
	Existing	2010	2020	2010	2020
Locomotive	816	1,953	2,602	1,886	2,456
Vehicular					
Auto	21,532,610	24,022,785	26,768,384	24,111,296	26,781,818
Truck	1,566,723	2,147,503	2,787,937	2,163,538	2,818,683

*Based on Project Alternative 2.

Source: Myra L. Frank & Associates, 1992.

The reduction in train delays would provide for higher average speeds and associated lower emission rates per mile traveled. Both running and idle locomotive emissions are presented in Table 4-15. A net savings in emissions would be associated with project implementation.

The proposed project complies with TCM 11, Rail Consolidation to Reduce Rail Crossings. The measure was developed by SCAG to minimize adverse impacts of port-related rail traffic by consolidating train traffic onto the Southern Pacific San Pedro Branch and grade separate the major crossings along the corridor. The implementation assumptions in TCM 11 assume a 90 percent reduction in vehicle hours per day and a corresponding ROG emission reduction of 0.45 tons/day by the year 2010.

Estimated daily vehicular hours of delay at grade crossings are presented in Table 4-16. The project's implementation would reduce vehicular delays by approximately 89 percent in 2010 and 91 percent in 2020. The reduction in vehicular delays would provide for higher average speeds and associated lower emission rates per mile traveled. As shown in Table 4-16, the project is expected to meet the TCM 11 emission reduction target.

Regional mobile source criteria emissions are presented in Tables 4-17 and 4-18. Emission factors for 2009 were used because they were the best available dataset for calculating emissions in future years. VMT data was gathered over 1990/91. Truck and automobile emissions in 2020 are substantially lower than in 1990 due to improvements in emissions technology. Locomotive emissions projected for the 2020 project case are considerably lower than for the 2020 No Project case. Truck and automotive emissions projected for the 2020 project case are slightly higher than that for the 2020 No Project case. The combined locomotive, truck, and automotive emissions projected for the 2020 project case are lower than for the 2020 No Project case, therefore the proposed project would beneficially reduce emissions on a regional basis.

TABLE 4-15
REGIONAL LOCOMOTIVE EMISSIONS
(LBS/DAY)

	CO	NO_x	ROG	PM_{10}	SO_x
Existing	300	5,015	59	142	275
No Project (2010)					
Running Emissions	1,592	20,658	235	583	1,199
Idle Emissions	3,242	39,830	2,716	1,322	2,190
Total	4,834	60,488	2,951	1,905	3,309
No Project (2020)					
Running Emissions	1,884	27,630	308	789	1,579
Idle Emissions	6,656	80,550	5,493	2,674	4,428
Total	8,540	108,180	5,801	3,463	6,007
Consolidated Corridor (2010)					
Running Emissions	2,599	21,748	242	673	1,342
Idle Emissions	1,798	22,087	1,506	733	1,214
Total	4,397	43,835	1,748	1,406	2,556
Consolidated Corridor (2020)					
Running Emissions	3,022	29,151	323	919	1,769
Idle Emissions	3,961	48,666	3,318	1,615	2,676
Total	6,983	77,817	3,641	2,534	4,445
Net savings from Consolidation (2010)	437	16,653	1,203	499	833
Net savings from Consolidation (2020)	1,557	30,363	2,160	979	1,562

Source: Myra L. Frank & Associates, 1992.

TABLE 4-16
VEHICLE HOURS OF DELAY AT GRADE CROSSINGS

1990 Existing	2010		2020	
	No Project	Project[a]	No Project	Project[a]
1,906	10,190	1,025	15,940	1,429

[a] Alternatives 1 and 2.

Source: Myra L. Frank & Associates, 1992.

TABLE 4-17
REGIONAL TRAFFIC STUDY AREA SOURCE EMISSIONS SUMMARY
(LBS/DAY)[a]

	SCAQMD Significance Threshold	Existing	No Project		Consolidated Corridor	
			2010[b]	2020[b]	2010[c]	2020[c]
CO	274	498,338	209,847	244,938	210,108	243,832
NOx	55	66,831	95,464	150,685	78,999	120,589
ROG	55	16,355	11,341	16,166	10,179	14,075
PM_{10}	150	4,991	2,137	6,141	3,557	5,235
SOx	150	4,329	7,170	6,007	6,355	4,445

[a] Emission rates based on VMT provided by Myra L. Frank & Associates, Inc., and emission factors obtained from the SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.
[b] Based on 1990/91 VMT and 1991 emission factors.
[c] Based on 2020 VMT and 2009 emission factors of alternatives 1 and 2. 2009 emission factors were used as they represent the farthest projected year in the SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.

Source: Radian 1992.

As shown in Table 4-17, the No Project case would result in an increase in NO_x and PM_{10} over existing conditions and a decrease in CO and ROG; however, the project case would result in a decrease over the No Project case in all regional mobile source emissions.

Sulfur oxides are produced in negligible amounts by mobile source emissions. The proposed project would thus have a beneficial effect on regional air mobile emissions.

4.3.5 Operational - Local Criteria Emissions

Mobile source emissions due to engine combustion exhausts from project-related traffic would also affect local air quality concentrations. To evaluate localized impacts on air quality, the following six local intersections or were analyzed (see Figure 4-7):

- 55th & Long Beach Avenue;
- Tweedy Boulevard & Alameda Street;
- Alondra Boulevard & Alameda Street;
- Gage Avenue & Alameda Street;
- Santa Ana Boulevard & Alameda Street; and
- Laurel and Myrrh Streets.

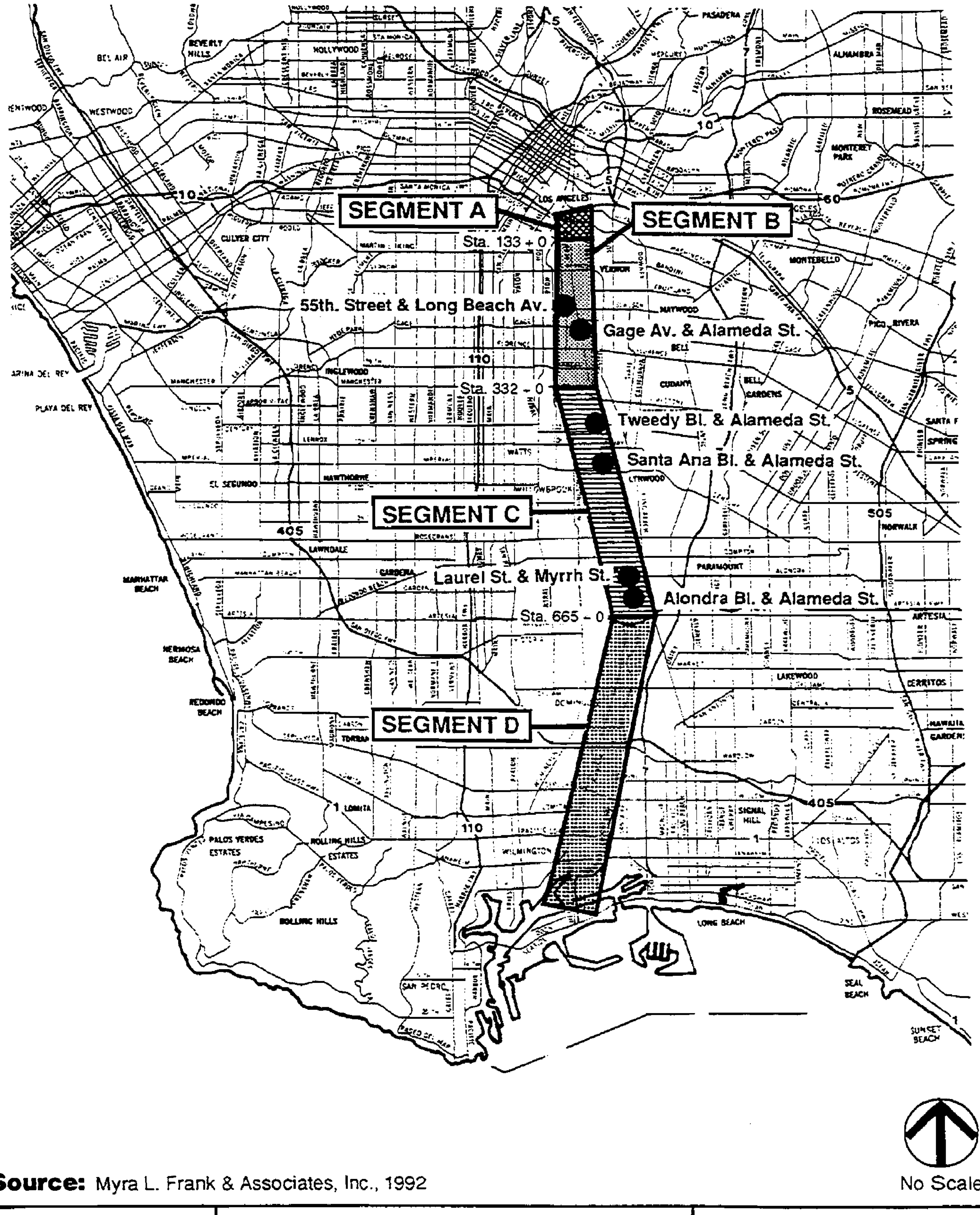
Each of these intersections was analyzed with respect to the No Project Alternative, the at-grade alterative (Alternative 1) and the depressed alternatives (alternatives 2.1A, 2.1S and 2.2).

TABLE 4-18
REGIONAL MOBILE SOURCE CRITERIA EMISSIONS (LBS/DAY)[a]

	CO	NOx	ROG	PM_{10}	SO_x
Existing[b]					
Locomotives	300	5,015	59	142	275
Trucks	73,595	19,885	7,127	3,900	1,208
Automobiles	424,443	41,931	16,113	949	2,846[e]
Total	498,338	66,831	23,299	4,991	
No Project (2010)					
Locomotives	4,834	60,488	2,951	1,905	3,389
Trucks	43,241	19,203	5,530	1,608	1,135
Automobiles	161,772	15,773	2,860	529	2,646
Total	209,847	95,464	11,341	2,137	7,170
Consolidated Corridor (2010)					
Locomotives	4,397	43,835	1,748	1,406	2,556
Trucks	43,491	19,337	5,563	1,620	1,144
Automobiles	162,220	15,827	2,868	531	2,655
Total	210,108	78,999	10,174	3,557	6,355
No Project (2020)[c]					
Locomotives	8,540	108,180	5,801	3,463	6,007
Trucks	56,137	24,929	7,179	2,088	1,474
Automobiles	180,261	17,576	3,186	590	2,948
Total	244,938	150,685	16,166	6,141	10,429
Consolidated Corridor[d] (2020)[c]					
Locomotives	6,983	77,817	3,641	2,534	4,445
Trucks	56,661	25,192	7,248	2,111	1,490
Automobiles	180,188	17,580	3,186	590	2,950
Total	243,832	120,589	14,075	5,235	8,885

[a] Emission rates based on VMT provided by Myra L. Frank & Associates, Inc., and emission factors obtained from the SCAQMD Draft CEQA Air Quality Handbook, May 1992.
[b] Based on 1990/91 VMT and 1991 emission factors.
[c] Based on 2020 VMT and 2009 emission factors.
[d] All project alternatives would have nearly the same results.
[e] Based on 1993 emission factors. 1991 factors not provided in SCAQMD Draft CEQA Air Quality Handbook.

Source: Radian 1992.



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 4-7	Local Air Quality Analysis Sites	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Analysis

Detailed project corridor traffic data was provided by Katz, Okitsu & Associates. Emission factors for CO were from the draft CEQA Air Quality Handbook.

Approved ARB and SCAQMD regulatory air dispersion models were used to estimate the pollutant impacts from the mobile source emissions. The modelling protocol was reviewed with the SCAQMD prior to conducting the analysis. Background levels of carbon monoxide were estimated based on data provided by the SCAQMD in their Draft CEQA Air Quality Handbook. Traffic volume data for the peak afternoon hour has been used (Traffic volume data for the peak afternoon hour are expected to represent the peak traffic volumes throughout the day as peak morning traffic volumes collected in 1992 were generally less than peak afternoon traffic volumes). The California Line (CALINE4) Source Model was used to estimate local CO impacts from mobile sources. CALINE4 is a Gaussian plume dispersion model developed by the California Department of Transportation (CALTRANS) to predict air pollutant concentrations near line sources. Worst-case meteorological conditions were used to predict 1-hour average pollutant concentrations from CO emissions associated with mobile sources. These parameters included a wind speed of 0.5 meters per second, G-stability (very stable), and a model-determined worst case wind direction.

Estimated CO concentrations are presented in Tables 4-19 through 4-24. The estimates shown in the tables reflect both the at-grade option (Alternative 1.0) and the trench options (Alternative 2.1A, 2.1S, and 2.2) which are all regarded equally and are referred to as Alternative 2. Model receptor locations were placed to identify the highest 1-hour CO concentrations. Therefore, any sensitive receptors such as schools and day care centers which are not modeled will incur CO concentrations less than those provided in Tables 4-19 through 4-24. Tables 4-19 through 4-24 summarize the three highest predicted concentrations. The model results indicate that the projected maximum 1-hour CO concentrations associated with the 2010 and 2020 Consolidated Corridor cases may exceed the state ambient air quality standards of 20 ppm at the intersections of Santa Ana Boulevard and Alameda Street and Alondra Boulevard and Alameda Street.

It is important to note that most of the CO impact on future years is related to growth in the basin unrelated to the Rail Consolidation project. CO concentrations within the depressed corridor adjacent to locomotives would be higher than the at-grade alternative, as would CO concentrations associated with vehicular emissions at major intersections along the corridor because standard intersection geometrics and signalization would be implemented in this alternative.

In the at-grade alternative, CO impacts from locomotives would be lower because the locomotive engine exhaust would have a greater opportunity to disperse before it would reach ground level. The traffic flow improvements associated with this alternative would decrease CO impacts at major intersections along the corridor, because of decreased idling times.

Although CO hot spots are predicted in both alternatives, both alternatives produce regional reductions in CO impacts. Therefore, several areas within the study area would show a net improvement in air quality over the No Project Alternative.

TABLE 4-19
PROJECTED CARBON MONOXIDE MAXIMUM 1-HOUR CONCENTRATIONS (ppm)
TWEEDY BOULEVARD AND ALAMEDA STREET

Year 2010

		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Residential 1[a]	9.5	10.7	1.2	0	11.6	2.0	0.1	14.4	4.9	0
Receptor 3[b]	9.5	11.1	1.6	0	12.1	2.6	0	14.8	5.3	0
Receptor 21[c]	9.5	10.7	1.2	0	11.5	1.9	0.1	16.4	6.9	0

Year 2020

		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Residential 1[a]	9.5	11.7	2.1	0.1	13.4	3.8	0.1	16.2	6.6	0.1
Receptor 3[b]	9.5	11.8	2.3	0	15.1	5.6	0	15.5	6.0	0
Receptor 21[c]	9.5	11.5	2.0	0	13.0	3.4	0.1	17.1	7.5	0.1

Note: "Vehicle" includes autos and trucks.

[a]Located approximately 10 feet east of Alameda Street and 170 feet north of Tweedy Boulevard.
[b]Located approximately 50 feet west of Alameda Street and 20 feet north of the intersection of Tweedy Boulevard and Alameda Street.
[c]Located approximately 80 feet east of Alameda Street and 350 feet south of Tweedy Boulevard.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations.

Source: Radian, 1992; Table 5-3 of SCAQMD Final Draft CEQA Air quality Handbook, September 1992.

TABLE 4-20
PROJECTED CARBON MONOXIDE MAXIMUM 1-HOUR CONCENTRATIONS (ppm)
SANTA ANA BOULEVARD AND ALAMEDA STREET

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
School 2[a]	9.5	16.6	7.1	0.0	17.8	8.2	0.1	16.5	6.9	0.1
School 3[b]	9.5	17.5	8.0	0.0	19.8	10.2	0.1	17.6	8.1	0.0
School 4[c]	9.5	16.7	7.2	0.0	19.3	9.8	0.0	16.6	7.1	0.0

Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
School 2[a]	9.5	20.3	10.8	0.0	24.3	14.7	0.1	21.0	11.4	0.1
School 3[b]	9.5	20.0	10.5	0.0	24.7	15.1	0.1	19.9	10.3	0.1
School 4[c]	9.5	18.7	9.2	0.0	24.0	14.4	0.1	20.6	11.0	0.1

Note: "Vehicle" includes autos and trucks.

[a]Located approximately 30 feet west of Alameda Street and 150 feet north of Santa Ana Boulevard.
[b]Located approximately 30 feet west of Alameda Street and 75 feet north of Santa Ana Boulevard.
[c]Located approximately 30 feet west of Alameda Street and 15 feet north of Santa Ana Boulevard.
[d]Total = Background + vehicle + rail
[e]Average background concentration determined from concentrations projected for year 2000 at Lynwood and Los Angeles stations.

Source: Radian, 1992; Table 5-3 of SCAQMD Draft Final CEQA Air Quality Handbook, September 1992.

TABLE 4-21
PROJECTED CARBON MONOXIDE MAXIMUM 1-HOUR CONCENTRATIONS (ppm)
ALONDRA BOULEVARD AND ALAMEDA STREET

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 11[a]	9.5	15.6	6.1	0.0	11.7	2.1	0.1	16.4	6.8	0.1
Receptor 12[b]	9.5	15.9	6.4	0.0	11.3	1.7	0.1	16.0	6.4	0.1
Receptor 41[c]	9.5	15.0	5.5	0.0	11.7	2.1	0.1	15.3	5.7	0.1

Year 2020										
		No Project			At-Grade Alternative			Depressed Alternatives		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 11[a]	9.5	18.2	8.7	0.0	13.7	4.1	0.1	19.9	10.3	0.1
Receptor 12[b]	9.5	19.0	9.5	0.0	12.9	3.4	0.1	20.2	10.6	0.1
Receptor 41[c]	9.5	18.2	8.7	0.0	13.6	4.0	0.1	19.0	9.5	0.0

Note: "Vehicles" include autos and trucks.

[a]Located approximately 30 feet west of Alameda Street and 60 feet north of Alondra Boulevard.
[b]Located Approximately 30 feet west of Alameda Street and 150 feet north of Alondra Boulevard.
[c]Located approximately 10 feet west of Alameda Street and 70 feet south of Alondra Boulevard.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations.

Source: Radian, 1992; Table 5-3 of SCAQMD Final Draft CEQA Air quality Handbook, September 1992.

TABLE 4-22
PROJECTED CARBON MONOXIDE MAXIMUM 1-HOUR CONCENTRATIONS (ppm)
55TH STREET AND LONG BEACH AVENUE

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
HP7[a]	9.5	12.5	3.0	0.0	13.9	4.3	0.1	18.1	8.6	0.0
Residential 4[b]	9.5	11.6	21.	0.0	12.0	2.5	0.0	14.2	4.7	0.0
Receptor 8[c]	9.5	12.2	2.7	0.0	13.4	3.8	0.1	16.7	6.9	0.3
Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
HP7[a]	9.5	16.3	6.8	0.0	15.1	5.5	0.1	11.9	2.4	0.0
Residential 4[b]	9.5	13.7	4.2	0.0	13.2	3.6	0.1	11.1	1.6	0.0
Receptor 8[c]	9.5	15.8	6.3	0.0	14.7	5.1	0.1	11.9	2.0	0.4

Note: "Vehicle" includes autos and trucks.

[a]Located approximately 20 feet west of Long Beach Avenue and 15 feet north of 55th Street.
[b]Located Approximately 100 feet west of Long Beach Avenue and 10 feet south of 55th Street.
[c]Located approximately 30 feet west of Long Beach Avenue and 120 feet north of 55th Street.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations.

Source: Radian, 1992; Table 5-3 of SCAQMD Final Draft CEQA Air quality Handbook, September 1992.

TABLE 4-23
PROJECTED CARBON MONOXIDE MAXIMUM 1-HOUR CONCENTRATIONS (ppm)
ALAMEDA STREET BETWEEN LAUREL & MYRRH STREETS

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 6[a]	9.5	10.6	1.1	0.0	10.8	1.2	0.1	10.9	1.3	0.1
Receptor 7[b]	9.5	10.2	0.7	0.0	10.6	1.0	0.1	11.4	1.7	0.2
Receptor 8[c]	9.5	10.2	0.7	0.0	10.6	1.0	0.1	10.8	1.2	0.1

Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 6[a]	9.5	11.9	2.4	0.0	12.0	2.5	0.0	12.3	2.8	0.0
Receptor 7[b]	9.5	11.1	1.6	0.0	11.5	1.9	0.1	13.2	3.6	0.1
Receptor 8[c]	9.5	11.0	1.5	0.0	11.4	1.8	0.1	12.0	2.4	0.1

Note: "Vehicle" includes autos and trucks.

[a]Located approximately 40 feet west of Alameda Street and 55 feet south of Laurel Street.
[b]Located approximately 15 feet east of Alameda Street and 10 feet south of Laurel Street.
[c]Located approximately 15 feet east of Alameda Street and 100 feet south of Laurel Street.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations.

Source: Radian, 1992; Table 5-3 of SCAQMD Final Draft CEQA Air quality Handbook, September 1992.

TABLE 4-24
PROJECTED CARBON MONOXIDE MAXIMUM 1-HOUR CONCENTRATIONS (ppm)
GAGE AVENUE NEAR ALAMEDA STREET

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[f]	Total[e]	Vehicle	Rail[a]	Total[e]	Vehicle	Rail[a]	Total[e]	Vehicle	Rail[a]
Commercial 10[b]	9.5	11.0	1.5	0.0	12.7	3.2	0.0	11.4	1.9	0.0
Residential 11[c]	9.5	11.0	1.5	0.0	12.6	3.1	0.0	11.3	1.8	0.0
Residential 12[d]	9.5	11.0	1.5	0.0	12.4	2.9	0.0	11.3	1.8	0.0
Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[f]	Total[e]	Vehicle	Rail[a]	Total[e]	Vehicle	Rail[a]	Total[e]	Vehicle	Rail[a]
Commercial 10[b]	9.5	12.1	2.6	0.0	15.0	5.5	0.0	12.6	3.1	0.0
Residential 11[c]	9.5	12.1	2.6	0.0	14.8	5.3	0.0	12.5	3.0	0.0
Residential 12[d]	9.5	12.1	2.6	0.0	14.5	5.0	0.0	12.5	3.0	0.0

Note: "Vehicle" includes autos and trucks.

[a]Data show incremental vehicular impacts resulting from Gage Street due to the projected modifications of Alameda Street.
[b]Located at the southeast corner of Gage and Alameda streets.
[c]Located approximately 100 feet east of Alameda Street and underneath Gage Avenue, as projected in Alternative 1.
[d]Located approximately 200 feet east of Alameda Street and underneath Gage Avenue, as projected in Alternative 1.
[e]Total = Background + vehicle + rail.
[f]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations.

Source: Radian, 1992; Table 5-3 of SCAQMD Final Draft CEQA Air quality Handbook, September 1992.

A conservative persistence factor of 0.8 was linearly applied to all maximum 1-hour CO concentrations to estimate 8-hour average concentrations. This factor is suggested for use by Caltrans for urban sites with a recognized tendency for persistent stagnant meteorological conditions and/or persistent traffic congestion. However, the method used to estimate 8-hour CO concentrations is expected to over-predict actual 8-hour concentrations since peak 1-hour traffic volumes are assumed to exist for 8-hours. The results of the 8-hour CO analysis indicate that the projected maximum 8-hour CO concentrations associated with the Future 2010 and 2020 Consolidated Corridor cases are below the state and federal ambient air quality standards of 9 ppm with the exception of the 2020 Consolidated Corridor at Santa Ana Boulevard and Alameda Street. Table 4-25 presents estimated 8-hour CO concentrations near the intersection of Santa Ana Boulevard and Alameda Street. In all modeled cases, the vehicular emissions predominantly affect projected concentrations of CO; rail emissions are relatively insignificant. In most cases, increased localized impacts of CO are predicted by the models with the Project (Compare null to projected 2010 and 2020). These localized impacts are created from the increased vehicular flow along Alameda Street rather than the consolidation of railroad trains; however, while the Alameda Corridor project is expected to increase rail and vehicular traffic along the Corridor, out-lying vehicular and rail routes are expected to see a reduction in CO impacts.

CO Conformity

SCAG's Draft CO Conformity Guideline states that transportation projects conform if: (1) they are included in a Regional Transportation Plan and a Traffic Improvement Program found to conform and (2) it can reasonably be demonstrated that the project, when taken as a whole, will reduce or eliminate the number and severity of violations of the federal carbon monoxide standards in the area substantially affected by the project. An interpretation of the CO conformity guideline requirements as they relate to the proposed project is presented below:

- For areas in which there would be no carbon monoxide violations in the no-build scenario, the project conforms only if there will be no violations in the build scenario.
- For areas in which there would be carbon monoxide violations in the no-build scenario, the project conforms if the build scenario shows a reduction in the number and severity of CO violations in the area substantially affected by the project.

The "area substantially affected by the project" includes both (a) the vicinity of the project in which receptors are located which could be affected by the carbon monoxide emissions coming from vehicles using the completed project, and (b) other affected streets and arterials on which traffic could be expected to change significantly as a result of the proposed project.

As previously discussed, the rail consolidation project is included in the SCAB's AQMP as a beneficial control measure (Transportation and Land Use Control Measure 11) with projected significant reductions in regional CO, NO_x, PM_{10}, and ROG emissions from current levels. The project's implementation would improve overall traffic flow, allow for increased average speeds, and therefore lower emission rates on a per miles traveled basis. It would decrease traffic on various routes thereby reducing local emissions; however, traffic on or near Alameda Street would increase, with a corresponding increase in local emissions. Based on the modeling results from key intersections and corridor segments, state 1-hour CO standard violations are projected in the no-build and build scenarios in 2020 at Santa Ana Boulevard and Alameda

TABLE 4-25a
PROJECTED 8-HOUR CARBON MONOXIDE CONCENTRATIONS (ppm)
TWEEDY BOULEVARD AND ALAMEDA STREET

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Residential 1[a]	6.7	7.7	1.0	0	8.4	1.6	<0.1	10.6	3.9	0
Receptor 3[b]	6.7	8.0	1.3	0	8.8	2.1	0	10.9	4.2	0
Receptor 19[c]	6.7	7.7	1.0	0	8.3	1.5	<0.1	12.2	5.5	0

Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Residential 1[a]	6.7	8.5	1.7	<0.1	9.8	3.0	<0.1	12.1	5.3	<0.1
Receptor 3[b]	6.7	8.5	1.8	0	11.2	4.5	0	11.5	4.8	0
Receptor 19[c]	6.7	8.3	1.6	0	9.5	2.7	<0.1	12.8	6.0	<0.1

[a]Located approximately 10 feet east of Alameda Street and 170 feet north of Tweedy Boulevard.
[b]Located approximately 50 feet west of Alameda Street and 20 feet north of the intersection of Tweedy Boulevard and Alameda Street.
[c]Located approximately 50 feet east of Alameda Street and 225 feet south of Tweedy Boulevard.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations.
Caltrans persistence factor of 0.8 linearly applied to maximum 1-hour CO concentrations to obtain projected 8-hour CO concentrations.

Source: Radian, 1992; Table 5-2 of SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.

TABLE 4-25b
PROJECTED 8-HOUR CARBON MONOXIDE CONCENTRATIONS (ppm)
SANTA ANA BOULEVARD AND ALAMEDA STREET

Year 2010

		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
School 2[a]	6.7	12.4	5.7	0	13.3	6.6	<0.1	12.3	5.5	<0.1
School 3[b]	6.7	13.1	6.4	0	14.9	8.2	<0.1	13.2	6.5	0
School 4[c]	6.7	12.5	5.8	0	14.5	7.8	0	12.4	5.7	0

Year 2020

		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
School 2[a]	6.7	15.3	8.6	0	18.5	11.8	<0.1	15.9	9.1	<0.1
School 3[b]	6.7	15.1	8.4	0	18.9	12.1	<0.1	15.0	8.2	<0.1
School 4[c]	6.7	14.1	7.4	0	18.3	11.5	<0.1	15.6	8.8	<0.1

[a]Located approximately 30 feet west of Alameda Street and 150 feet north of Santa Ana Boulevard.
[b]Located approximately 30 feet west of Alameda Street and 75 feet north of Santa Ana Boulevard.
[c]Located approximately 30 feet west of Alameda Street and 15 feet north of Santa Ana Boulevard.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations. Caltrans persistence factor of 0.8 linearly applied to maximum 1-hour CO concentrations to obtain projected 8-hour CO concentrations.

Source: Radian, 1992; Table 5-2 of SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.

TABLE 4-25c
PROJECTED 8-HOUR CARBON MONOXIDE CONCENTRATIONS (ppm)
ALONDRA BOULEVARD AND ALAMEDA STREET

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 11[a]	6.7	11.6	4.9	0	8.5	1.7	<0.1	12.2	5.4	<0.1
Receptor 12[b]	6.7	11.8	5.1	0	8.1	1.4	<0.1	11.9	5.1	<0.1
Receptor 41[c]	6.7	11.1	4.4	0	8.5	1.7	<0.1	11.3	4.6	<0.1
Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 11[a]	6.7	13.7	7.0	0	10.1	3.3	<0.1	15.0	8.2	<0.1
Receptor 12[b]	6.7	14.3	7.6	0	9.4	2.7	<0.1	15.3	8.5	<0.1
Receptor 41[c]	6.7	13.7	7.0	0	10.0	3.2	<0.1	14.3	7.6	0

[a]Located approximately 30 feet west of Alameda Street and 60 feet north of Alondra Boulevard.
[b]Located approximately 30 feet west of Alameda Street and 150 feet north of Alondra Boulevard.
[c]Located approximately 10 feet west of Alameda Street and 70 feet south of Alondra Boulevard.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations. Caltrans persistence factor of 0.8 linearly applied to maximum 1-hour CO concentrations to obtain projected 8-hour CO concentrations.

Source: Radian, 1992; Table 5-2 of SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.

TABLE 4-25d
PROJECTED 8-HOUR CARBON MONOXIDE CONCENTRATIONS (ppm)
55TH STREET AND LONG BEACH AVENUE

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
HP7[a]	6.7	9.1	2.4	0	10.2	3.4	<0.1	13.6	6.9	0
Residential 4[b]	6.7	8.4	1.7	0	8.7	2.0	0	10.5	3.8	0
Receptor 8[c]	6.7	8.9	2.2	0	9.8	3.0	<0.1	12.5	5.5	<0.3

Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
HP7[a]	6.7	12.1	5.4	0	11.2	4.4	<0.1	8.6	1.9	0
Residential 4[b]	6.7	10.1	3.4	0	9.7	2.9	<0.1	8.0	1.3	0
Receptor 8[c]	6.7	11.7	5.0	0	10.9	4.1	<0.1	8.63	1.6	0.3

[a]Located approximately 20 feet west of Long Beach Avenue and 15 feet north of 55th Street.
[b]Located approximately 100 feet west of Long Beach Avenue and 10 feet south of 55th Street.
[c]Located approximately 30 feet west of Long Beach Avenue and 120 feet north of 55th Street.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations. Caltrans persistence factor of 0.8 linearly applied to maximum 1-hour CO concentrations to obtain projected 8-hour CO concentrations.

Source: Radian, 1992; Table 5-2 of SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.

TABLE 4-25e
PROJECTED 8-HOUR CARBON MONOXIDE CONCENTRATIONS (ppm)
ALAMEDA STREET BETWEEN LAUREL & MYRRH STREETS

Year 2010

		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 6[a]	6.7	7.6	0.9	0	7.7	1.0	<0.1	7.8	1.0	<0.1
Receptor 7[b]	6.7	7.3	0.6	0	7.6	0.8	<0.1	8.2	1.4	<0.2
Receptor 8[c]	6.7	7.3	0.9	0	7.6	0.8	<0.1	7.7	1.0	<0.1

Year 2020

		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[e]	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail	Total[d]	Vehicle	Rail
Receptor 6[a]	6.7	8.6	1.9	0	8.7	2.0	0	8.9	2.2	0
Receptor 7[b]	6.7	8.0	1.3	0	8.3	1.5	<0.1	9.7	2.9	<0.1
Receptor 8[c]	6.7	7.9	1.2	0	8.2	1.4	<0.1	8.7	1.9	<0.1

[a]Located approximately 40 feet west of Alameda Street and 55 feet south of Laurel Street.
[b]Located approximately 15 feet east of Alameda Street and 10 feet south of Laurel Street.
[c]Located approximately 15 feet east of Alameda Street and 100 feet south of Laurel Street.
[d]Total = Background + vehicle + rail.
[e]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations. Caltrans persistence factor of 0.8 linearly applied to maximum 1-hour CO concentrations to obtain projected 8-hour CO concentrations.

Source: Radian, 1992; Table 5-2 of SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.

TABLE 4-25f
PROJECTED 8-HOUR CARBON MONOXIDE CONCENTRATIONS (ppm)
GAGE AVENUE NEAR ALAMEDA STREET (SEGMENT ONLY)[a]

Year 2010										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[f]	Total[e]	Vehicle	Rail	Total[e]	Vehicle	Rail	Total[e]	Vehicle	Rail
Commercial 10[b]	6.7	7.9	1.2	0	9.3	2.6	0	8.2	1.5	0
Residential 11[c]	6.7	7.9	1.2	0	9.2	2.5	0	8.1	1.4	0
Residential 12[d]	6.7	7.9	1.2	0	9.0	2.3	0	8.1	1.4	0

Year 2020										
		No Project			Project Alternative 1			Project Alternatives 2.1A/S & 2.2		
Receptor	Background[f]	Total[e]	Vehicle	Rail	Total[e]	Vehicle	Rail	Total[e]	Vehicle	Rail
Commercial 10[b]	6.7	8.8	2.1	0	11.1	4.4	0	9.2	2.5	0
Residential 11[c]	6.7	8.8	2.1	0	10.9	4.2	0	9.1	2.4	0
Residential 12[d]	6.7	8.8	2.1	0	10.7	4.0	0	9.1	2.4	0

[a]Data shows incremental vehicular impacts resulting from Gage Street due to the projected modifications of Alameda Street.
[b]Located at the southeast corner of Gage and Alameda streets.
[c]Located approximately 100 feet east of Alameda Street and underneath Gage Avenue, as projected in Alternative 1.
[d]Located approximately 200 feet east of Alameda Street and underneath Gage Avenue, as projected in Alternative 1.
[e]Total = Background + vehicle + rail.
[f]Average background concentration determined from concentrations projected for year 2000 at the Lynwood and Los Angeles stations. Caltrans persistence factor of 0.8 linearly applied to maximum 1-hour CO concentrations to obtain projected 8-hour CO concentrations.

Source: Radian, 1992; Table 5-2 of SCAQMD Final Draft CEQA Air Quality Handbook, September 1992.

Street, Alondra Boulevard and Alameda Street (depressed alternatives only). Based on the use of a conservative persistence factor for the same key intersections and corridor segments, 8-hour CO standard violations are projected in the no-build and build scenarios in the following cases:

- In the build and no build scenarios at Santa Ana Boulevard and Alameda Street; 55th Street and Long Beach Avenue (except Alternative 2 in 2020); Tweedy boulevard and Alameda Street.

- In the 2010 build scenarios (Alternative 2) and 2020 (Alternatives 1 and 2) at Tweedy Boulevard and Alameda Street.

- In the 2010 no build and build (alternative 2) and 2020 ;no build and build scenarios at Alondra boulevard and Alameda Street.

- In the 2020 build scenario (Alternative 2) at Alameda Street between Laurel and Myrrh streets.

- In the 2010 build scenario (Alternative 1) and 2020 build scenarios at Gage Avenue near Alameda Street.

Most of the CO impact in future years is related to growth within the basin unrelated to the rail consolidation project. If CO modeling were conducted on a regional basis, many intersections would show a net reduction in CO impact in the project alternatives.

4.3.6 Operational - Air Toxics

Introduction

Federal and state air pollution regulations have historically focused on criteria pollutants (NO_x, SO_2, O_3, particulates, and lead). However in the past decade, there has been growing concern regarding the potential impacts of other harmful pollutants emitted to the air. These "non-criteria" pollutants are generally referred to as toxic air contaminants or "air toxics." The health impacts of concern with regard to air toxics include carcinogenesis, and other adverse health effects. Toxic air contaminants include chemicals such as arsenic, benzene, hexavalent chromium, chloroform, and vinyl chloride. Benzene is the only toxic pollutant emitted in appreciable quantities from mobile source exhaust, and therefore is the only toxic pollutant relevant to the Alameda Corridor project.

Air toxics are regulated differently, depending on the source of the emissions. Air toxics emitted from mobile sources are regulated by the federal government through the EPA and by the state government through the Air Resources Board. Air toxics emitted by stationary sources are regulated by the state and local governments by the passage of legislation, and by the adoption of SCAQMD rules and regulations. Air toxics are also controlled by regulations which reduce the emissions of criteria pollutants; since many measures which reduce emissions of criteria pollutants simultaneously reduce air toxic emissions.

Background Information on Air Toxics

The SCAQMD recently conducted the Multiple Air Toxics Exposure Study (MATES, September 1988) through a grant obtained from the EPA to determine background levels of air toxics. This study analyzed air samples from 10 monitoring stations in the SCAB to determine the levels of various pollutants (7 metals and 13 organics) contributed by all sources (i.e., mobile, stationary, and area). These data were compiled and compared with data collected at monitoring stations within the SCAQMD and ARB networks. Cancer risks were estimated for 10 of the chemicals by multiplying the measured concentration in air by unit risk factors. The primary contributors to the cancer risk in the MATES study were benzene and hexavalent chromium.

Other studies (Carey, 1987) have shown that air toxics such as diesel and gasoline particulates, formaldehyde, benzene, ethylene, acetaldehyde, and 1,3-butadiene are emitted from mobile sources. Of these, diesel and gasoline particulates, 1,3-butadiene and benzene are the major contributors to cancer risk.

Health Impacts of Air Toxics

As many different chemicals in the air are considered air toxics, many different health impacts may be seen from the exposure to these chemicals. For most chemicals, at low doses few if any adverse health effects would be seen and as the dose is increased, adverse health effects may become evident. The dose is dependent on not only the concentration to which an individual is exposed but also the duration of exposure. Thus, the concentration of the chemical and the exposure duration together determine the point at which adverse health effects would be seen. The short-term health effects associated with construction activities have been addressed earlier in this section. Potential health effects from the long-term exposure from project operation to benzene and 1,3-butadiene were addressed for the Alameda Corridor project.

Benzene is classified as a known human carcinogen by the EPA (IRIS). Most of the data supporting this classification is taken from occupational exposures where employees were exposed to a mixture of solvents. Thus, it is difficult to determine the actual contribution of benzene to the increased cancer risk seen in workers. Occupational benzene exposure is associated in many case reports and studies with an increase in a specific cancer type, leukemia and primarily acute myelogenous leukemia. Background cancer risk in the SCAB due to ambient levels of benzene is estimated at 650 to 1000 in one million (AAD SCAQMD).

1,3-butadiene is classified as a probable human carcinogen by the EPA because although there are not adequate data to evaluate the carcinogenity of 1,3-butadiene in humans, there is sufficient evidence to show the carcinogenity of 1,3-butadiene in experimental animals (IRIS). Inhalation of 1,3-butadiene has been associated with malignant cell development in various tissues in rats. Epidemiological occupational studies of exposure to 1,3-butadiene have been inconclusive. Therefore, it has been necessary to extrapolate from the high doses administered in experimental studies to estimate the cancer potency in humans exposed to ambient concentrations (IRIS). Using this method, the background cancer risk in the SCAB due to ambient levels of 1,3-butadiene (Carey) is estimated at 6,784 in one million.

To put the previous risk numbers into perspective, it is necessary to understand how the cancer risk values are developed. The cancer risk values developed for benzene and 1,3-butadiene are based on upper 95 percentile values for that chemical. This term means the risk has only a 5 percent chance of being higher than is estimated and could be as low as zero. The actual occurrence of cancer due to exposures to background air concentrations of these chemicals is dependent on a number of factors that would not be affected by the proposed project, including individual lifestyle and genetic makeup.

Impact of the Alameda Corridor Project on Regional Air Toxics

Implementation of this project is expected to reduce the regional emissions of air toxics. It is projected that there will be a net reduction of 1.05 tons/day of ROG by 2020. Assuming that the reduction in ROG is proportional to the reduction in THC and thus to the reduction in air toxics, the reduction in benzene and 1,3-butadiene emissions has been calculated and presented in Table 4-26. Although sufficient data are not available to calculate the corresponding decrease in other air toxics, it would be reasonable to expect that the projected reduction in emissions of ROG associated with the project would also signify a decrease in all air toxics generated from vehicle exhaust, with a corresponding decrease in regional health risk associated with mobile sources. The project is therefore found to have a beneficial effect insofar as regional air toxics are concerned.

TABLE 4-26
AIR TOXICS EMISSION REDUCTION
YEAR 2020[1]

Air Toxic	Estimated ROG Emissions Reduction Associated With Project Implementation (lbs/day)	Air Toxic to ROG Ratio (%)	Estimated Air Toxic Reduction Associated With Project Implementation (lbs/day)
Benzene	2091	1.32	27.6
1,3-butadiene	2091	1.13	23.6

[1] ROG based on 2009 emission factors from the SCAQMD Draft CEQA Air Quality Handbook, May 1992.

Source: Radian, 1992.

Re-entrainment Phenomena

Another potential concern that may exist along rail and highway corridors and major intersections would be the re-entrainment of air toxics from surface particulates by passing traffic. Although lead has been eliminated from gasoline, it continues to reside in surface soils along major roadways. EPA/CARB have conducted studies to quantify the presence of certain air toxics along roadways. CARB has included values of lead in their PM_{10} Speciation Manual, and emission factors for lead in crosswalks of 6.6×10^{-5} lbs/vehicle-mile are recommended by EPA for calculating paved road dust re-entrainment. Recent Los Angeles Unified School District (LAUSD) investigations into anomalous elevations in lead concentrations in ambient monitoring data associated with former school sites have suggested that potentially significant concentrations of lead deposited by historical combustion of leaded gasoline in soils along roadways could become re-entrained into the ambient air by passing traffic, posing a potential health risk to children who attend school in the vicinity of major freeways (Piazza 1992).

In order to understand the impact of the proposed project on possible reentrainment of soil contaminants along roadways, it is important to understand the methods of construction to be employed in rail corridor and major intersection enhancements. During construction surface soils will be excavated and removed from the construction site. Following placement of pilings and other structural supports, new fill and subbase will be brought in to replace old fill materials. Subsequent to subbase and fill replacement, new pavement and sidewalks will be installed. "Maintenance of Way" roadways constructed to provide access to the rail corridor will also be paved, further reducing sources of particulate. The historical deposition of lead into the soil would therefore be removed as a result of the project.

This would result in a net decrease in soil contaminant concentrations. The elimination of sources of air toxics re-entrainment is an environmental benefit expected from the project and its alternatives. For this reason, no further quantitative evaluation of re-entrainment phenomena was conducted.

4.3.7 Mitigation Measures

Construction

All reasonable fugitive dust control features previously discussed in Chapter 3 would be employed. Potential mitigation measures are listed in Table 4-27a. Any potential impacts would be temporary in nature.

In addition, if contaminated soil is encountered during construction of the rail corridor or any roadway enhancement, it will be immediately remediated using techniques approved by appropriate agencies. These techniques would also mitigate the release of air toxics into the ambient air, as required by SCAQMD Rule 1066.

Of the mitigation measures identified in Table 4-27b, four measures have been selected to be employed during construction activities. It is estimated that application of these measures would reduce PM_{10} emissions overall by 52 percent. As a result, worst case (2 locations) PM_{10} emissions from construction-related activities for alternatives 1, 2.1A/S and 2.2 are 497 lb/day, 619 lb/day and 619 lb/day, respectively.

TABLE 4-27a
POTENTIAL MITIGATION MEASURES FOR CONSTRUCTION ACTIVITIES

Emission Source	Mitigation Measure	Emissions Reductions Efficiency
Emissions from construction equipment	• Methanol or low-sulfur fueled construction equipment	60 - 90 %
	• Use of gasoline-powered equipment that has catalytic converters	Not Quantified
	• Suspension of all construction equipment operations during second stage smog alerts	Not Quantified
	• Prevention of trucks from idling longer than two minutes	Not Quantified
Fugitive dust from roads	• Street sweeping at the end of day if any visible soil material is carried over to adjacent thoroughfares	25 - 60%
	• Water application twice daily or chemical soil stabilizer application to all unpaved parking or staging areas and unpaved road surfaces	45 - 85%
	• Wheel washer installation where vehicles exit unpaved roads onto paved roads, or wash off of trucks leaving the site every trip	60 - 80%
	• Traffic speeds on all unpaved road surfaces to be reduced to minimal levels	40 - 70%
	• All trucks hauling loose materials to be covered and freeboard maintained	40 - 85%
	• Pavement of construction roads that have a high volume of construction equipment trips	90 - 99%
	• Pavement of all construction access roads onto the site from the main road	100%
Fugitive dust from construction activities	• Application of approved chemical soil stabilizers to all inactive construction areas	40 - 85%
	• Replacement of ground cover in disturbed areas as quickly as possible	20 - 65%
	• Enclosing, covering, watering, or applying of approved soil binders to exposed stock piles	40 - 98%
Fugitive dust from grading and demolitions	• Watering active sites at least twice daily	45 - 90%
	• suspension of all excavating and grading operations when wind speeds are excessive	100%
	• Monitoring for PM_{10} according to SCAQMD procedures	Not Quantified

Source: Radian Corporation, 1992.

TABLE 4-27b CONSTRUCTION RELATED ACTIVITY PM_{10} MITIGATION MEASURES		
Construction Activity	Mitigation Measures	Reduction Efficiency*
Filling, dump, grading and excavating	Water active site at least twice daily	50 %
Trucking operations on paved roads	Sweep streets at end of day	50 %
Trucking operations on unpaved roads	Apply water twice daily	50 %
	Wash trucks and equipment leaving the site and install wheel washes	70 %

*Reduction efficiencies from the SCAQMD Draft CEQA Air Quality Handbook, May 1992.

Source: Radian Corporation, 1992.

Operation

The proposed project, because of its regional benefit in reducing criteria and air toxic emissions, can be considered a mitigation measure. This is further attested to by the fact that the proposed project is listed as Transportation Control Measure 11 in the 1991 AQMP. If rail electrification (Transportation Critical Measure 14) becomes a reality, further reduction in regional criteria pollutants and air toxics could be achieved. Therefore, electrification would be an additional measure to mitigate criteria pollutants and regional air toxics. The Southern California Accelerated Rail Electrification Program projected that electrification of freight line haul trains would decrease 2010 freight rail criteria emissions in the SCAB by over 67 percent. Locomotive emissions with the proposed project employing diesel engines or with electrification are tabulated in Table 4-28.

TABLE 4-28
REGIONAL LOCOMOTIVE CRITERIA
EMISSIONS WITH ELECTRIFICATION (Lbs/Day)

	CO	NO_x	ROG	PM_{10}	SO_x
Diesel Powered	6,983	77,817	3,641	2,534	4,445
Electrically Powered[a]	314	2,303	248	86	19
Net Benefit	6,669	75,514	3,393	2,448	4,426

[emissions] based on proportional reduction as reported in the Southern California Accelerated Rail Electrification Program.

Source: Radian, 1992.

4.4 NOISE

The assessment of noise impact from the Alameda Corridor project is based on the evaluation of future noise levels along the rail and traffic corridors that would be most affected by the project. The rail consolidation has the potential of significantly changing noise levels along the rail corridors leading to the ports of Long Beach and Los Angeles. The noise analysis has focused on the Alameda Corridor, where train traffic in 2020 is projected to be as high as 99 trains per day, and the roadway improvements are expected to increase truck and automobile traffic.

As a result of the consolidation, many fewer trains are expected to use the Union Pacific (UP) San Pedro Branch and the Atchison Topeka and Santa Fe (AT&SF) Harbor Subdivision. Both of these alignments pass through a number of residential areas; diverting the train traffic to another corridor will improve the environment along these corridors. A rough estimate of the change in noise levels along the UP and AT&SF alignments has been developed that are used with the detailed evaluation of the Alameda Corridor to estimate region wide noise impact from each of the Alameda Corridor's alternatives (see Section 4.4.6).

As is standard for virtually all community noise assessments, noise levels are characterized using the A-weighted sound level expressed in decibels. A-weighting was designed to shape the frequency response of sound measurement instrumentation in a manner that simulates the response of the human ear. All sound levels in this section are expressed in terms of A-weighted decibels (dBA).

The impact assessment for residential areas is based on the Community Noise Equivalent Level (CNEL), which is a measure of total acoustic energy over a 24-hour period. CNEL adjustments take into account the fact that people are more sensitive to noise during the evening and nighttime hours. As a result, one noise event during the evening hours of 7 pm to 10 pm is equivalent to three events during the daytime hours, and one event during the nighttime hours of 10 pm to 7 am is equivalent to ten daytime events. Because of this weighting, CNEL is often dominated by nighttime noise, particularly near freight lines that operate at night.

CNEL in urban and suburban residential areas is typically within the range of 50 to 70 dBA. CNELs below 50 dBA may be found in low-density residential areas that are well isolated from freeways and major arterials. CNEL in the 55 to 60 dBA range is typical of most suburban residential areas that are not exposed to noise sources such as airports, major arterial or freeway noise, or rail traffic. In an area that is exposed to one or more of these noise sources, CNEL will often exceed 65 dBA. As discussed later in this section, the noise survey shows that the existing CNEL along the Alameda Corridor often exceeds 70 dBA, particularly when there is freight traffic during the nighttime hours.

Daytime Energy Equivalent Level (Leq) has been used to evaluate noise impact for land uses, such as parks and schools, that are not more sensitive to noise during nighttime hours. Leq is a straight measure of sound energy without any adjustments for nighttime and evening events.

Summary of Findings

Figure 4-8 shows the locations where short and long term ambient noise measurements have been taken, and also where noise barriers are recommended for control of noise from freight trains and street traffic in the Alameda Corridor. As can be seen from this figure, extensive lengths of noise barriers would be required to control train noise from Alternative 1 (the at-grade option). Table 4-43 shows the length of noise walls required for each alternative. Other overall conclusions of the noise assessment are as follows:

1. There is a significant amount of existing noise impact along the Alameda, SP and AT&SF corridors.

2. Even with extensive mitigation, the projected increase in rail and traffic volumes would cause some increase in total noise impact along the Alameda Corridor.

3. Without the consolidation project, projected increases in rail traffic along the UP and AT&SF corridors, and the increase in rail and street traffic along the Alameda Corridor, would cause a significant increase in noise impact along these corridors.

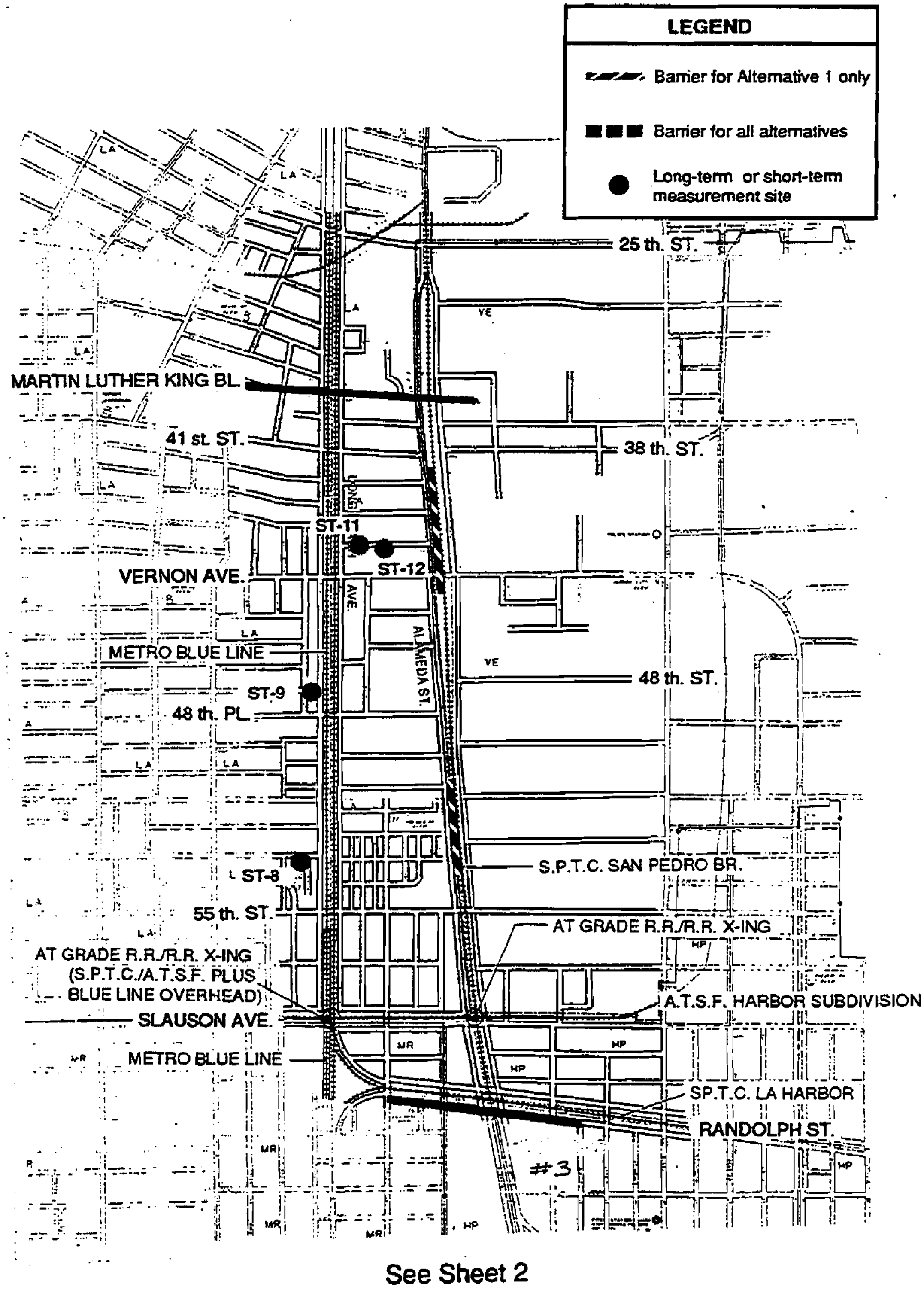
4. With the consolidation project and recommended noise mitigation measures, total regional noise impact would be much lower than is projected for the 2020 No Build alternative; however, there would be some increase in noise impact along the Alameda Corridor.

The remainder of this section discusses existing noise levels, the criteria used for noise impact, the approach used to develop estimates of future noise levels, further details regarding the results of the noise impact assessment, and the recommended noise mitigation measures.

4.4.1 Setting

A noise survey was performed to document existing noise levels at representative noise sensitive sites along the Alameda Corridor. Two types of noise measurements were performed. The first used unattended monitors that were positioned in backyards along the corridor. The units were programmed to give statistics on the hourly and daily noise levels and to provide information about each noise event that caused the noise level to exceed a preset level for more than 5 to 10 seconds. The second type of measurement consisted of 30 minutes to one hour of monitoring with a sound level meter. Leq and traffic volume were recorded for each minute. This type of measurement allows the correlation of traffic volumes with noise levels, thereby removing the influence of isolated events, such as particularly loud trucks, that could skew the results.

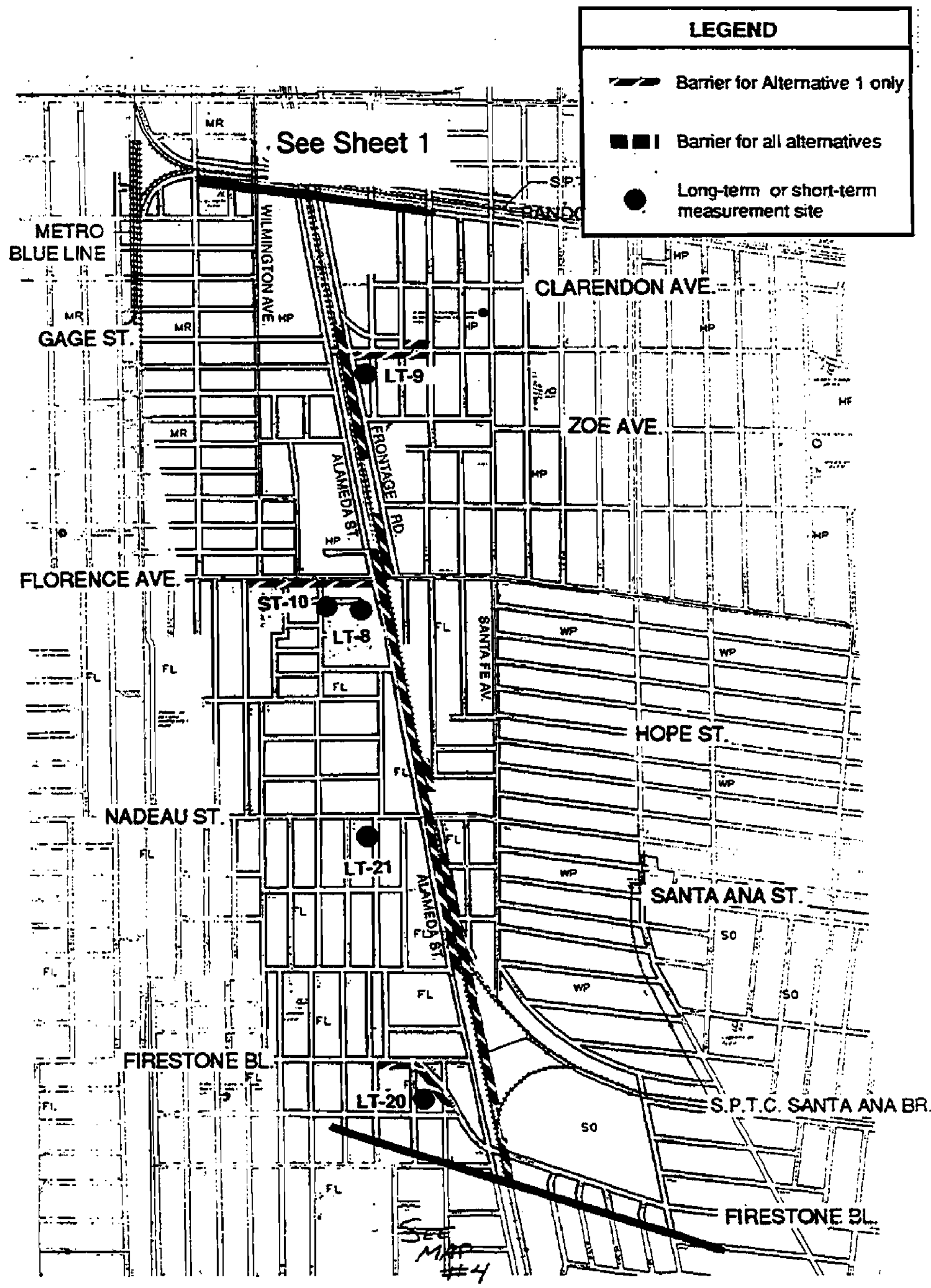
Figure 4-8 indicates the locations of the noise measurement sites. Note that some of the measurement sites along the UP and AT&SF corridors are too far from the Alameda Corridor to be shown in the figure. Table 4-29 summarizes the results of the 24-hour noise measurements and Table 4-30 summarizes the results of the short-term measurements. The noise survey showed that existing ambient noise levels along the Alameda Corridor are dominated by traffic on Alameda Street and trains operating on the Southern Pacific (SP) tracks. In some areas



Source: HMMH, 1992

Sheet 1 of 8

FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



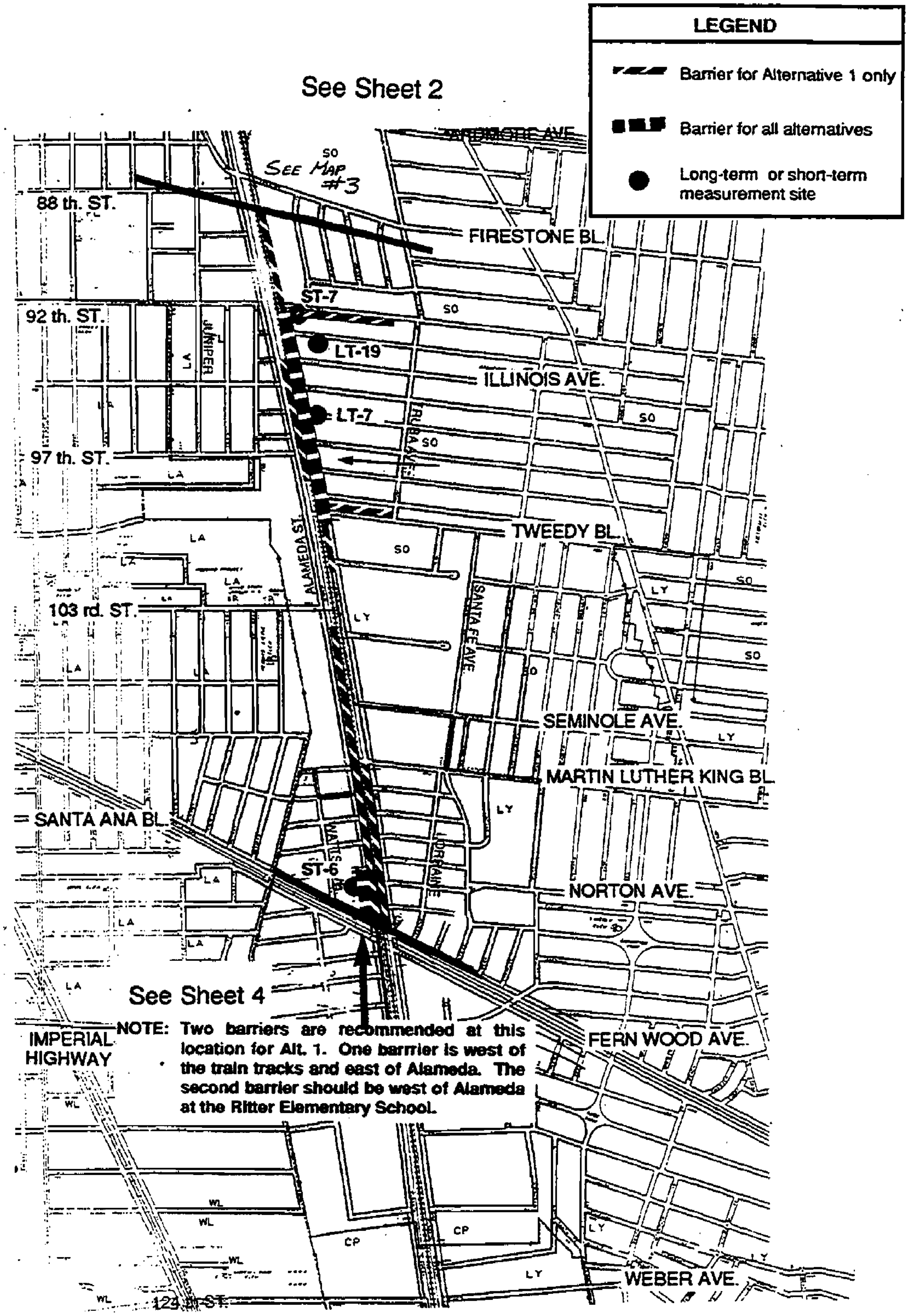
See Sheet 3

No Scale

Source: HMMH, 1992

Sheet 2 of 8

FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

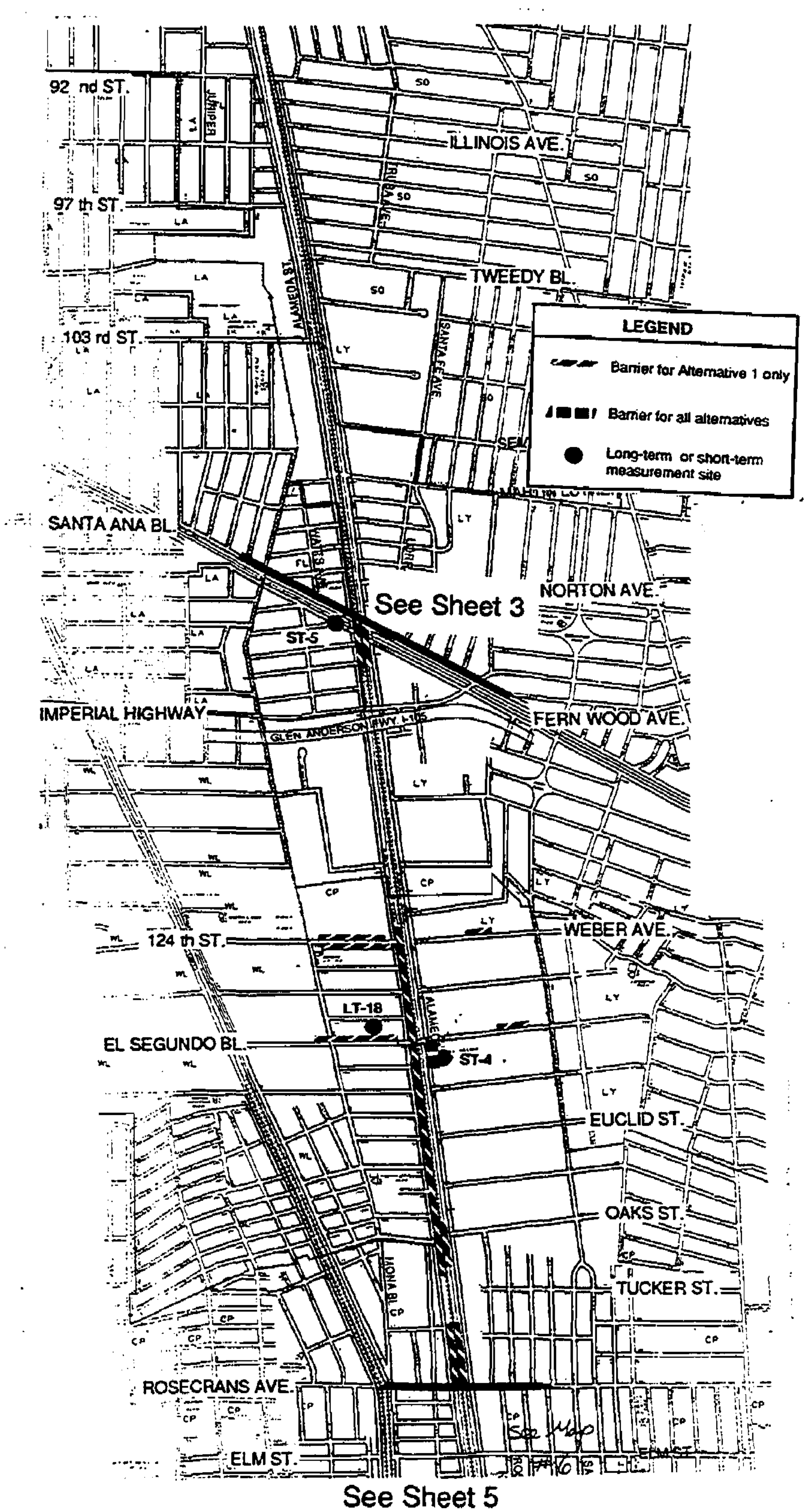


Source: HMMH, 1992

Sheet 3 of 8

No Scale

FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



No Scale

Source: HMMH, 1992

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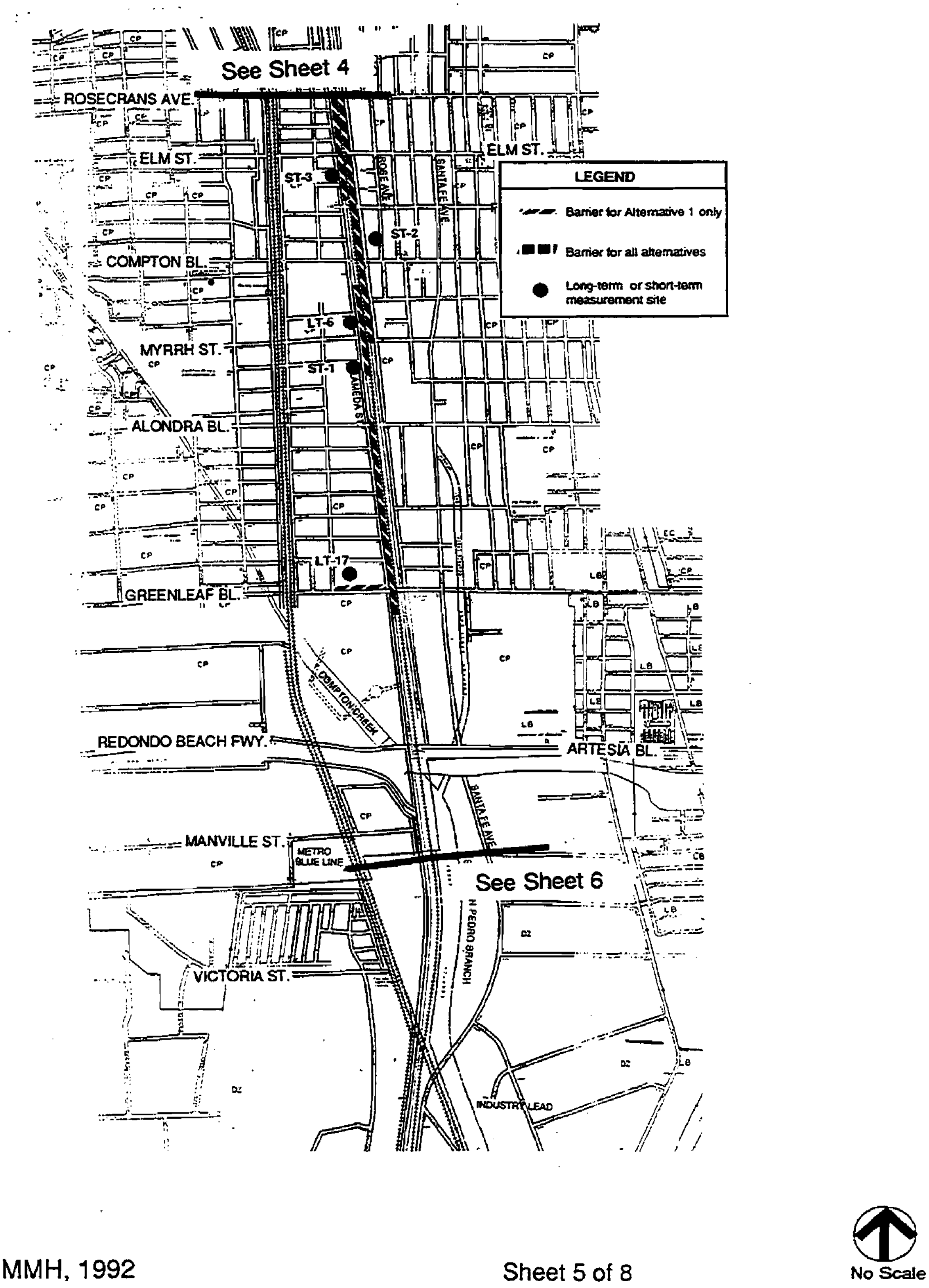
FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: HMMH, 1992

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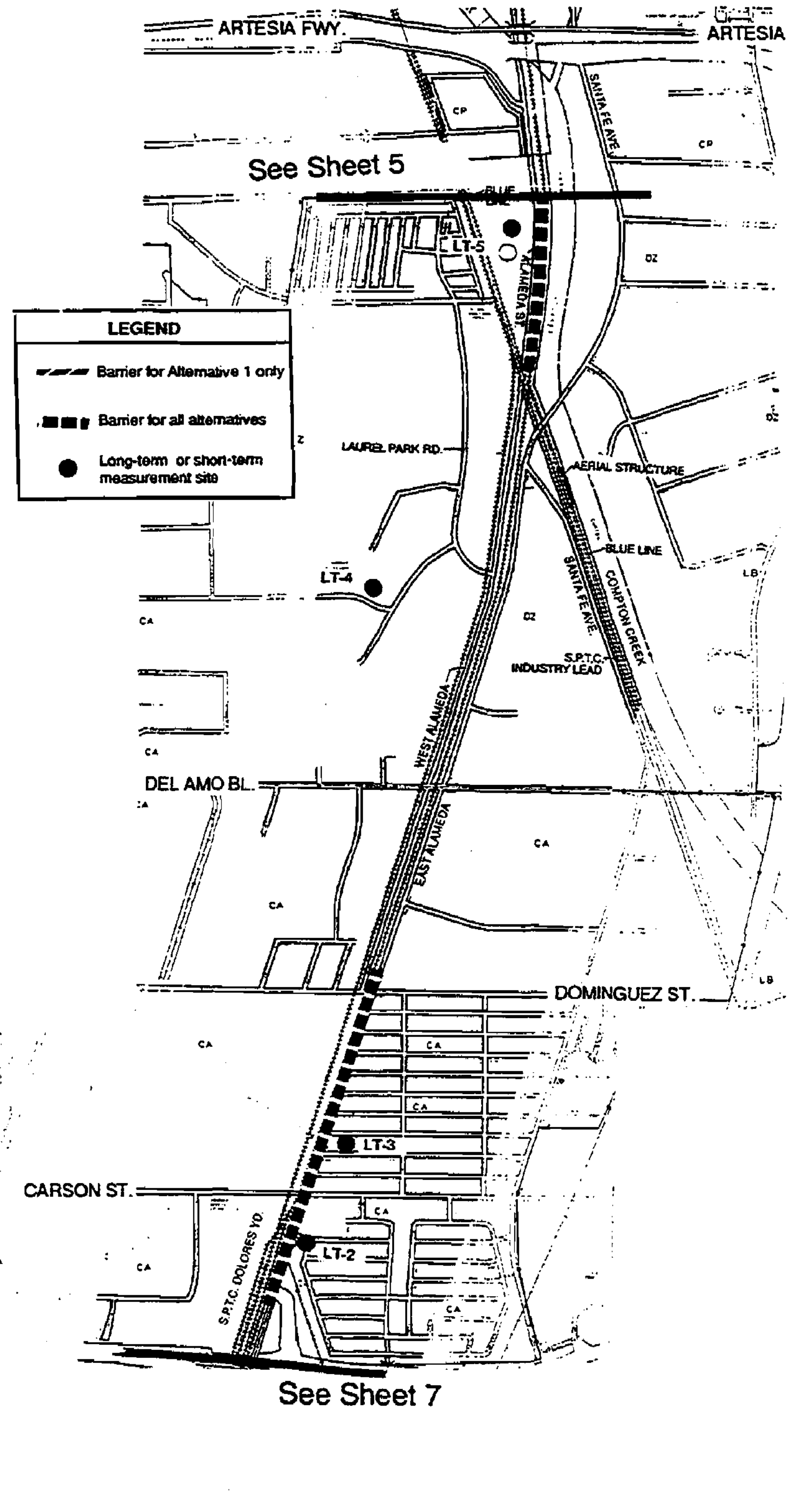
FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: HMMH, 1992

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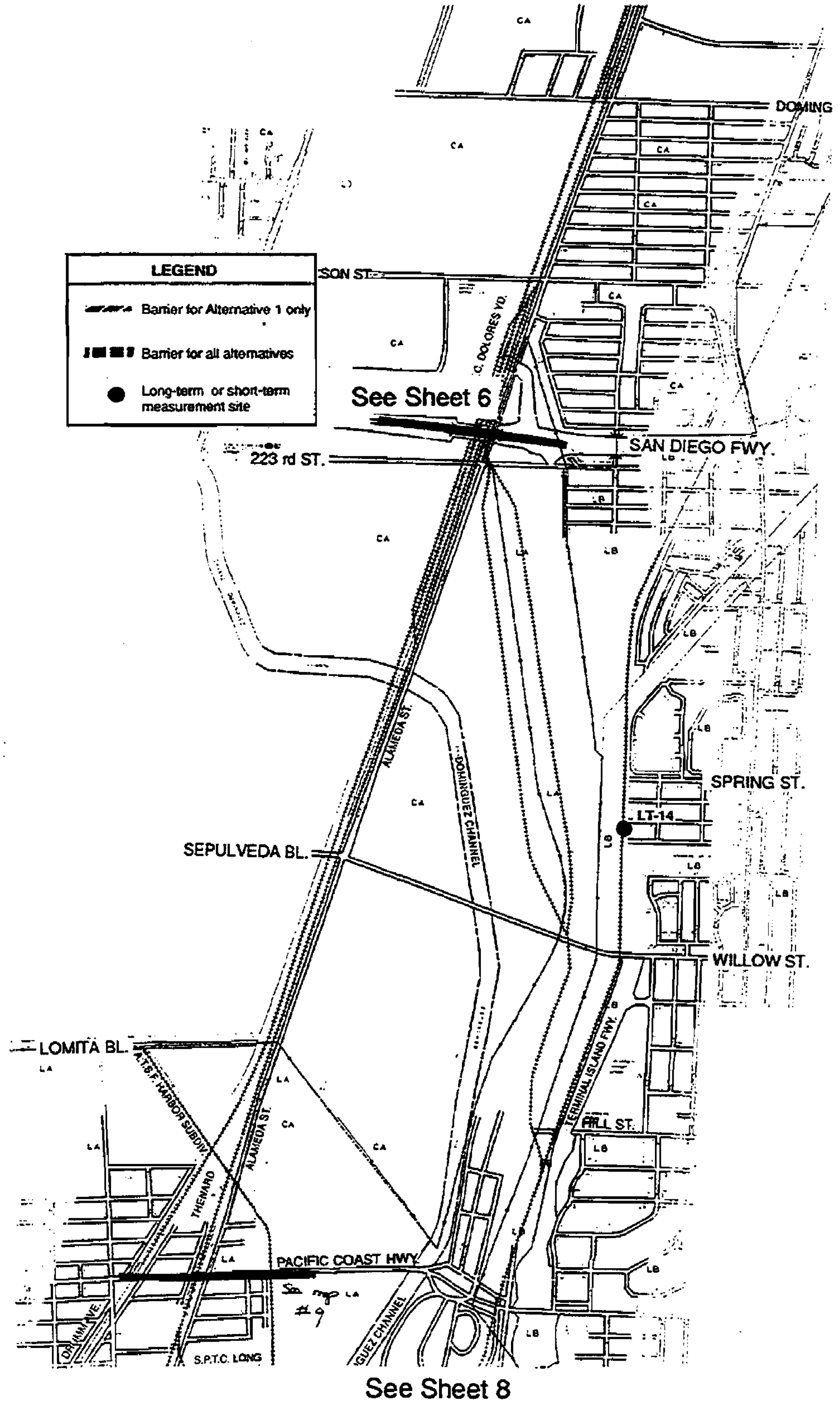
FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: HMMH, 1992

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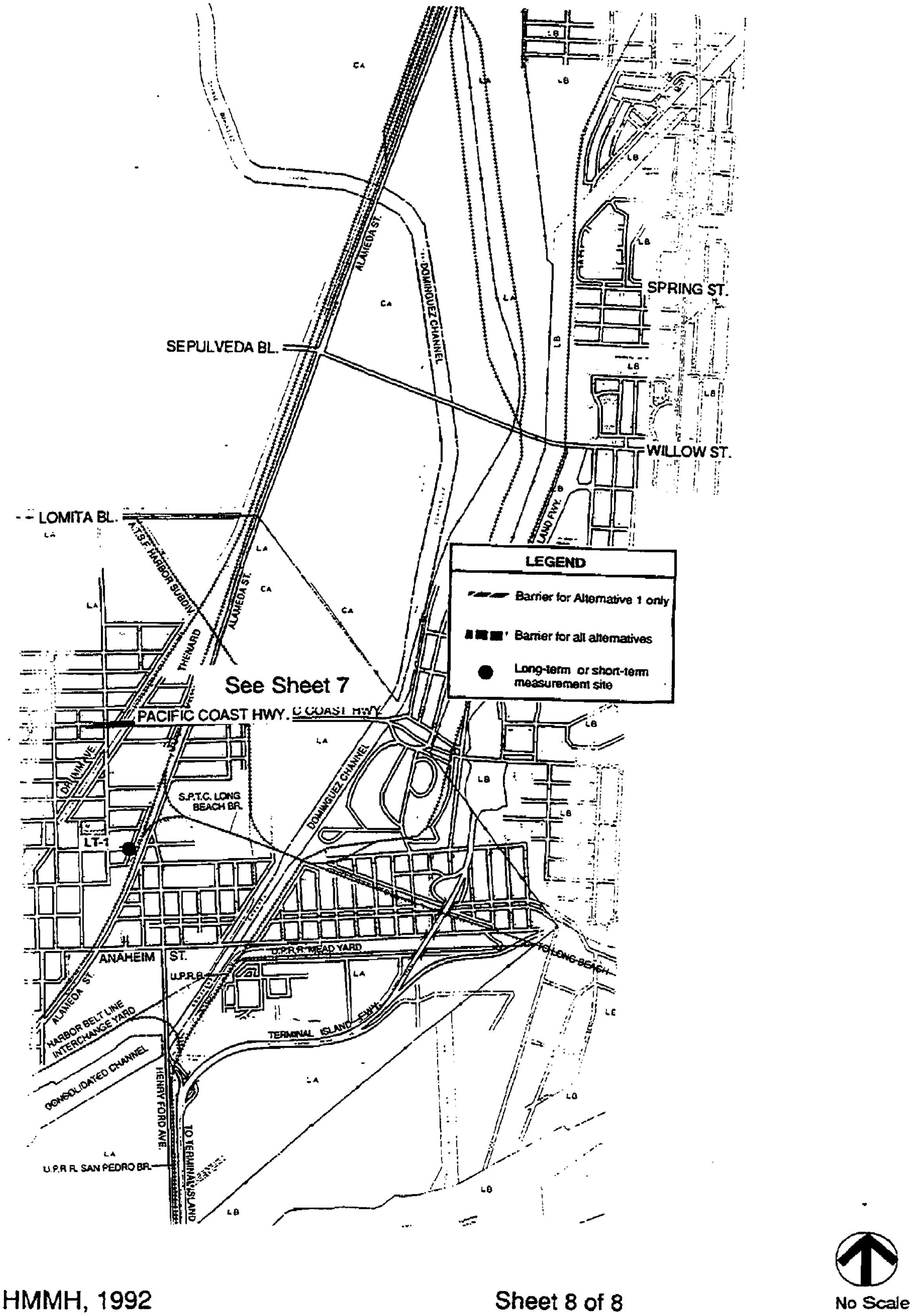
No Scale

FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: HMMH, 1992

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FIGURE 4-8	Noise Survey and Recommended Barrier Locations	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

TABLE 4-29
NOISE SURVEY RESULTS, 24-HOUR SITES

Site	Location	Start Date/Time of Meas.	Noise Sources	Max. Hourly L_{eq} (dBA)	CNEL (dBA)
LT-1	End of Denni St	10/11/90 11:00	Alameda St. and freight traffic	63	67
LT-2	21843 Salmon Ave.	10/15/90 12:00	Alameda St. and freight traffic	65	68
LT-3	2510 Jefferson St	10/15/90 17:00	Alameda St. and freight traffic	65	68
LT-4	488 I St (Dominguez Hills Estates)	10/16/90 13:00	Alameda St. and freight traffic	64	65
LT-5	Rancho San Pedro Dominguez Seminary	10/16/90 15:00	Alameda St. and freight traffic	58	61
LT-6	Racquet Club Villas Condominiums	10/18/90 16:00	Alameda St. and freight traffic	67	73
LT-7	9528 East Alameda St.	10/17/90 13:00	Alameda St. and freight traffic	69	69
LT-8	2042 73rd St	10/17/90 19:00	Alameda St. and freight traffic	69	67
LT-9	6503 Regent Ave.	10/16/90 12:00	Alameda St. and freight traffic	63	66
LT-10	24229 Island Ave.	10/23/90 18:00	Santa Fe freight trains	59	63
LT-11	462 165th St	10/25/90 11:00	Santa Fe freight trains	58	63
LT-12	6035 Cimarron St	10/23/90 16:00	Santa Fe freight trains	57	63
LT-13	124 58th St	10/23/90 16:00	Santa Fe freight trains	68	72
LT-14	2162 Canton St	10/22/90 12:00	UP freight trains	66	69
LT-15	1640 Wanda Ave.	10/22/90 11:00	UP freight trains	65	70
LT-16	7029 California Ave.	10/22/90 10:00	UP freight trains	63	69
LT-17	220 Bennett Street	4/6/92 15:00	Alameda St. trains and traffic, traffic on Greenleaf, Blue Line trains	58	60
LT-18	2608 127th Street	4/6/92 15:00	Alameda St. trains and traffic, traffic on El Segundo Boulevard	63	66
LT-19	Iowa St. near Alameda St.*	4/7/92 15:00	Alameda St. trains and traffic, traffic on Southern	62	62
LT-20	8630 Ivy St	4/7/92 17:00	Alameda St. trains and traffic, traffic on Firestone, LAX air traffic	63	61
LT-21	1923 Lou Dillon Ave.	4/8/92 18:00	Alameda St. trains and traffic, traffic on Nadeau	62	63

*Only 11 hours of valid data due to interference with monitor caused by dog.

Source: Harris Miller Miller and Hanson, 1992.

TABLE 4-30
NOISE SURVEY RESULTS, SHORT TERM MEASUREMENT SITES

Site	Location	Start Date/Time of Meas.	Meas. L_{eq} (dBA)	Noise Sources
ST-1	Indigo & West Alameda St.	10/16/90 16:30	70	Alameda St. traffic
ST-2	Wilson Park (East Alameda St.)	10/23/90 10:08	62	Alameda St. traffic, UP train
ST-3	Poplar & West Alameda St.	10/23/90 11:06	74	Alameda St. traffic
ST-4	El Segundo Blvd & East Alameda St.	10/23/90 11:55	68	Alameda St. traffic
ST-5	Santa Ana Blvd & West Alameda St.	10/23/90 12:55	66	Alameda St. traffic
ST-6	111th & West Alameda St.	10/24/90 12:15	64	Alameda St. traffic
ST-7	Southern Ave. & East Alameda St.	10/24/90 10:55	69	Alameda St. traffic
ST-8	53rd St & East Long Beach Ave.	10/25/90 9:30	60	Long Beach Ave. traffic, light rail trains
ST-9	4519 West Long Beach Ave.	10/25/90 10:30	64	Long Beach Ave. traffic, light rail trains
ST-10	2012 73rd St	4/9/92 9:00	62	Florence Ave. and Alameda St. traffic, LAX arrivals
ST-11	43rd St near East Long Beach Ave.	4/10/92 9:00	60	Long Beach Ave. traffic, distant traffic, light rail trains, freight trains on Alameda St., industrial noise
ST-12	1757 43rd St	4/10/92 9:00	60	
Source: Harris Miller Miller Hanson, 1992.				

noise from industrial activities or aircraft in the approach pattern to LAX are important factors. Along Long Beach Avenue, north of 55th Street, noise from Metro Blue Line trains, particularly near grade crossings where the horns are sounded, are an important element of the overall noise environment.

There were two basic types of noise survey sites selected. The first was selected to represent noise sensitive receptors most likely to be adversely affected by Alameda Corridor traffic and trains. The second was selected to be representative of receptors that could be adversely affected by the changes in cross street configuration that would be necessary for the at-grade overpasses of Alternative 1. Examples are locations where: (1) major arterials would be moved closer to residences, (2) local streets would become access roads between Alameda Street and the cross streets, and (3) construction of the overpass would require taking existing buildings that currently shield residences from traffic noise.

For sites on Alameda Street, the measured CNELs ranged from a high of 73 dBA at a site south of Compton Boulevard, approximately 40 feet west of Alameda Street, to a low of 61 dBA at the Dominguez Seminary, approximately 120 feet west of Alameda Street. In evaluating potential noise impact it has been assumed that CNEL for receivers exposed to the Alameda Corridor is never lower than 60 dBA. In most cases the noise levels are significantly higher.

Lower noise levels were measured at sites well-shielded from trains and traffic on Alameda Street; however, the CNEL was greater than 60 dBA at all sites except 220 Bennett, near the intersection of Alameda Street and Greenleaf Boulevard, where the CNEL was 60 dBA. At sites well-shielded from traffic and trains on Alameda Street, local traffic and aircraft were significant noise sources.

Short term measurements were performed at 12 sites. Of the 12 sites, 7 were located along Alameda Street, and the dominant noise source was traffic on Alameda Street. The Leqs measured at these sites were between 64 and 74 dBA. Lower noise levels were measured at four sites located near Long Beach Avenue. Dominant noise sources at these sites were traffic on Long Beach Avenue, light rail trains and light rail train horns. One short term site was located in a position well-shielded from Alameda Street on 73rd Street. The Leq measured at this site was 62 dBA and was dominated by noise from aircraft flying into LAX.

4.4.2 Noise Impact Criteria

The proposed project involves noise from both trains and traffic, and therefore must be viewed in the context of criteria that are typically used for both of these noise sources. In most cases, projects involving traffic are evaluated using Federal Highway Administration (FHWA) standards. These standards are based on the noise levels during the loudest hour of the day, which is usually the peak traffic hour. In the noise analysis for the Alameda Corridor project, it has been assumed that train traffic would be equally distributed throughout the entire day. This means that train noise would be expected to be the same at 12 midnight as 12 noon. Using peak hour sound levels to evaluate this type of noise source significantly underestimates noise impact since it does not include any allowance for the special sensitivity of most people to nighttime noise. FHWA noise criteria therefore would not be appropriate. In order to more appropriately account for the occurrence of noise during nightime hours, CNEL was selected to characterize residential noise levels for this project. CNEL is a measure of the total sound energy over a 24-hour period with adjustments that account for people being more sensitive to evening and nighttime noise. As a complement to this, noise impact for non-residential sensitive receivers (e.g., schools, churches, parks) are characterized with daytime Leq.

The noise impact criteria established for this project are summarized in Table 4-31. The interpretation of the impact levels is:

Severe: Community noise levels in this category are generally considered unacceptable for residential land use unless building designs incorporate special noise insulation. Areas are considered to be in the *severe* category if the noise level with the project exceeds 70 dBA, even if the worse level without the project exceeds the criteria. Noise mitigation has been considered for all areas within *severe* impact zones.

TABLE 4-31
ALAMEDA CORRIDOR NOISE IMPACT CRITERIA

Degree of Noise Impact	Criteria
Severe	$CNEL_{Project}$ > 72 dBA
Significant A	$CNEL_{Project}$ > 67 dBA and $CNEL_{Project}$ > $CNEL_{Null}$ + 3 dBA
Significant B	$CNEL_{Project}$ > $CNEL_{Exist}$ + 5 dBA

Notes:
1. $CNEL_{Project}$ is the projected CNEL with consolidation for years 2010 or 2020.
2. $CNEL_{Null}$ is the projected CNEL without rail consolidation.
3. $CNEL_{Exist}$ is existing CNEL (1992) estimated from: (1) projections based on existing traffic and train volumes, and (2) results of the noise survey.
4. Substitute daytime Leq for CNEL for non-residential noise sensitive land uses.

Significant A: This is a category of impact in which the CNEL would exceeds 67 dBA, which is approximately equivalent to the FHWA standard with normal day/night traffic distribution, and the project is projected to be responsible for at least a small increase (3 dBA) in noise level compared to the Null Alternative.

Significant B: This is a category in which there would be a significant increase in CNEL (5 dBA), compared to existing conditions. This would be a less serious degree of noise impact than the previous category.

Impacts below the Significant B level would be considered not significant.

Local Goals and Policies
Local jurisdictions along the corridor have also established policies with regard to noise. Taken together, these policies establish an exterior CNEL (or Ldn) compatible with residential land use ranging from 55 dBA to 65 dBA,and an interior CNEL of 45 dBA as being compatible with residential land use.

4.4.3 Noise Impact Analysis Methodology

This section outlines the approaches used to project both construction and operational noise levels. The specific topics covered include procedures for projecting construction noise, traffic noise, and train noise; and procedures used to estimate barrier and trench attenuation.

Construction Noise

Construction noise would vary greatly, depending on the construction process, type and condition of equipment used and layout of the construction site. Many of these factors are traditionally left to the contractor's discretion, which makes it difficult to accurately estimate levels of construction noise. Overall, construction noise levels are governed primarily by the noisiest pieces of equipment, and the dominant source of noise from most construction equipment is the engine, which is usually a diesel, often without sufficient muffling. For special construction processes such as impact pile driving and pavement breaking, noise generated by the actual process dominates.

Construction noise levels were projected by applying typical noise production levels to pieces of equipment, using projected utilization ratios. The equivalent noise level was then developed.

Traffic Noise and Train Noise

The noise projections for future operation of the consolidated Alameda Corridor incorporated freight train, automobile and truck traffic data into a single estimate of CNEL. Mathematical models of freight train and highway traffic noise propagation, using volumes, speeds, geometry and other information, were used to develop noise levels.

The general approach to developing estimates of noise impact for residential land uses was as follows:

1. Identify groups of sensitive receivers. Each group contains 1 to 30 receivers that are in the same area, similarly distanced from Alameda Street and other noise sources, and have a similar degree of acoustical shielding from traffic and trains on Alameda Street. A total of slightly less than 500 groups were formed.

2. Estimate the amount of acoustical shielding for each group of residences, based on the size and number of buildings between the receptors and Alameda. Noise from trains and traffic was assumed to have the same amount of acoustical shielding.

3. For each receptor group independently project CNEL from the trains and the traffic. The train and traffic CNELs were then combined to give an overall projected CNEL.

4. In areas where projected noise levels would exceed one of the impact criteria and noise mitigation appears to be feasible, develop a second set of noise projections, assuming implementation of appropriate noise mitigation measures.

5. Tabulate the number of residences within each impact category with and without mitigation. Community resources such as schools and churches were tabulated separately from residences.

In developing the impact assessment it was necessary to make some general assumptions about acoustical shielding and existing ambient noise. The assumptions are summarized below.

Shielding:

1. Intervening rows of buildings were assumed to provide 3 to 10 dBA of shielding, depending on the number and density of buildings in a row.

2. Shielding provided by sound barriers and trenches are as given in Table 4-32 (discussed later).

3. In cases where both shielding from rows of buildings *and* a barrier apply, the maximum of the two attenuation factors was used to estimate shielding, not the sum.

4. In cases where both shielding from rows of buildings *and* a trench apply, the sum of the two attenuation factors was used to estimate shielding.

5. It was assumed that barriers would extend 15 feet above the top of the rail for trains and 12 feet above the roadway for traffic.

6. It was assumed that trench walls would be parallel and acoustically reflective.

Background Noise: The ambient noise level for the existing and Null alternatives was assumed to be no less than 60 dBA CNEL in all areas except those known to be particularly quiet. These levels were first computed using the noise projection model; then, the higher of the projected CNEL and 60 dBA was chosen as the resulting ambient noise level.

The traffic noise prediction model is based on the Federal Highway Administration's (FHWA) Report 108 method (Barry and Reagan, 1978) for predicting noise generated by constant-speed highway traffic and was formulated specifically for use in California (Hendricks, 1984). This method was used in areas with relatively simple geometry, where only one or two roadways contribute to the noise. In areas where particularly complex roadway geometries are involved, such as near certain intersections involving traffic overpasses and connecting access roads, as in Alternative 1, traffic noise calculations were performed using STAMINA 2.0, the FHWA-approved highway noise prediction computer model, with California emissions levels.

Both models incorporate three standard vehicle classes: automobiles, medium trucks and heavy trucks. A predicted noise level is attained through a series of adjustments to a reference sound level, which is the energy mean emission level for each vehicle type. These adjustments are made to account for traffic volume, varying distances to the roadway, finite length roadways and shielding from local terrain and structures. The assumptions made in calculating traffic noise are listed below:

1. Traffic speeds were assumed to be 40 mph along Alameda Street and all major intersecting roads, and 35 mph on all frontage roads.

2. Each roadway was modelled as infinite in length relative to a given receiver position; that is, the subtended angle was assumed to be 180°.

3. A "hard" ground surface was assumed in estimating the ground effect in noise propagation.

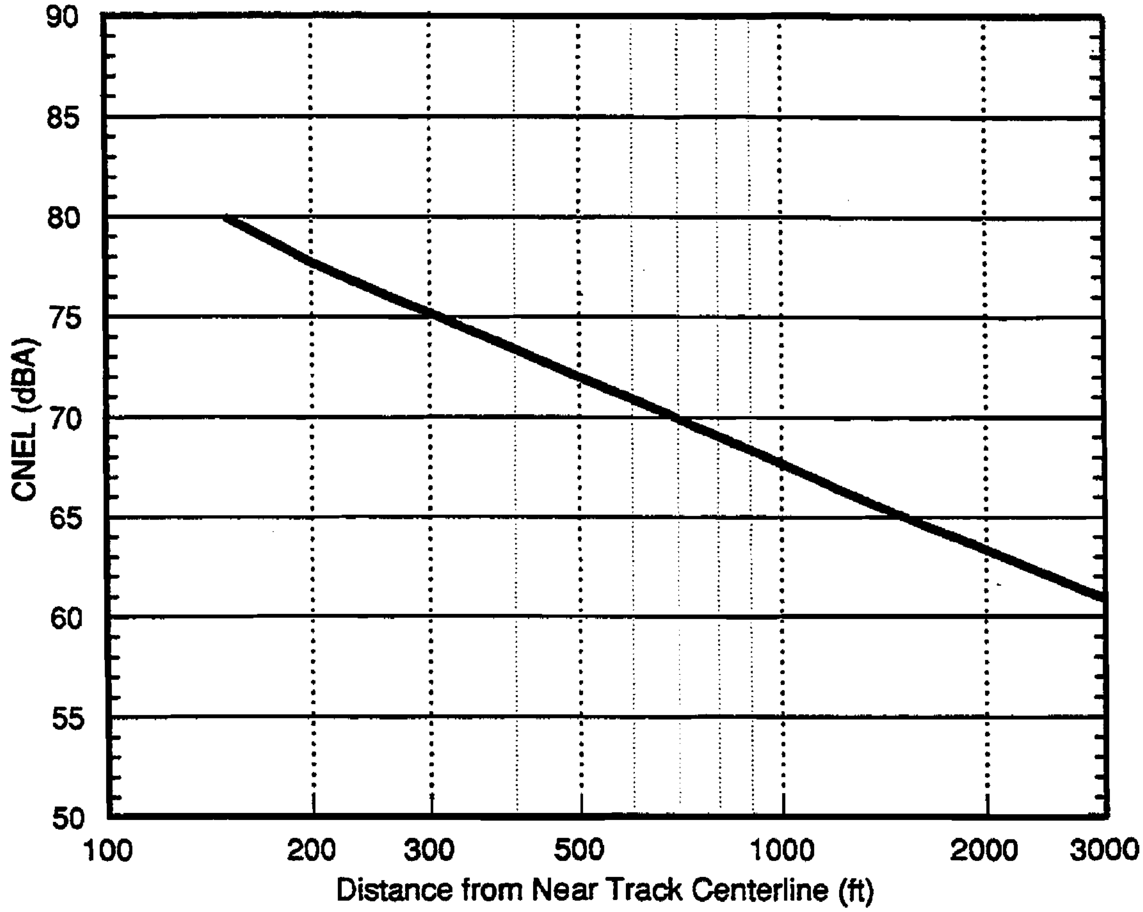
Projections of train noise are based on the field noise survey performed in October 1990. Using the results of noise measurements of train passbys at several different locations, a set of standard reference source levels for the locomotives and freight cars of a "standard" train was developed by discarding passbys with unusually high or low levels and then averaging the normalized data. This data was then used as the reference point for train noise projections, with adjustments being made for project related speed, train length and other pertinent factors.These source levels are defined in terms of their Single Event Level (SEL), since SEL is a measure of sound energy and can be used as the basis for computing CNEL. The standard train is defined as follows:

Locomotives	Number:	4
	Length:	60 ft
	Notch:	6
	SEL:	100 dBA
	L_{max}:	92 dBA
Rail Cars	SEL:	100 dBA
	L_{max}:	81 dBA
	Train length:	5000 ft
	Train speed:	40 mph

Information on projected train noise consists, and throttle position (speed) for the different project alternatives was used to develop noise projection curves for each track segment. The projected throttle position, relative to position 6, were then used to adjust the reference source level by a calculated amount. The noise generated by a moving train was modelled as a continuous line of incoherent point sources, each with dipole directivity. Standard equations for propagation due to geometric spreading for a moving dipole line source were implemented in a computer program and combined with the "equivalent" train volumes and projected speeds. Finally, CNEL propagation characteristics for each railroad track configuration were obtained.

Equal distribution of rail traffic through daytime and nighttime hours were assumed. Because of the 5 and 10 dB penalties included in calculation of CNEL for evening (7 pm to 10 pm) and nighttime (10 pm to 7 am) noise respectively, computationally one evening train is equivalent to 3 daytime trains, while one nighttime train is equivalent to 10 daytime trains.

Figure 4-9 shows the combined traffic/train CNEL using year 2020 volumes as a function of distance from the near track centerline between Southern and Tweedy. Based on the criterion for severe noise impact in residential areas of CNEL greater than 72 dBA, this figure indicates potential for severe noise impact out to distances of about 500 feet. The actual projections at 500 feet would be significantly lower than this because of acoustical shielding provided by intervening buildings and additional ground attenuation when there is soft ground between the receiver and Alameda Street; however, this gives a general picture of the potential noise impact of this project.



Source: HMMH, 1992

FIGURE 4-9	Alameda Corridor Noise Projections, Alt. 1 Locations Near Station No. 275 Noise from Trains and Traffic, 2020	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Barrier and Trench Attenuation

The attenuations used for projecting noise levels for barrier and trench geometries are summarized in Table 4-32. The degree of barrier or trench attenuation would depend upon a number of variables, including the relative height of the source, receiver, and barrier or trench, the distance from the barrier to the source and the distance from the barrier to the receiver. Also, where barriers are placed on opposite sides of a noise source, or when the walls of a trench are parallel, attenuation may be compromised by reflections between the barriers or trench walls (parallel-barrier reverberation).

TABLE 4-32
BARRIER AND TRENCH ATTENUATION

Barrier/Trench Configuration	Noise Source	Attenuation (dBA)	Comments
15 ft barrier along train tracks	Trains	11	Reflections off parallel walls degrade barrier performance. Reflections off the walls can increase traffic noise by 1 to 2 dBA.
	Near lane traffic	12	The barriers will be more effective at reducing noise from the traffic closest to the barriers.
	Far lane traffic	10	
15 ft barrier along Alameda	Trains	10	Barriers would be needed along Alameda in some locations to shield sensitive receivers from both train and traffic noise. Because they would be farther from the trains, they would not be as effective at reducing train noise.
	Near lane traffic	13	
	Far lane traffic	10	
Trench with parallel walls, no absorption on walls	Trains	9	Reflections between the parallel walls reduce the noise attenuation effectiveness of the trench.
Trench with parallel walls, absorption material on walls	Trains	13	Putting acoustical absorption material on the walls eliminates the degradation caused by reflections between the walls.
Trench, nearly parallel walls with small slant	Trains	13	A small slope would eliminate much of the degradation caused by reflections.
Trench, parallel walls, single overhang	Trains	10	This configuration also would benefit from acoustical absorption or a slight slope.
Trench, parallel walls, dual overhang	Trains	13	These configurations would eliminate most effects of reflections between walls.
Trench, sloped walls	Trains	14	
Source: Harris Miller Miller Hanson, 1992.			

Barrier or trench attenuation for different geometries was calculated with the same computational algorithm used in STAMINA 2.0. Barriers and trenches were assumed to be infinite in length, so the attenuations listed are not applicable to receivers near the end of a barrier. In cases where parallel-barrier reverberation could compromise the projected attenuation, the computer program RAYVERB, originally developed for the Pennsylvania Department of Transportation (Anderson and Bajdek, 1991), was used to compute the reverberation. Results were adjusted for train noise reverberation to account for the dipole directivity of train sources.

4.4.4 Construction Impacts

As with any construction project near residential areas, this project has the potential of creating substantial intrusion to communities along the Alameda Corridor. Because of the large amount of discretion that is usually left to the contractor about specific equipment and procedures that will be used, accurate estimates of construction noise are difficult to develop at this point of the project. As discussed in Section 4.4.6, the most effective means of controlling noise impact from construction is to include specific requirements for noise control in the construction specifications.

Projections of construction noise require developing a construction scenario of the equipment to be used and the average utilization factors, or duty cycles, (i.e., the percentage of time during operating hours that the equipment operates under full power during each phase). Using typical sound emission characteristics, it is then possible to estimate Leq or CNEL at various distances from the construction site. Table 4-33 provides a typical equipment scenario for the excavation phase, including full-power equipment noise emission levels at 50 ft, assumed duty cycles and the resulting workday L_{eq} for this phase of construction. The estimate assumes a 12-hour daytime workday.

TABLE 4-33
TYPICAL EQUIPMENT LIST

Equipment Item	Sound Level at 50 ft (dBA)	Equipment Utilization Factor (%)	L_{eq} (dBA)
Air Compressor	69	200	72
Backhoe	85	40	81
Crane, Derrick	88	10	78
Dozer	87	40	83
Generator	78	80	77
Loader	84	40	80
Pump	76	80	75
Rock Drill	98	4	84
Shovel	82	40	78
Truck	88	16	80
Total Workday L_{eq} at 50 feet			90

4.4.5 Alameda Corridor Operational Impacts

For each group of noise sensitive receptors, year 2010 and 2020 noise projections have been developed for each consolidation alternative and the No Project Alternative. In addition, projections have been made for the No Project alternative using 1992 train and traffic volumes as an estimate of the existing ambient noise level. In areas where the projections exceed the noise impact criteria and mitigation appears feasible, a second set of projections have been made assuming appropriate sound walls or other mitigation measures.

Tables 4-34 and 4-35 summarize the CNEL noise projections at each long term and short term measurement site for years 2010 and 2020 respectively. For comparison, the measured levels also are included in these tables.

The overall results of the noise impact assessment in terms of the number of residential buildings within each impact zone are summarized for the year 2010 and 2020 projections in Tables 4-36 and 4-37 respectively. The column on the right in these tables is the sum of residences within the three impact zones and is a general indication of total impact. Care should be taken in using this total since severe impact and significant impact are lumped together. In many cases, the reduction provided by sound walls will reduce the degree of impact from severe to one of the significant categories. This should not be taken as an indication that the wall is not effective.

The number of residences impacted by project noise are broken down in more detail in Tables 4-38 through 4-41. These tables show the number of residences for each alternative, including the Null Alternative, with the alignment divided into 19 sections. This allows determining the degree of impact for specific areas along the alignment.

The noise impact on community resources is summarized in Table 4-42. These community resources include schools, churches, and parks. The criteria for noise impact of these resources is the same as for residential land use, except that daytime Leq is used in place of CNEL. There are only a few of these community resources where the impact criteria are expected to be exceeded if appropriate noise mitigation is included. These are indicated in Table 4-42.

TABLE 4-34
SUMMARY OF NOISE PROJECTIONS AT MEASUREMENTS SITES, 2010

<table>
<tr><th rowspan="2">Site</th><th rowspan="2">Description</th><th colspan="2">Meas. Existing</th><th rowspan="2">Projected CNEL 1992</th><th colspan="5">Projected Future CNEL, Year 2010 (shading indicates levels with mitigation)</th><th rowspan="2">Comments</th></tr>
<tr><th>Leq</th><th>CNEL</th><th>Null</th><th>Alt 1</th><th>Alt 2.1</th><th>Alt 2.2</th><th>Alt 2.1S</th></tr>
<tr><td>LT-1</td><td>End of Denni St</td><td>–</td><td>67</td><td>–</td><td>–</td><td colspan="4">–</td><td>Not on final alignment</td></tr>
<tr><td rowspan="2">LT-2</td><td rowspan="2">21843 Salmon Ave.</td><td rowspan="2">–</td><td rowspan="2">68</td><td rowspan="2">67</td><td rowspan="2">67.0</td><td colspan="4">69.2</td><td rowspan="4">ICTF sound barrier proposed in this area</td></tr>
<tr><td colspan="4">58.2</td></tr>
<tr><td rowspan="2">LT-3</td><td rowspan="2">2510 Jefferson St</td><td rowspan="2">–</td><td rowspan="2">68</td><td rowspan="2">67</td><td rowspan="2">67.0</td><td colspan="4">68.2</td></tr>
<tr><td colspan="4">60.2</td></tr>
<tr><td rowspan="2">LT-4</td><td rowspan="2">Dominguez Hills Estates</td><td rowspan="2">–</td><td rowspan="2">65</td><td rowspan="2">65</td><td rowspan="2">65.0</td><td colspan="4">66.8</td><td rowspan="2">Overlooks Alameda</td></tr>
<tr><td colspan="4">66.8</td></tr>
<tr><td rowspan="2">LT-5</td><td rowspan="2">Dominguez Seminary</td><td rowspan="2">–</td><td rowspan="2">61</td><td rowspan="2">61</td><td rowspan="2">64.6</td><td colspan="4">67.7</td><td rowspan="2"></td></tr>
<tr><td colspan="4">63.0</td></tr>
<tr><td rowspan="2">LT-6</td><td rowspan="2">Racquet Club Villas</td><td rowspan="2">–</td><td rowspan="2">73</td><td rowspan="2">73</td><td rowspan="2">74.2</td><td>76.6</td><td>73.0</td><td>73.0</td><td>73.1</td><td rowspan="2">Noise from Alameda SB traffic, all alts.</td></tr>
<tr><td>72.7</td><td>73.0</td><td>73.0</td><td>73.1</td></tr>
<tr><td rowspan="2">LT-7</td><td rowspan="2">9528 East Alameda St</td><td rowspan="2">–</td><td rowspan="2">69</td><td rowspan="2">73</td><td rowspan="2">75.6</td><td>80.4</td><td>75.3</td><td>75.3</td><td>79.6</td><td rowspan="2"></td></tr>
<tr><td>70.5</td><td>64.3</td><td>64.3</td><td>79.6</td></tr>
<tr><td rowspan="2">LT-8</td><td rowspan="2">2042 73rd St</td><td rowspan="2">–</td><td rowspan="2">67</td><td rowspan="2">63</td><td rowspan="2">63.2</td><td>72.2</td><td>65.3</td><td>65.3</td><td>64.4</td><td rowspan="2"></td></tr>
<tr><td>68.5</td><td>65.3</td><td>65.3</td><td>64.4</td></tr>
<tr><td rowspan="2">LT-9</td><td rowspan="2">6503 Regent Ave.</td><td rowspan="2">–</td><td rowspan="2">66</td><td rowspan="2">65</td><td rowspan="2">65.3</td><td>74.8</td><td>69.5</td><td>69.5</td><td>73.2</td><td rowspan="2"></td></tr>
<tr><td>69.2</td><td>69.5</td><td>69.5</td><td>73.2</td></tr>
<tr><td>LT-10</td><td>24229 Island</td><td>–</td><td>63</td><td>61</td><td>70.1</td><td colspan="4">57.1</td><td rowspan="7">Measurement sites along UP and AT&SF corridors.</td></tr>
<tr><td>LT-11</td><td>462 165th St</td><td>–</td><td>63</td><td>63</td><td>72.4</td><td colspan="4">59.5</td></tr>
<tr><td>LT-12</td><td>6035 Cimarron</td><td>–</td><td>63</td><td>65</td><td>73.4</td><td colspan="4">61.2</td></tr>
<tr><td>LT-13</td><td>124 58th St</td><td>–</td><td>72</td><td>65</td><td>73.8</td><td colspan="4">61.5</td></tr>
<tr><td>LT-14</td><td>2162 Canton St</td><td>–</td><td>69</td><td>72</td><td>77.2</td><td colspan="4">66.6</td></tr>
<tr><td>LT-15</td><td>1640 Wanda</td><td>–</td><td>70</td><td>70</td><td>76.0</td><td colspan="4">65.2</td></tr>
<tr><td>LT-16</td><td>7029 California</td><td>–</td><td>69</td><td>66</td><td>71.2</td><td colspan="4">60.1</td></tr>
<tr><td rowspan="2">LT-17</td><td rowspan="2">220 Bennett St</td><td rowspan="2">–</td><td rowspan="2">60</td><td rowspan="2">60</td><td rowspan="2">60.0</td><td>64.8</td><td>59.8</td><td>59.8</td><td>58.7</td><td rowspan="2">Alt. 1 removes buildings along Greenleaf</td></tr>
<tr><td>59.2</td><td>59.8</td><td>59.8</td><td>58.7</td></tr>
<tr><td rowspan="2">LT-18</td><td rowspan="2">2608 127th St</td><td rowspan="2">–</td><td rowspan="2">66</td><td rowspan="2">60</td><td rowspan="2">60.0</td><td>64.2</td><td>60.2</td><td>60.2</td><td>59.1</td><td rowspan="2"></td></tr>
<tr><td>60.0</td><td>60.2</td><td>60.2</td><td>59.1</td></tr>
<tr><td rowspan="2">LT-19</td><td rowspan="2">Iowa St near East Alameda</td><td rowspan="2">–</td><td rowspan="2">62</td><td rowspan="2">62</td><td rowspan="2">63.3</td><td>69.7</td><td>63.4</td><td>63.4</td><td>62.9</td><td rowspan="2"></td></tr>
<tr><td>65.9</td><td>56.9</td><td>56.9</td><td>62.9</td></tr>
<tr><td rowspan="2">LT-20</td><td rowspan="2">8630 Ivy St</td><td rowspan="2">–</td><td rowspan="2">61</td><td rowspan="2">60</td><td rowspan="2">60.0</td><td>68.2</td><td>56.0</td><td>56.0</td><td>55.9</td><td rowspan="2">Affected by traffic on Firestone</td></tr>
<tr><td>68.0</td><td>56.0</td><td>56.0</td><td>55.9</td></tr>
<tr><td rowspan="2">LT-21</td><td rowspan="2">1923 Lou Dillon</td><td rowspan="2">–</td><td rowspan="2">63</td><td rowspan="2">60</td><td rowspan="2">60.0</td><td>64.1</td><td>59.1</td><td>59.1</td><td>59.2</td><td rowspan="2"></td></tr>
<tr><td>60.7</td><td>59.1</td><td>59.1</td><td>59.2</td></tr>
<tr><td rowspan="2">ST-1</td><td rowspan="2">West Alameda St & Indigo St</td><td rowspan="2">70</td><td rowspan="2">–</td><td rowspan="2">73</td><td rowspan="2">74.2</td><td>76.6</td><td>73.0</td><td>73.0</td><td>73.1</td><td rowspan="2"></td></tr>
<tr><td>72.7</td><td>73.0</td><td>73.0</td><td>73.1</td></tr>
<tr><td rowspan="2">ST-2</td><td rowspan="2">Wilson Park</td><td rowspan="2">62</td><td rowspan="2">–</td><td rowspan="2">67</td><td rowspan="2">71.7</td><td>72.2</td><td>68.6</td><td>68.6</td><td>67.5</td><td rowspan="2">Affected by traffic on Alameda, all alts.</td></tr>
<tr><td>67.7</td><td>68.6</td><td>68.6</td><td>67.5</td></tr>
</table>

TABLE 4-34
SUMMARY OF NOISE PROJECTIONS AT MEASUREMENTS SITES, 2010 (Cont'd)

Site	Description	Meas. Existing		Projected CNEL 1992	Projected Future CNEL, Year 2010 (shading indicates levels with mitigation)					Comments
		Leq	CNEL		Null	Alt 1	Alt 2.1	Alt 2.2	Alt 2.1S	
LT-1	End of Denni St	–	67	–	–	–				Not on final alignment
ST-3	Church of God of Prophecy	74	–	75	76.0	79.3	76.5	76.5	75.9	
						76.0	76.5	76.5	75.9	
ST-4	Excep. Adult Educ. Center	68	–	71	73.3	79.4	73.2	73.2	72.4	
						69.8	62.2	62.2	61.4	
ST-5	W Alameda St & Santa Ana	66	–	71	71.2	75.0	72.3	72.3	72.4	
						71.6	72.3	72.3	72.4	
ST-6	Ritter Elem. School	64	–	63	65.0	71.0	67.3	67.3	66.4	
						61.0	59.3	59.3	58.4	
ST-7	East Alameda & Southern Ave.	69	–	73	75.0	80.6	73.3	73.3	75.2	
						71.3	62.3	62.3	75.2	
ST-8	E Long Beach Ave. & 53rd St	60	–	60	60.0	–	–	63.9	–	
						–	–	59.9	–	
ST-9	4519 W Long Beach Ave.	64	–	60	60.0	–	–	64.1	–	
						–	–	60.1	–	
ST-10	2012 73rd St	62	–	60	60.0	63.7	58.5	58.5	57.5	
						60.1	58.5	58.5	57.5	
ST-11	43rd St, near E LB Ave.	60	–	60	60.0	–	–	59.9	–	
						–	–	55.9	–	
ST-12	1757 43rd St	60	–	60	60.0	–	–	51.4	–	
						–	–	47.4	–	

Source: Harris Miller Miller and Hanson, 1992.

TABLE 4-35
SUMMARY OF NOISE PROJECTIONS AT MEASUREMENTS SITES, 2020

Site	Description	Meas. Existing		Projected CNEL	Projected Future, Year 2020 (shading indicates levels with mitigation)					Comments
		Leq	CNEL	1992	Null	Alt 1	Alt 2.1	Alt 2.2	Alt 2.1S	
LT-1	End of Denni St	–	67	–	–	–				Not on final alignment
LT-2	21843 Salmon Ave.	–	68	67	67.0	70.6				ICTF sound barrier proposed in this area
						59.6				
LT-3	2510 Jefferson St	–	68	67	67.0	69.6				
						61.6				
LT-4	Dominguez Hills Estates	–	65	65	66.2	69.0				Overlooks Alameda
						69.0				
LT-5	Dominguez Seminary	–	61	61	66.7	69.7				
						66.0				
LT-6	Racquet Club Villas	–	73	73	77.2	78.8	77.3	77.3	77.4	Noise from Alameda SB traffic, all alts.
						75.9	77.3	77.3	77.4	
LT-7	9528 East Alameda St	–	69	73	76.9	81.9	79.0	79.0	73.6	
						72.5	68.0	68.0	73.6	
LT-8	2042 73rd St	–	67	63	65.5	73.9	67.6	67.6	67.1	
						70.5	67.6	67.6	67.1	
LT-9	6503 Regent Ave.	–	66	65	67.8	76.4	71.9	71.9	76.0	
						71.2	71.9	71.9	76.0	
LT-10	24229 Island	–	63	61	71.8	57.1				Measurement sites along UP and AT&SF corridors.
LT-11	462 165th St	–	63	63	74.1	59.5				
LT-12	6035 Cimarron	–	63	65	75.0	61.2				
LT-13	124 58th St	–	72	65	75.4	61.5				
LT-14	2162 Canton St	–	69	72	80.5	66.6				
LT-15	1640 Wanda	–	70	70	79.4	65.2				
LT-16	7029 California	–	69	66	74.7	60.1				
LT-17	220 Bennett St	–	60	60	60.0	68.6	61.9	61.9	62.3	Alt. 1 removes buildings along Greenleaf
						60.6	61.9	61.9	62.3	
LT-18	2608 127th St	–	66	60	62.9	66.1	63.5	63.5	62.9	
						62.5	63.5	63.5	62.9	
LT-19	Iowa St near East Alameda	–	62	62	65.1	71.5	66.1	66.1	65.8	
						68.2	59.6	59.6	65.8	
LT-20	8630 Ivy St	–	61	60	60.0	72.0	59.3	59.3	59.3	Affected by traffic on Firestone
						71.9	59.3	59.3	59.3	
LT-21	1923 Lou Dillon	–	63	60	61.4	66.5	61.3	61.3	61.4	
						63.5	61.3	61.3	61.4	
ST-1	West Alameda St & Indigo St	69.7	–	73	77.2	78.8	77.3	77.3	77.4	
						75.9	77.3	77.3	77.4	
ST-2	Wilson Park	62.1	–	67	73.5	73.7	70.9	70.9	70.0	Affected by traffic on Alameda, all alts.
						69.3	70.9	70.9	70.0	
ST-3	Church of God of Prophecy	73.6	–	75	78.9	81.4	80.0	80.0	79.7	
						78.8	80.0	80.0	79.7	
ST-4	Excep. Adult Educ. Center	68.1	–	71	75.8	81.2	76.7	76.7	76.2	
						72.2	65.7	65.7	65.2	

TABLE 4-35
SUMMARY OF NOISE PROJECTIONS AT MEASUREMENTS SITES, 2020 (Cont'd)

Site	Description	Meas. Existing		Projected CNEL	Projected Future, Year 2020 (shading indicates levels with mitigation)					Comments
		Leq	CNEL	1992	Null	Alt 1	Alt 2.1	Alt 2.2	Alt 2.1S	
ST-5	W Alameda St & Santa Ana	66.0	–	71	73.8	77.5	76.1	76.1	76.6	
						75.0	76.1	76.1	76.6	
ST-6	Ritter Elem. School	64.3	–	63	66.8	73.1	71.1	71.1	70.6	
						63.5	63.1	63.1	62.6	
ST-7	East Alameda & Southern Ave.	68.9	–	73	76.5	82.0	76.0	76.0	78.1	
						73.2	65.0	65.0	78.1	
ST-8	E Long Beach Ave. & 53rd St	60.0	–	60	60.0	–	–	65.3	–	
						–	–	61.3	–	
ST-9	4519 West LB Ave.	63.7	–	60	60.0	–	–	65.4	–	
						–	–	61.4	–	
ST-10	2012 73rd St	61.7	–	60	60.0	65.4	60.9	60.9	60.2	
						61.9	60.9	60.9	60.2	
ST-11	43rd St near E LB Ave.	59.8	–	60	60.0	–	–	61.3	–	
						–	–	57.3	–	
ST-12	1757 43rd St	59.5	–	60	60.0	–	–	52.8	–	
						–	–	48.8	–	

Source: Harris Miller Miller Hanson, 1992.

TABLE 4-36
NUMBER OF RESIDENCES WITHIN NOISE IMPACT ZONES, YEAR 2010

Alternative	Degree of Impact: Severe	Degree of Impact: Significant A	Degree of Impact: Significant B	Total Number of Resid.
Null, 1992	53	–	0	53
Null, 2010	53	–	0	53
Alt. 1, w/o Mitigation	117	574	362	1053
Alt. 2.1, w/o Mitigation	57	43	4	104
Alt. 2.2, w/o Mitigation	58	66	4	128
Alt. 2.1S, w/o Mitigation	60	53	13	126
Alt. 1, with Mitigation	18	49	16	83
Alt. 2.1, with Mitigation	25	9	4	38
Alt. 2.2, with Mitigation	25	10	14	49
Alt. 2.1S, with Mitigation	59	19	13	91

Source: Harris Miller Miller Hanson, 1992.
Notes:
Degree of Noise Impact
Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA
Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.
Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL.

TABLE 4-37
NUMBER OF RESIDENCES WITHIN IMPACT ZONES, YEAR 2020

Alternative	Degree of Impact: Severe	Degree of Impact: Significant A	Degree of Impact: Significant B	Total Number of Resid. and Churches
Null, 2020	69	–	113	182
Alt. 1, w/o Mitigation	281	747	408	1436
Alt. 2.1, w/o Mitigation	85	90	371	546
Alt. 2.2, w/o Mitigation	86	116	384	586
Alt. 2.1S, w/o Mitigation	80	113	299	492
Alt. 1, with Mitigation	77	66	209	352
Alt. 2.1, with Mitigation	54	32	333	419
Alt. 2.2, with Mitigation	53	33	351	437
Alt. 2.1S, with Mitigation	79	64	299	442

Harris Miller Miller Hanson, 1992.
Notes:
Degree of Noise Impact
Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA
Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.
Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL.

TABLE 4-38
NUMBER OF RESIDENCES IN NOISE IMPACT ZONES, NULL ALTERNATIVE

Sect.	Location	Number of Residences Null Alternative				
		1992	2010		2020	
		Severe	Severe	Signif. B	Severe	Signif. B
A	21st to 25th	0	0	0	1	0
B1	38th to Vernon	0	0	0	0	0
	51st to Slauson	0	0	0	0	0
B2	Slauson to Gage	0	0	0	0	0
	South of Gage	0	0	0	0	0
	North of Florence	0	0	0	0	0
	South of Florence, access streets	0	0	0	0	0
	South of Florence to Nadeau	0	0	0	0	0
	Nadeau to SP Santa Ana Line	0	0	0	0	0
C	Firestone Blvd	0	0	0	0	0
	Firestone Blvd to Southern	0	0	0	0	0
	Southern to Tweedy	38	38	0	38	0
	Tweedy to Imperial Highway	0	0	0	1	0
	Weber Ave. to El Segundo	0	0	0	0	0
	El Segundo to Rosecrans	0	0	0	0	0
	Rosecrans to Compton Blvd	0	0	0	14	58
	Compton Blvd to Greenleaf	15	15	0	15	53
D	Dominguez Seminary	0	0	0	0	2
	Dominguez to I-405	0	0	0	0	0
TOTAL		53	53	0	69	113

Source: Harris Miller Miller Hanson, 1992.
Notes:
Degree of Noise Impact
Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA
Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.
Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL.

TABLE 4-39
NUMBER OF RESIDENCES IN NOISE IMPACT ZONES, ALT. 1, WITHOUT AND WITH MITIGATION
(At Grade)

Sect.	Location	Number of Residences Alternative 1					
		2010			2020		
		Severe	Sig. A	Sig. B	Severe	Sig. A	Sig. B
		N/W*	N/W	N/W	N/W	N/W	N/W
A	21st to 25th	1/1	2/2	0/0	2/2	5/5	12/12
B1	38th to Vernon	3/0	6/8	0/0	8/7	1/2	0/0
	51st to Slauson	1/0	2/0	2/0	1/1	4/0	5/2
B2	Slauson to Gage	0/0	3/0	0/0	3/0	0/0	0/0
	South of Gage	7/0	24/7	25/5	18/1	38/12	0/7
	North of Florence	0/0	2/1	6/0	1/1	1/0	6/1
	South of Florence, access streets	5/0	17/8	0/0	15/0	7/8	3/7
	South of Florence to Nadeau	6/2	48/7	44/3	16/9	77/3	5/1
	Nadeau to SP Santa Ana Line	4/0	8/6	16/0	4/6	24/0	15/9
C	Firestone Blvd	2/0	22/0	3/2	17/0	10/4	13/20
	Firestone Blvd to Southern	1/0	18/0	7/3	10/0	24/4	17/13
	Southern to Tweedy	44/0	76/0	69/3	94/24	87/23	64/13
	Tweedy to Imperial Highway	5/0	78/0	33/0	23/1	93/0	29/45
	Weber Ave. to El Segundo	1/0	33/0	20/0	14/0	27/5	14/1
	El Segundo to Rosecrans	0/0	86/1	43/0	8/1	137/0	62/1
	Rosecrans to Compton Blvd	17/0	61/0	49/0	17/0	102/0	36/51
	Compton Blvd to Greenleaf	19/15	54/9	45/0	29/24	61/0	127/26
D	Dominguez Seminary	0/0	5/0	0/0	0/0	5/0	0/0
	Dominguez to I-405	1/0	29/0	0/0	1/0	44/0	0/0
TOTAL		**117/18**	**574/49**	**362/16**	**281/77**	**747/66**	**408/209**

Source: Harris Miller Miller and Hanson, 1992.

* N = Without Mitigation and W = With Mitigation

Notes:
Degree of Noise Impact
Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA
Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.
Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL.

TABLE 4-40
NUMBER OF RESIDENCES IN NOISE IMPACT ZONES, ALT. 2.1/2.2, WITHOUT AND WITH MITIGATION
(Trench Alternatives)

Sect.	Location	Number of Residences Alternative 2.1 and 2.2 (With Mitigation)					
		2010			2020		
		Severe	Sig. A	Sig. B	Severe	Sig. A	Sig. B
		N/W	N/W	N/W	N/W	N/W	N/W
A	21st to 25th	1/1	2/2	0/0	2/2	5/5	12/12
B1	38th to Vernon, Alt. 2.1	0/0	0/0	0/0	0/0	3/0	2/0
	51st to Slauson, Alt. 2.1	0/0	0/0	0/0	1/0	0/0	0/0
B1	38th to Vernon, Alt. 2.2	1/0	23/1	0/10	2/0	29/2	15/20
B2	Slauson to Gage	0/0	0/0	0/0	0/0	0/0	0/0
	South of Gage	0/0	6/6	0/0	0/0	15/15	7/7
	North of Florence	0/0	0/0	0/0	0/0	0/0	0/0
	South of Florence, access streets	0/0	0/0	0/0	0/0	0/0	0/0
	South of Florence to Nadeau	0/0	0/0	0/0	0/0	0/0	0/0
	Nadeau to SP Santa Ana Line	0/0	0/0	0/0	0/0	0/0	0/0
C	Firestone Blvd	0/0	0/0	0/0	0/0	0/0	0/0
	Firestone Blvd to Southern	0/0	0/0	0/0	0/0	0/0	0/0
	Southern to Tweedy	38/8	0/0	0/0	38/8	9/0	98/60
	Tweedy to Imperial Highway	1/1	0/0	0/0	13/13	6/6	126/126
	Weber Ave. to El Segundo	0/0	0/0	0/0	0/0	0/0	2/2
	El Segundo to Rosecrans	0/0	1/1	0/0	1/1	0/0	59/59
	Rosecrans to Compton Blvd	1/0	0/0	0/0	14/14	0/0	49/49
	Compton Blvd to Greenleaf	15/15	0/0	4/4	15/15	3/3	16/16
D	Dominguez Seminary	0/0	5/0	0/0	0/0	5/0	0/0
	Dominguez to I-405	1/0	29/0	0/0	1/0	44/0	0/0
TOTAL, ALTERNATIVE 2.1		57/25	43/9	4/4	85/54	90/32	371/333
TOTAL, ALTERNATIVE 2.2		58/25	66/10	4/14	86/53	116/33	384/351

Source: Harris Miller Miller Hanson, 1992

Notes:
Degree of Noise Impact
Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA
Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.
Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL

TABLE 4-41
NUMBER OF RESIDENCES IN NOISE IMPACT ZONES, ALT 2.1S, WITHOUT AND WITH MITIGATION (SLOPED TRENCH)

Sect	Location	Number of Residences Alternative 2.1S (No Mitigation)					
		2010			2020		
		Severe	Signif. A	Signif. B	Severe	Signif. A	Signif. B
A	21st to 25th	1/1	2/2	0/0	2/2	5/5	12/12
B1	38th to Vernon	0/0	0/0	0/0	3/3	0/0	2/2
	51st to Slauson	0/0	2/2	0/0	1/1	2/2	0/0
B2	Slauson to Gage	0/0	0/0	0/0	0/0	0/0	0/0
	South of Gage	4/4	8/8	0/0	9/9	13/13	9/9
	North of Florence	0/0	0/0	0/0	0/0	0/0	0/0
	South of Florence, access streets	0/0	0/0	0/0	0/0	0/0	0/0
	South of Florence to Nadeau	0/0	0/0	0/0	0/0	0/0	9/9
	Nadeau to SP Santa Ana Line	1/1	6/6	0/0	1/1	6/6	0/0
C	Firestone Blvd	0/0	0/0	0/0	0/0	0/0	0/0
	Firestone Blvd to Southern	0/0	0/0	4/4	0/0	13/13	0/0
	Southern to Tweedy	38/38	0/0	0/0	38/38	2/2	89/89
	Tweedy to Imperial Highway	1/1	0/0	0/0	9/9	6/6	125/125
	Weber Ave. to El Segundo	0/0	0/0	0/0	0/0	0/0	0/0
	El Segundo to Rosecrans	0/0	1/1	0/0	1/1	0/0	0/0
	Rosecrans to Compton Blvd	0/0	0/0	0/0	0/0	0/0	0/0
	Compton Blvd to Greenleaf	14/14	0/0	9/9	15/15	17/17	53/53
D	Dominguez Seminary	0/0	5/0	0/0	0/0	5/0	0/0
	Dominguez to I-405	1/0	29/0	0/0	1/0	44/0	0/0
TOTAL		**60/59**	**53/19**	**13/13**	**80/79**	**113/64**	**299/299**

Source: Harris Miller Miller and Hanson, 1992.

Notes:
Degree of Noise Impact
Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA
Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.
Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL.

TABLE 4-42
SUMMARY OF COMMUNITY RESOURCE SENSITIVE RECEPTOR NOISE IMPACT, 2020

Land Use	Name	Location	Noise Impact				Mitigation Options
			Without Mitigation		With Mitigation		
			Alt. 1	Alt. 2	Alt. 1	Alt. 2	
School	Holmes Ave. Elem. School	W of Alameda at Holmes & 52nd	No	No			
Church	Kacev Emmanuel and Rotem	NW corner of Long Beach Blvd & 33rd	No	No			
Park	Roberts Recreation Center	W of LB Blvd, N of 48th Place	No	No			
Church	True Vine Baptist Church	W of LB Blvd S of 48th Place	No	No			
Church	Benitez Jose and Lidia	SW corner of Long Beach Blvd & 50th	No	No			
Church	Roman Catholic Archbishop	NE corner of Duarte & 55th	No	No			
Church	California Harvest Tabernacle	NE corner of Duarte & 55th	No	No			
School	Lilian St. Elementary	SE corner Randolph & Holmes	No	No			Close to limit (Alt 2.2). Consider noise barrier.
Park	Clarendon Westside Park	NE corner Alameda and Gage	No	No			
School	Florence Ave. Elementary School	SW corner Florence & Bell	No	No			
School	D.S. Jordan High School	NW corner Alameda & 103rd	No	No			
School	Ritter Elementary School	NW corner Alameda & Santa Ana Blvd.	Sig B	Sig B	No	No	Barrier wall between school and Alameda in addition to train barrier.
Church	Christian Comm. Church	Alameda & Santa Ana Blvd.	Sig A	Sig B	No	No	Sound insulation, train barrier for Alt. 1.
School	Bunche Junior High School	NE corner Weber Ave. and Mona Blvd	No	No			
School	Exceptional Adult Education Center	Alameda and El Segundo	Severe	Severe	No	No	Sound insulation and/or barrier for traffic noise
School	Thomas Jefferson Elementary	SE corner of 133rd St. & Mona Blvd.	No	No			
Church	Come & See Missionary	Rosecrans & Tamarind St.	No	No			
Church	African Methodist Episcopal	SW corner of Rosecrans & Rose Ave.	Sig B	No			Train barrier for Alt. 1.
Church	Greater Union Missionary	NE corner of Tamarind & Elm	No	No			
Church	Church of God of Prophecy	SW corner of Alameda & Poplar	Severe	Severe	Severe	Severe	Train barrier for Alt. 1. Remaining impact from traffic noise.
Church	Archdiocese of LA	NW corner of Rose & Palmer	Sig A	Sig B	Sig B	Sig B	Train barrier for Alt. 1. Remaining impact from traffic noise.
Park	Wilson Park	SE corner of Alameda & Palmer	Sig B	Sig B			Train barrier for Alt. 1.
Church	International Church	SE corner of Rose & Palmer	No	No			

Source: Harris Miller Miller and Hanson, 1992.

Notes:

Degree of Noise Impact

Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA

Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.

Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL

4.4.6 Mitigation Measures

Construction Noise

Some level of community intrusion is to be expected for any construction project of this magnitude. For Alternative 1, construction related to the overpasses and access roads has the most potential for community intrusion. The noise impacts and mitigations for this construction would be similar to a major highway project. The construction of the trench alternatives is somewhat unique because of the large amount of excavation required and the need to haul the excavated material to dump sites.

There are a number of measures that could be taken to reduce intrusion without placing unreasonable constraints on the construction process or measurably increasing costs. These include noise monitoring to ensure that contractors take all reasonable steps to minimize noise, inspections and noise testing of equipment to ensure that all equipment on the site is in good condition and effectively muffled and an active community liaison program. This program should keep residents informed about construction plans so they can plan around periods of particularly high noise levels and should provide a conduit for residents to express concerns or complaints about noise.

The primary construction mitigation measure would be including specific noise control requirements in the construction specifications. These should require the contractor to:

1. Perform all construction in a manner to minimize noise. The contractor should be required to select construction processes and techniques that create the lowest noise levels. Examples are using predrilled piles instead of impact pile driving, mixing concrete offsite instead of onsite, and using hydraulic tools instead of pneumatic impact tools.

2. Use equipment with effective mufflers. Diesel motors are often the major noise source on construction sites. Contractors should be required to employ equipment fitted with the most effective commercially available mufflers.

3. Perform construction in a manner to maintain noise levels in the vicinity of noise sensitive land uses below specific limits.

4. Perform noise monitoring to demonstrate compliance with the noise limits. Independent noise monitoring should be performed to check compliance in particularly sensitive areas.

5. Minimize construction activities during evening, nighttime, weekend and holiday periods. Permits should be required before construction begins in noise sensitive areas during these periods.

6. Select haul routes that minimize intrusion to residential areas. This is particularly important for the trench alternatives that will require hauling large quantities of excavation material to disposal sites.

Operational Noise

The noise impact assessment has considered how projected changes in train and traffic volumes along the Alameda Corridor would affect the overall ambient noise environment. The general conclusions are that Alternative 1, with appropriate mitigation, would cause a small increase in overall noise impact along the corridor. The degree of noise impact with the trench alternatives would be somewhat lower, although noise levels and impact would still increase because of projected increases in train and traffic volumes. Note that mitigation for Alternative 1 consists of 15 foot high sound walls parallel to the train tracks in almost all areas where there are residences near the Alameda Corridor.

For all of the alternatives there are specific areas or buildings where mitigation measures other than barriers would be required to maintain noise levels below the impact criteria. The most appropriate approach usually would be to improve the sound insulation properties of the affected building. Substantial improvements in building sound insulation typically can be achieved by adding an extra layer of glazing to the windows, improving the weather stripping around doors and windows, sealing any holes in exterior surfaces that act as sound leaks and providing forced ventilation and air conditioning so windows do not need to be opened for ventilation.

Table 4-43 summarizes the extent and approximate cost for the major noise mitigation measures for each of the build alternatives. As seen in Table 4-43, approximately 60,000 linear feet of barrier wall is required for Alternative 1 compared to approximately 10,000 linear feet required for the trench alternatives. Many of the barriers for the trench alternatives are south of the Artesia Freeway, where there is no difference between the alternatives.

The barriers have been split into two categories: barriers for train noise and barriers for traffic noise. It is assumed that barriers will cost $15 to $20 per square foot, the train barriers will extend 15 feet above the top of rail, and the traffic barriers will be 12 feet high. A cost estimate for modifying the trench along Long Beach Avenue for Alternative 2.2 have not been developed. The modification consists of adjusting the design so that the trench walls are no longer parallel. A slope of 5 to 10 degrees off vertical is sufficient to break up the reverberant effect of parallel walls.

The barrier locations, lengths and heights developed in this assessment are preliminary. Detailed designs for the barriers will be developed during the final design phase. Some of the factors that will need to be addressed at that point are whether any of the proposed barriers interfere with property access along Alameda Street or conflict with SP spur or drill tracks.

Following are discussions of the noise impact and mitigation for each section of the alignment:

21st to 25th: This section would be affected virtually the same by all alternatives. Some residential noise impact would be caused by traffic on Alameda Street. Barriers probably would not be practical because they would limit access to properties fronting on Alameda Street. Sound insulation for the affected residences could be considered.

TABLE 4-43
SUMMARY OF NOISE MITIGATION FOR EACH ALTERNATIVE

Alternative	Type of Mitigation	Total Extent (ft)	Approx. Cost (millions)
Alt. 1 At-Grade	Train Barriers	50,000	$11.3 to $15.0
	Traffic Barriers	9,300	$1.7 to $2.2
Alt. 2.1 Vertical Trench	Train Barriers	6,700	$1.5 to $2.0
	Traffic Barriers	3,100	$0.6 to $0.7
Alt. 2.1S Sloped Trench	Train Barriers	6,700	$1.5 to $2.0
	Traffic Barriers	3,100	$0.6 to $0.7
Alt. 2.2 Wilmington Diversion, Vertical Trench	Trench Modifications	4,000	undetermined
	Train Barriers	6,700	$1.5 to $2.0
	Traffic Barriers	3,100	$0.6 to $0.7

38th to Vernon: A sound barrier is recommended for Alternative 1 because of severe noise impact projected for residences west of Alameda Street. Remaining impact and impact projected for trench alternatives would be due to traffic on Alameda Street. Some of the impact would be severe for Alternative 2.1S because Alameda Street would be shifted closer to the residences.

51st to Slauson: Some noise impact is projected for residential buildings for Alternative 1, including several buildings on the east side of the Pueblo del Rio housing project. Almost all impact projected for Alternative 1 could be eliminated with train barriers. Little noise impact is projected for Alternative 2.1; the impact projected for Alternative 2.1S is slightly higher due to the loss of shielding provided by some buildings along Alameda Street.

Alternative 2.2 is projected to create significant noise impact for a number of residences along Long Beach Avenue between 38th and Slauson Avenue, including several in the Pueblo del Rio housing project. The projected impact could be reduced with modifications to improve the sound attenuating characteristics of the trench.

Slauson to Gage: Some impact is projected for Alternative 1 due to traffic on the Gage Street overpass east of Alameda Street. Train barriers and a barrier on Gage Street are recommended as mitigation. No impact is projected for the trench alternatives.

South of Gage: With Alternative 1, noise from both trains and traffic on the Gage Street overpass are projected to create severe impact for residences near Gage Street east of Alameda Street. Barriers along the train tracks and Gage Street would control the noise impact.

Traffic on Alameda Street is projected to create some significant impact for Alternatives 2.1 and 2.2. Because of the shift of Alameda Street to the east to accommodate the sloped trench of Alternative 2.1S, some severe impact is projected for this alternative.

North of Florence: Some noise impact is projected for Alternative 1 from traffic on Florence Avenue and Alameda Street. Train barriers would control the impact. No impact projected for the trench alternatives.

South of Florence, access streets: Construction of the Florence Avenue overpass and access roads is projected to result in severe impact from traffic noise for some residences in this area. Barriers are recommended along the south side of Florence Avenue to reduce noise levels at the elementary school and at residential buildings. The barriers would eliminate much of the significant impact and all of the severe impact.

No impact is projected for the trench alternatives.

South of Florence to Nadeau: Alternative 1 is projected to create noise impact for nearly 100 residences in this area. Most of the projected impact can be mitigated by train barriers, which would shield the train noise and some of the traffic noise.

No impact is projected for Alternatives 2.1 and 2.2, although the shielding lost because of building takes for Alternative 2.1S will cause a moderate level of impact.

Nadeau to SP Santa Ana Line: Alternative 1 is projected to cause noise impact for residences located behind a row of industrial buildings due to noise from the corridor and from traffic on Nadeau Street. Train barriers are recommended to reduce the noise impact.

No impact is projected for Alternatives 2.1 and 2.2, but some impact is projected for Alternative 2.1S due to a loss of shielding west of Alameda Street.

Firestone Blvd.: Severe noise impact is projected for Alternative 1 as a result of changes to Firestone west of Alameda Street. A barrier along Firestone would reduce the impact.

Firestone Blvd to Southern: Alternative 1 is projected to cause noise impact for residences set back from Alameda Street east of the corridor. Train barriers would eliminate most of the projected impact.

No impact is projected for Alternatives 2.1 and 2.2, but some impact is projected for Alternative 2.1S due to loss of shielding from the industrial building east of Alameda Street.

Southern to Tweedy: All of the alternatives would cause noise impact to a large number of residences in this area, many of which already are exposed to relatively high noise levels from existing street and train traffic on Alameda Street. For Alternative 1 the severe impact zone includes the first two rows of buildings east of Alameda Street. Significant impact is projected further from Alameda Street and along the access road. Train barriers would reduce the level of noise impact, but some severe impact would remain, primarily the first row of buildings along Alameda Street. Barriers also are recommend along Tweedy and Southern for Alternative 1 to control traffic noise.

For the trench alternatives, severe impact is projected for the first row of residences east of Alameda Street. The principal noise source is northbound traffic on Alameda Street. For Alternatives 2.1 and 2.2, much of this impact can be controlled with a barrier east of Alameda Street and west of the access road. Because of insufficient room, a barrier does not appear practical for Alternative 2.1S. Other options such as sound insulation are possible.

Tweedy to Imperial Highway: All of the alternatives are projected to cause impact to Ritter Elementary School and a large number of residences in this area. The projected impact would be much more acute for Alternative 1. With the recommended barrier, the impact for Alternative 1 would be approximately equivalent to that of the trench alternatives.

Special consideration is required for Ritter Elementary School. A barrier to control traffic noise at the school is recommended for all of the alternatives. For Alternative 1, this barrier would be in addition to the barrier for train noise.

Weber to El Segundo: Without mitigation, Alternative 1 is projected to cause noise impact at approximately 50 residential buildings in this area. The impact would be due to noise from the corridor and traffic on Weber Street and El Segundo Boulevard. Barriers are recommended for the train tracks and along Weber and El Segundo.

Very limited noise impact is projected for the trench alternatives.

El Segundo to Rosecrans: Alternative 1 is projected to cause significant impact at over 200 residences in this area. Most of the affected residences are west of Alameda Street. Almost all of the impact could be eliminated with train barriers.

A relatively low level of impact is projected at approximately 60 residences for the trench alternatives. Barriers do not appear feasible to reduce this impact.

For all alternatives, special noise control treatment would be required to keep noise levels below the impact criteria at the Exceptional Adult Educational Center east of Alameda Street. Barriers may not be an acceptable approach because they would limit access to the buildings. It may be more practical to improve the sound insulating properties of the building to ensure an acceptable interior environment.

Rosecrans to Compton: Alternative 1 is projected to create noise impact for many residences in this area. Much of the projected impact for residences east of Alameda Street could be eliminated with train barriers. Even with train barriers, traffic noise would cause severe impact at a number of residences west of Alameda Street. These residences would be exposed to similar noise levels with the trench alternatives and the Null alternative.

Compton to Greenleaf: Noise impact is projected for many residences in this section for all alternatives. Much of the impact would be at residences west of Alameda Street, including the Racquet Club Condominiums. Barriers are recommended for Alternative 1. These would shield residences from train noise but would not shield residences west of Alameda Street from traffic noise. Some severe impact is projected for Alternatives 2.1 and 2.2 for residences west of Alameda Street. More impact is projected for Alternative 2.1S than for Alternative 2.1 and 2.2 due to the loss of shielding with this alternative.

A number of residences are projected to be exposed to future noise levels exceeding the impact criteria even with the Null alternative.

Dominguez Seminary: The increase in train and street traffic along Alameda Street is projected to cause significant noise impact at the Seminary, particularly any residential quarters at the seminary. A noise barrier along the train tracks or along Alameda Street would keep noise levels below the impact criteria.

Dominguez Hills Estates: A number of mobile homes are located on a bluff west of Alameda Street overlooking the train tracks. The train tracks would be at-grade in this section for all alternatives. The projected noise levels at the homes closest to Alameda Street do not exceed the impact criteria, although a noticeable change in noise levels is projected. Because of the high vantage point of the mobile homes overlooking the tracks, significant noise mitigation would be difficult to achieve without higher than normal walls.

Dominguez to I-405: Train tracks would be at-grade in this section for all alternatives. Impact is projected for a number of residences east of Alameda Street. The impact could be controlled with sound barriers along the train tracks or along Alameda Street. Barriers may not be feasible in this area without interfering with the tracks for the SP rail yard or impairing access to properties fronting on Alameda Street.

Population Impacts

An assessment has been performed for the AT&SF Harbor Subdivision, UP San Pedro and SP Wilmington Branch lines to develop an estimate region-wide noise impact of the project. Estimates of the number of people living within each noise impact zone have been used to compare impact on the freight corridors and overall noise impact. The results of this assessment are shown in Table 4.4-19. The following general approach and assumptions were used to develop population estimates:

1. The number of people affected by train noise along the AT&SF, UP and sp Wilmington corridors can be approximated using the estimates of population living within 500 feet of the tracks developed in the San Pedro Ports Access Study (Southern California Association of Governments, 1985). It is assumed that these people are evenly distributed within 500 ft of the tracks.

2. Acoustical shielding along the AT&SF and UP corridors increases uniformly from 1 dBA at 50 ft to 10 dBA at 500 ft from the tracks.

3. Without any trains, ambient noise level would be CNEL=60 dBA along the UP and AT&SF corridors.

4. 35% of the dwelling units along the Alameda Corridor are in multifamily buildings and the average multifamily building has four units.

5. There are an average of 4.3 occupants in the dwelling units in the Alameda Corridor.

Table 4-44 shows the estimates of the number of people in the year 2020 who would be living within each of the three impact zones for each alternative with and without noise mitigation. The last column in Table 4-44 is a composite impact index developed to provide a relative measure of the total noise impact of each alternative. This impact index is shown graphically in Figure 4-10. Referring to the table and the figure it can be seen that:

1. The existing noise impact, shown as 1992 in the table and figure, is greater along the UP, SP and AT&SF corridors than the Alameda Corridor.
2. The Null Alternative will result in large increase in noise impact along the UP, SP and AT&SF corridors and only a small increase in impact along the Alameda Corridor. Combining all three corridors, the Null Alternative results in a very large increase in region wide noise impact.

3. Alternative 1 without any noise mitigation causes a marked increase in noise impact along the Alameda Corridor, although the impact is still less than along either the UP, SP or AT&SF corridors for the Null Alternative. The impact along the AT&SF, SP and UP corridors is the same for all build alternatives and is much lower than exists today. The build alternatives virtually eliminate future noise impact along these corridors.

4. With appropriate mitigation, noise impact is similar for all of the build alternatives. The region wide impact with any of the mitigated alternatives is approximately half what exists today.

4.5 GROUND-BORNE VIBRATION

Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Vibration energy propagates from a source through intervening soil and rock layers, to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. The rumble noise is caused by the vibrating walls, floors and ceilings radiating sound waves.

TABLE 4-44
APPROXIMATE POPULATION WITHIN NOISE IMPACT ZONES
(year 2020)

Alternative	Numb. of People within each Impact Zone			Impact Index
	Severe	Sig A	Sig B	
Union Pacific Corridor				
Existing	673	2369	3603	11000
Null,2020	3603	7247	8334	37200
Consolidation	0	774	1558	3100
AT&SF Corridor				
Existing	0	1662	2907	6200
Null,2020	4421	7732	10226	43400
Consolidation	0	0	1257	1300
SP Wilmington Corridor				
Existing	1300	4234	5023	18700
Null,2020	2555	4258	6358	25100
Consolidation	0	0	0	0
Alameda Corridor without Mitigation				
Existing	329	0	0	1300
Null,2020	428	0	701	2400
Alt 1	1744	4636	2532	18800
Alt 2.1	528	559	2302	5500
Alt 2.2	534	720	2383	6000
Alt 2.1S	496	701	1856	5200
Alameda Corridor with Mitigation				
Alt 1-M	478	410	1297	4000
Alt 2.1-M	335	199	2067	3800
Alt 2.2-M	329	205	2178	3900
Alt 2.1S-M	490	397	1856	4600
Total, no mitigation along Alameda Corridor				
Existing	1002	4031	6510	18600
Null,2020	8452	14979	19260	83000
Alt 1	1744	5410	5346	23100
Alt 2.1	528	1333	5117	9900
Alt 2.2	534	1494	5197	10300
Alt 2.1S	496	1476	4670	9600
Total, maximum mitigation along Alameda Corridor				
Alt 1-M	478	1184	4111	8400
Alt 2.1-M	335	973	4881	8200
Alt 2.2-M	329	979	4993	8300
Alt 2.1S-M	490	1172	4670	9000

Source: Harris Miller Miller and Hanson, 1992.

Notes:

Degree of Noise Impact

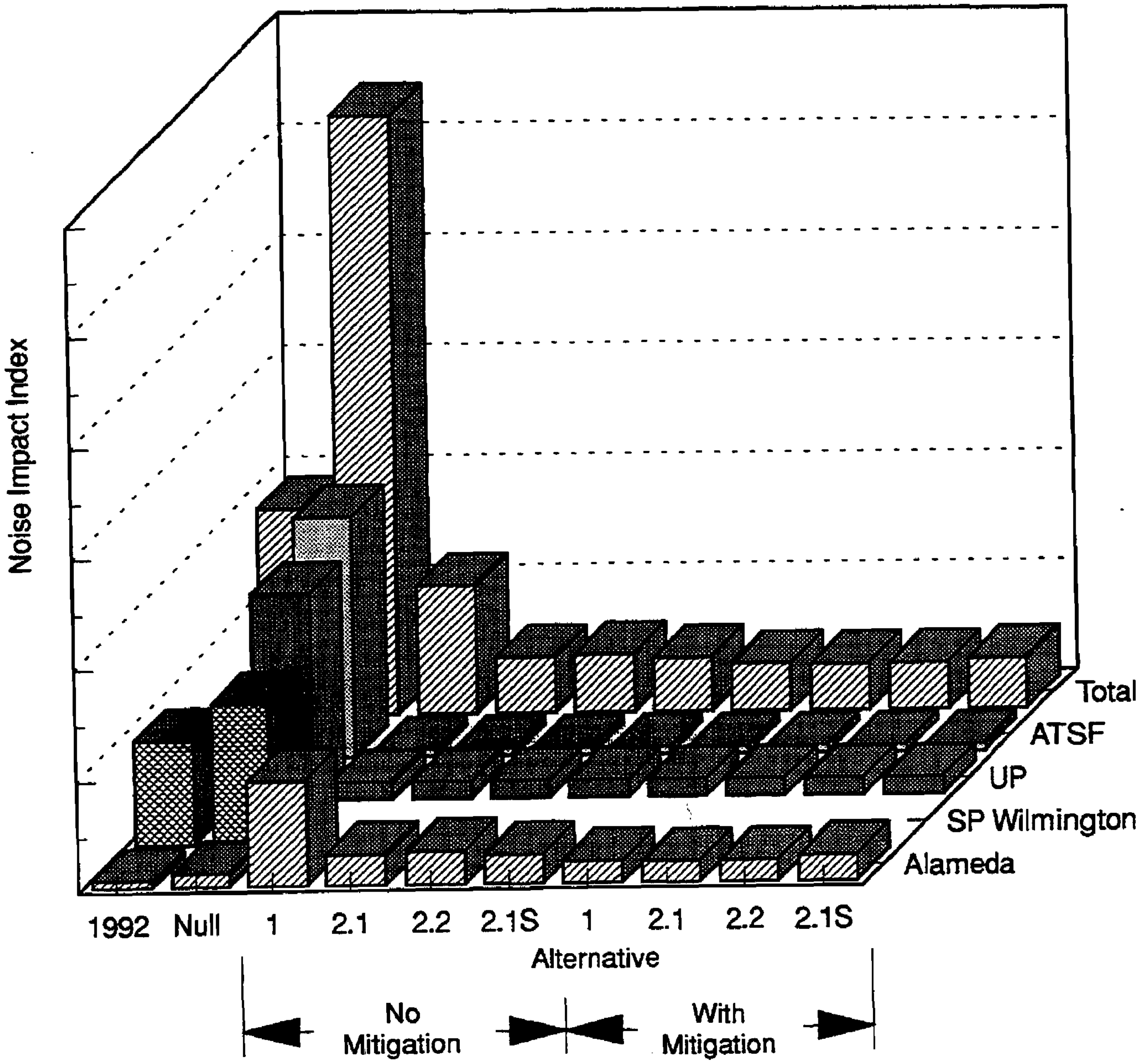
Severe: Projected future sound level (CNEL or daytime Leq) greater than 72 dBA

Sig A: Projected future sound level (CNEL or daytime Leq) greater than 67 dBA *and* more than 3 dBA greater than future sound level for Null Alternative.

Sig B: Projected future sound level (CNEL or daytime Leq) more than 5 dBA greater than projected or measured existing CNEL.

Impact Index: An aggregate scale devised to illustrate relative noise impacts. It is defined as:

4 × (Numb. of severe) + 2 × (Numb. of Sig A) + 1 × (Numb. of Sig B)



Source: HMMH, 1992

FIGURE 4-10	Noise Impact Index for Three Freight Corridors	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Typical sources of ground-borne vibration are construction equipment, steel-wheeled trains, and occasional traffic on rough roads. Problems with ground-borne vibration and noise from these sources are usually localized to areas within about 100 feet from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 feet. When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for this project that the roadway surfaces will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, both construction of the Alameda Corridor project and the freight train operations could create ground-borne vibration that could be perceptible and annoying. Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than ground-borne noise.

The analysis of ground-borne vibration has considered its potential to annoy as well as its potential to damage buildings. Although it is very rare for train induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings.

Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (rms) velocity or peak particle velocity (PPV). RMS is best for characterizing human response to building vibration and PPV is used to characterize potential for damage. Table 4-45 illustrates building and human response to various vibration levels.

4.5.1 Existing Ground-Borne Vibration

The primary source of ground-borne vibration in the Alameda Corridor are Southern Pacific freight trains operating on the existing tracks. Although consolidated corridor replacement track would be of higher quality than the existing track, because of current low operating speeds, existing levels of ground-borne vibration are relatively low.

Measurements of train vibration were performed in two locations along the Alameda Corridor with several trains measured at each site. The first site was just south of the Artesia Freeway (SR 91) and the second near Imperial Highway. As is typical for train traffic along Alameda, train speeds rarely exceeded 20 mph.

The measurements showed that vibration levels from existing freight traffic are often in the 70 to 80 dB range at distances of 100 to 200 feet from the track, which is sufficient to cause distinctly perceptible building vibration. The higher vibration levels were caused by locomotives or freight cars with poor condition wheels. In several cases, high vibration levels could be clearly correlated wheel flat impacts caused by specific freight cars. This is consistent with previous observations that wheel flats can cause levels of ground-borne vibration to increase by 10 to 15 dB. This represents vibration amplitudes 3 to 6 times greater than normal.

TABLE 4-45
VIBRATION LEVELS OF COMMON SOURCES OF GROUND-BORNE VIBRATION

Vibration Velocity			Typical Vibration Source	Typical Human or Building Response
Peak Particle Velocity[a] (in./sec)	Root Mean Square (rms) Velocity[a] in./sec	Root Mean Square (rms) Velocity[a] decibels[b]		
2	0.50	114 dB	Blasting	Limit most commonly used to control structural damage from blasting.
1	0.25	108 dB	Blasting, impact pile driving (very close)	Limit used for blasting when a greater than normal safety factor is required.
0.4	0.1	100 dB	Close to heavy earth moving equipment.	Limit sometimes used for avoiding damage to fragile historic buildings.
0.1	0.05	94 dB	Bulldozers and other heavy tracked equipment 25 to 50 feet away.	Potential for cosmetic damage (eg, plaster cracks); CRT screens can be difficult to read because of jitter.
0.064	0.016	84 dB	Locomotive with good wheels or freight car with bad wheel flats, 40 mph, 25 ft from track.	Significant shaking of wood frame residential structures.
0.040	0.010	80 dB	50 to 100 ft from existing Alameda Corridor track, locomotives passing.	Usually an unacceptable level in residential neighborhoods unless vibration events are infrequent.
0.022	0.0056	75 dB	50 to 100 ft from existing Alameda track, freight cars with good condition wheels passing.	Maintaining vibration amplitudes below this usually is acceptable in residential areas.
0.013	0.0032	70 dB	Bus or truck at 50 ft going over a small bump.	Usually an acceptable level of vibration except in special circumstances (eg, use of sensitive research equipment interfered with by vibration).
0.007	0.0018	65 dB	Expected vibration 100 to 200 ft from reconstructed Alameda track, freight cars with good condition wheels of passing.	Approximate threshold for human perception of building vibration. Can interfere with use of optical instruments such as microscopes.

[a]The relationship between peak particle velocity and rms velocity depends on the shape of the specific waveform. Typically, the peak particle velocity ranges from 1.4 to 5 times rms vibration velocity. For this table, it is assumed that: PPV = 4 × rms.

[b]Generically, *decibel* expresses relative difference in power, usually between acoustic or electric signals. Vibration velocity in decibels is defined as $L_v = 10log(V^2/V_{ref}^2)$, where L_v is velocity level in decibels, V is the vibration velocity amplitude, and V_{ref} is the reference quantity of 1 μinch/second.

Source: Harris Miller Miller and Hanson, 1992.

4.5.2 Criteria for Impact from Ground-Borne Vibration

The criteria used to identify ground-borne vibration impact from both train operations and construction activities are summarized in Table 4-46. The criteria for annoyance are expressed in terms of root-mean-square (rms) vibration velocity, with an averaging rms time or time constant of 1 second, and the criterion for building damage is in terms of peak particle velocity (PPV). RMS represents the average vibration energy over a 1 second interval and is a common measurement used to evaluate potential for human annoyance. PPV is used almost universally to characterize potential for building damage from vibration; it is appropriate for evaluating potential building damage since it is related to the peak stresses experienced by buildings. The relationship between PPV and rms depends on the specific waveform. In ground-borne vibration, PPV amplitude is usually 2 to 5 times greater than rms amplitude.

As can be seen in Table 4-46, vibration limits for building damage are much higher than the limits for human annoyance. This reflects the fact that even when ground-borne vibration is perceptible and annoying, it is very unlikely that the vibration is of sufficient amplitude to cause structural damage.

There are no generally approved standards for what constitutes acceptable levels of ground-borne vibration from freight trains. Most criteria for annoyance from building vibration have been based on either the ANSI (Acoustical Society of America, 1983) or ISO Standards (International Organization for Standardization, 1989), both of which acknowledge the lack of consistent quantitative data on human perception and response to building vibration. Following is a summary of the basis for the impact levels given in Table 4-46:

1. Experience with rail rapid transit systems is that as long as rms building vibration induced by rail transit trains is less than 72 dB (0.004 in/sec), most occupants will not find the vibration objectional. Rapid transit systems usually operate 100 to 200 trains per day on each line.

2. References 1 and 2 criteria indicate that an rms building vibration of about 75 dB (.0056 in/sec) should be acceptable for residences.

3. Because of the large number of freight trains expected to use the consolidated corridor, it is appropriate for the impact criteria to be at a level similar to what is used for rapid transit systems.

4. As a train passes, the highest vibration levels usually are caused by the locomotive; however, because vibration from freight cars will last 20 to 30 times longer than vibration from locomotives, vibration from freight cars could be more intrusive. This has been accounted for by setting the impact level for locomotives 5 dB higher than the freight car impact level.

TABLE 4-46
CRITERIA FOR IMPACT FROM GROUND-BORNE VIBRATION

Type of Vibration Impact	Land Use	RMS Vibration Velocity		Peak Particle Velocity (in/sec)
		decibels[a]	in./sec	
Annoyance from Locomotives	Residential	77 dB	0.007	–[c]
	Institutional[b]	80 dB	0.010	–[c]
Annoyance from Rail Cars	Residential	72 dB	0.0040	–[c]
	Institutional[b]	75 dB	0.0056	–[c]
Annoyance during Construction	Residential, Daytime (7am-10pm)	80 dB	0.0100	–[c]
	Residential, Nighttime (10pm-7am)	75 dB	0.0056	–[c]
	Institutional[b]	80 dB	0.0100	–[c]
Damage[d]	All buildings	–[c]	–[c]	0.5

(a) Decibels relative to 1 μinch/second.
(b) Institutional land uses include buildings such as schools, churches, and libraries.
(c) Relationship between PPV and rms depends on the characteristics of the specific waveform. Typically, PPV ranges from 1.41 to 5 times greater than rms vibration velocity.
(d) Damage is only a potential concern during construction for this corridor.

Source: Harris Miller Miller and Hanson, 1992.

4.5.3 Construction Impacts

Many construction activities have the potential of creating annoying levels of ground-borne vibration, and a few activities have the potential of creating vibration of sufficient amplitudes to cause damage. Because construction vibration at any specific receptor rarely lasts for more than a limited period of time, building occupants will usually tolerate the vibration as long as they do not believe it is damaging the building. Following is a summary of construction equipment and procedures with the potential of causing annoying or damaging vibration:

1. Blasting: Whenever blasting is used for demolition or excavation, there is potential for damaging nearby buildings. This project will not require any blasting.

2. Pile Driving: Impact pile driving can generate an rms vibration velocity of 0.3 in./sec and a PPV as high as 1 in./sec at a distance of 25 feet from the pile driver. Assuming a ground vibration attenuation rate of 9 dB for each doubling of distance (vibration amplitude reduced by a factor of 3 for every distance doubling), using the criteria in Table 4.5-2, the daytime annoyance criterion will be exceeded out to a distance of

approximately 250 feet and the damage criterion will be exceeded at distances less than about 40 feet from the pile driving. Setting piles using predrilled holes or the cast-in-drilled-hole (CIDH) method will eliminate most potential for vibration impact.

3. Vibratory Compaction: Vibratory compaction equipment can be very effective for compacting roadway subgrades. It is not uncommon for this type of equipment to cause intrusive vibration in nearby buildings. The shaking sometimes will cause items sitting on shelves or hanging on walls to fall. The actual levels are strongly dependent on the manner in which the equipment is operated.

4. Excavation Equipment: Clam shell shovels and other equipment used for excavation has the potential of causing intrusive vibration. The main source of vibration is dropping the bucket into the trench to pickup the next load of dirt.

5. Tracked Vehicles: Tracked vehicles such as bulldozers can create substantial vibration during earth moving operations. A heavy bulldozer can be expected to create an rms vibration level of 0.05 in./sec at distance of about 50 feet from the bulldozer. This means that a large bulldozer could cause vibration exceeding the daytime residential impact criterion up to 75 feet away.

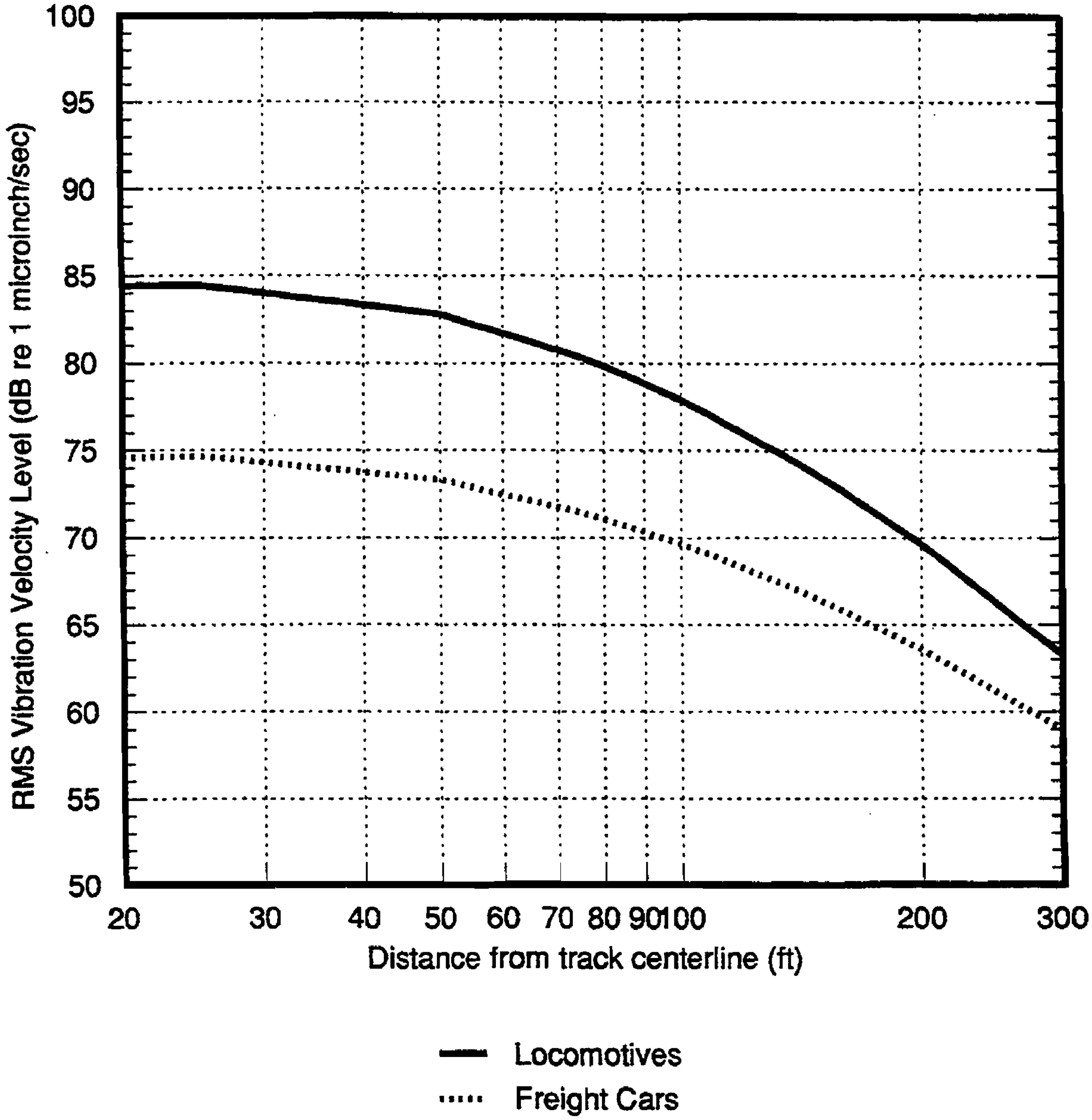
6. Trucks: Ground-borne vibration from pneumatic tire vehicles on streets, even heavy trucks, is rare unless there are some sort of irregularity or bump in the road surface. Loaded trucks on construction surfaces can create vibration exceeding the annoyance criterion at distances up to 200 feet away. As long as this situation is avoided, ground-borne vibration from truck traffic should not be a significant problem with this project.

4.5.4 Projection Model for Train Ground-Borne Vibration

The projections of ground-borne vibration are based on measurements of existing rail traffic at five locations in the Los Angeles Area, two along the existing Southern Pacific tracks in the corridor, one along the Southern Pacific and Union Pacific tracks in Pomona, one along the ATSF tracks in Santa Fe Springs, and one along the Southern Pacific tracks in Alhambra where the tracks are in a sloped trench that is approximately 20 feet deep. Typical train speeds were 20 mph along Alameda, 30 to 40 mph at the Pomona and Santa Fe Springs test sites, and 20 mph in Alhambra.

Vibration measurements of approximately 45 freight train passbys have been used to derive the curves for projecting ground-borne vibration for the future Alameda Corridor. The derived curves are shown in Figure 4-11. These curves are for train speeds of 30 mph; an adjustment factor of 20*log*(speed/30) can be used to adjust up or down for other train speeds.

Some factors that influence levels of ground-borne vibration from trains are train speed, track and wheel condition, type of track support system, vehicle weight, stiffness of vehicle suspension, and local geologic conditions. Because of the large number of factors influencing levels of ground-borne vibration, it is common for vibration levels to vary over a fairly wide range. Because of this, the projections of future vibration along the Alameda Corridor are based on the high range of the measurement data, not the average of the data. This means that the projections of ground-borne vibration are more likely to overestimate than underestimate vibration levels.



Source: HMMH, 1992

FIGURE 4-11	Alameda Corridor Projected Train Vibration, 30 mph	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Special adjustments must be made in the vicinity of special trackwork for turnouts and crossovers because vibration is sharply increased by freight car wheels passing over frogs. Frogs are the devices at rail intersections that allow wheels to cross the junction. The wheel impacts have been assumed to cause vibration levels 10 dB higher near special trackwork than normal at-grade track.

The trench alternatives are not expected to have significantly different ground-borne vibration characteristics than the at-grade alternatives. The change in vibration level due to the tracks being about 30 feet below grade should be localized to distances less than 50 to 75 feet from the tracks, and the most important effects are likely to be changes in spectrum of the vibration rather than significant changes in overall levels of vibration. The conclusion is that placing the track in a trench does not change the impact assessment, particularly since there are only isolated areas where vibration sensitive buildings would be less than 100 feet from the tracks in the trench.

The impact criteria can be used with the curves in Figure 4-11 to derive vibration impact distances for residential land uses. The impact distances for train speeds of 20, 30 and 40 mph are summarized in Table 4-47. This table illustrates the following factors:

- First, vibration from locomotives is more likely to cause impact than vibration from freight cars even though the impact criterion for locomotive vibration is 5 dB higher than the criterion for freight car vibration.
- Second, there is significant potential for vibration impact when special trackwork is located near residential neighborhoods. With rail projects it is often possible to eliminate much of the potential vibration impact by relocating crossovers and turnouts.
- Third, because of the width of the Alameda Corridor right-of-way, vibration impact is unlikely whenever the track is located in the roadway median.

4.5.5 Impact from Train Vibration

The entire corridor has been reviewed to identify all vibration sensitive buildings where the projected levels for a typical freight train exceed the impact criteria. The main concern is residential land use, because of the large number of residential buildings within the corridor and the greater possibility of people being annoyed by vibration at night while sleeping. The possibility of schools, churches and other community resources being adversely affected by ground-borne vibration has also been evaluated. All of the school buildings and churches within

the corridor are far enough from the tracks that ground-borne vibration is not expected to exceed the criteria. At one facility, the Exceptional Adult Education Center, the projected vibration levels are just below the impact criterion.

The results of the impact assessment are summarized in Table 4-48. As shown, only isolated areas have been identified where projected vibration levels exceed the impact criteria. The impact for each alternative is discussed below:

TABLE 4-47
PROJECTED GROUND-BORNE VIBRATION IMPACT DISTANCES
(residential land use)

Train Speed	Impact Distances			
	Normal Track		Special Trackwork	
	Locomotives	Freight Cars	Locomotives	Freight Cars
20 mph	70 ft	20 ft	220 ft	170 ft
30 mph	110 ft	70 ft	270 ft	230 ft
40 mph	140 ft	100 ft	310 ft	300 ft
Source: Harris Miller Miller and Hanson, 1992.				

TABLE 4-48
SUMMARY OF GROUND-BORNE VIBRATION IMPACT ASSESSMENT

Alternative	Location	Number of Residential Buildings in Impact Zone
1: At-grade Alternative	Southern to Tweedy east of Alameda. First row single and multi-family.	36
	South of Compton Blvd, east side of Alameda. Caused by crossover near Laurel Street.	3
2.1A and 2.1S: Trench Alternatives	South side of Santa Ana Blvd, west of Alameda. One single-family residence.	1
	South of Compton Blvd, west of Alameda at condominium complex. Caused by crossover at Laurel Street,	1
2.2: Vernon Diversion This impact would be in addition to impact from Alternatives 2.1A and 2.1S.	Martin Luther King Blvd to 42nd Street. First row single-family residences on west side.	7
	41st Street to Randolph. First row single and multi-family residences.	32
Source: Harris Miller Miller and Hanson, 1992.		

Alternative 1 - At-Grade

The primary potential for ground-borne vibration impact from Alternative 1 is in the residential area between Southern and Tweedy east of Alameda. The tracks will be on the east side of Alameda approximately 80 feet from the first row of buildings, which are a mixture of single-family and multi-family residences. The projected vibration levels exceed the criterion by 5 dB, sufficient to cause considerable annoyance.

The only other area with potential for vibration impact is south of Compton Boulevard near Laurel Street. Even with the higher than normal ground-borne vibration caused by the crossover special trackwork, only three single-family residences are within the impact distance. The projected levels at these residences exceed the criterion by 1 to 2 dB.

Alternatives 2.1A and 2.1S - Trench and Sloped Trench

The impact for these alternatives is the same because they follow the same basic alignment. These alternatives have only a limited potential for vibration impact. The projected vibration levels exceed the impact criterion by only 1 dB at one residence at the south west corner of Alameda and Santa Ana Boulevard. This residence is about 100 feet from the track centerline.

Also, one unit of the Racquet Club condominiums is within the impact distance for vibration impact from the crossover south of Compton Boulevard. The projected level exceeds the criterion by 1 to 2 dB.

Alternative 2.2 - Vernon Diversion

In addition to the impact for Alternative 2.1A and 2.1S discussed above, Alternative 2.2 has the potential of causing vibration levels exceeding the impact criterion at a number of single and multi-family residences along Long Beach Avenue. The first area is between Martin Luther King Boulevard and 42nd Street, where seven single-family residences are just within the impact distance. The projected levels exceed the criterion by 1 to 2 dB. The second area is between 43rd Street and Randolph, where many of the first row of residences, a mixture of single and multi-family buildings, are within the impact distance.

4.5.6 Mitigation of Construction Vibration

It is expected that ground-borne vibration from construction activities would cause only intermittent localized intrusion to communities along the Alameda Corridor. Although processes such as earth moving with bulldozers can create annoying vibration, there should be only isolated cases where it is necessary to use this type of equipment in close proximity to residential buildings.

Following are some procedures that can be used to minimize the potential for annoyance or damage from construction vibration:

1. Limit or prohibit use of construction techniques that create high vibration levels. At a minimum, processes such as pile driving should be prohibited at distances less than 250 feet from residences.

2. Restrict procedures that contractors can use in vibration sensitive areas. It is often possible to employ alternative techniques that create lower vibration levels. For example, pile driving is one activity that has considerable potential for causing annoying vibration. Using the cast-in-drilled-hole piling method instead would eliminate most vibration impact from the piling.

2. Require monitoring during vibration intensive activities.

3. Restrict the hours of vibration intensive activities such as pile driving to weekdays during daytime hours.

4.5.7 Mitigation of Train Induced Ground-Borne Vibration

There are a number of different approaches that could be used to reduce the potential vibration impact from this project. Following is a summary of some procedures that have been used on previous rail projects and could be viable for this project:

1. *Lower Train Speed*: In cases where vibration from trains exceeds the impact criterion by a small amount, it is sometimes practical to reduce impact by reducing train speed. Ground-borne vibration (in decibels) is approximately proportional to lug(speed), which means that every time speed is reduced by 11%, the vibration level is reduced by 1 dB. If the train speed is 30 mph, reducing the speed to 24 mph should give a 2 dB attenuation. This is one of the few approaches that is practical after train tracks have been constructed. The foremost disadvantage of reduced speed limits is the detrimental effect speed reduction can have on system capacity and scheduling.

2. *Property Acquisition or Vibration Easement*: In some cases of vibration impact, the cost of reducing levels of ground-borne vibration to acceptable levels may exceed the value of the property affected by the vibration. In such cases, the most cost-effective means of achieving design criteria may be to acquire the property or negotiate some sort of vibration easement with the property owner.

3. *Relocation of Special Trackwork*: For cases where vibration impact is due to wheel impacts at special trackwork, vibration impact often can be avoided by moving special trackwork away from sensitive receivers.

4. *Moveable Points Frogs*: Where relocation of special trackwork is not feasible, impacts from special trackwork can be almost completely eliminated with the installation of movable point, or gapless, frogs. This type of frog has movable points that close the gap in the mainline rail. Moveable frog points are sometimes used on high volume, high tonnage freight lines to reduce wear caused by the wheel pounding; however, many rail operators avoid use of moveable point frogs because of the extra expense and increased maintenance associated with their moveable parts.

6. *Ballast Mats*: Ballast mats basically consist of a 2 to 3 inch thick elastomer mat placed under the normal ballast. Most ballast mat installations are in subways. Although there are some examples of ballast mats being used for at-grade track, there is limited data on the effectiveness of at-grade installations. The available information indicates that ballast

mats could reduce vibration levels along the Alameda Corridor by 3 to 6 dB, sufficient to eliminate much of the projected vibration impact. This estimate is based on the projected frequency spectrum for ground-borne vibration along the Alameda Corridor and conservative estimates of ballast mat effectiveness. The main disadvantage of ballast mats is that they tend to be expensive and may not be cost-effective.

7. *Floating Slabs*: Floating slabs consist of a 1-foot thick, or thicker, concrete slab supported by resilient pads on a concrete foundation. The trackwork is laid on top of the concrete slab. Most successful floating slab installations are in subways. To use floating slabs with at-grade track requires the construction of a concrete foundation that the slab can work against, and the expense is much more than for a normal tie and ballast at-grade track.

8. *Trenches/Underground Barriers*: Although rarely used, a deep trench (30 to 80 ft deep) can be an effective barrier to ground-borne vibration. The trench can be either open or filled with concrete or similar dense material. This is not likely to be a viable option for the Alameda Corridor.

Almost all of the project's potential impact from ground-borne vibration can be eliminated with small adjustments in crossover locations and by installing ballast mats. Note that during final design of the system it will be necessary to carefully select the ballast mat material and installation procedure to ensure that they provide adequate vibration control.

Table 4-49 and the following paragraphs summarize the mitigation measures for each alternative:

<u>Alternative 1 - At-Grade</u>

Approximately 5 dB of vibration attenuation is required to keep projected vibration levels at 36 residential buildings between Southern and Tweedy within the design goals. It should be possible to achieve this much attenuation with approximately 2300 feet of ballast mats. The only other projected impact for this alternative is due to a crossover located south of Compton Boulevard near Laurel Street. The projected impact can be eliminated by moving the crossover approximately 500 feet to the south.

<u>Alternatives 2.1A and 2.1S - Trench and Sloped Trench</u>

There is one residence just within the impact distance near Santa Ana Boulevard. The impact could be removed with installation of a ballast mat installation; this is not expected to be a cost effective approach. Alternative approaches are to reduce train speed by 5 mph in this area or negotiate a vibration easement with the property owner. The other projected impact at one unit of the Racquet Club Condominiums can be eliminated by moving a crossover approximately 500 feet to the south.

TABLE 4-49
SUMMARY OF GROUND-BORNE VIBRATION MITIGATION MEASURES

Alternative	Type of Treatment	Length of Treatment
Alt. 1: At-Grade	Install ballast mat between Southern and Tweedy	2300 ft
	Move one crossover[a]	--
Alt. 2.1 and 2.1S: Trench	Reduce train speed near Santa Ana Boulevard	--
	Move one crossover[a]	--
Alt. 2.2: Wilmington Diversion (mitigation in addition to that required for Alt 2.1 and 2.1S)	Install ballast mat along Long Beach Avenue[b]	5600 ft

(a) Adjusting location of one crossover 500 ft south will eliminate projected impact.

(b) Subject to cost-effectiveness analysis.

Source: Harris Miller Miller and Hanson, 1992.

Alternative 2.2 - Wilmington Diversion

In addition to the mitigation discussed above for Alternatives 2.1A and 2.1S, the Vernon Diversion requires mitigation along Long Beach Avenue to ensure achieving the vibration design goals. Approximately 1100 feet of ballast mat would be required to protect seven residences between Martin Luther King Boulevard Blvd and 42nd Street, where the projected vibration levels exceed the limits by only 1 dB.

Approximately 4500 feet of ballast mat would be required between 43rd Street and Randolph to protect the 29 single-family and multi-family residential buildings that are within the vibration impact zone in this area.

4.6 ENERGY

4.6.1 Setting

Electricity in the Los Angeles City portions of the corridor is provided by the City of Los Angeles Department of Water and Power (LADWP). Electrical power comes from the hydroelectric facilities and thermal generating plants that are expected to be the city's main sources of electrical power in the future. Principal power system facilities are located throughout much of the western states. A substantial portion of LADWP electricity is supplied by steam generating plants in the Los Angeles Basin. The remainder comes from generating stations and hydroelectric sources outside the basin. Other sources of energy currently being explored include geothermal and solar energy. The Southern California Gas Company provides gas for nearly all of Southern California, including all areas of Los Angeles City. Adequate supplies of gas and electricity are expected to be available well into the next century.

For those portions of the corridor not supplied by the LADWP, electric power is provided by the Southern California Edison Company. Southern California Edison (SCE) is an investor-owned, regulated utility providing electric service to a 50,000-square-mile area of Central and Southern California. The company supplies 3.7 million customers with electricity from nine energy sources. In 1987, 47 generating plants which burned oil or natural gas provided about 37 percent of customer needs, nuclear plants generated about 20 percent of the electricity supply, 14 percent was generated by coal-powered plants, five percent was provided by hydro-electric sources and 24 percent was purchased from other utilities or power producers.

Fossil fuels are consumed in Southern California by on-road vehicles in the form of gasoline and diesel fuel. On-road sources account for nearly all fossil fuel consumed in the South Coast Air Basin. Table 4-50 shows estimated fuel consumption in recent years and projections of those figures to the years 2010 and 2020. Projects were estimated on the basis of 1 percent annual growth.

TABLE 4-50
ESTIMATED FOSSIL FUEL CONSUMPTION
(gallons per year)

	1980[1]	2010[2]	2020[2]
SCAG REGION			
Gasoline	5.5 billion	7.2 billion	7.7 billion
Diesel	530 million	690 million	740 million
South Coast Air Basin			
Gasoline	4.9 billion	6.4 billion	6.9 billion
Diesel	470 million	610 million	660 million

(1) Source: Long Beach - Los Angeles Rail Transit Project Draft EIR, 1989.
(2) Future year fuel consumption estimates are based on an assumed uncompounded growth rate of 1 percent per year.

Between 1973 and 1980, supplies and costs of U.S. transportation fuels fluctuated in response to events in the Middle East. These fluctuations influenced fuel consumption patterns both locally and nationwide. By December 1982, the world oil market was in a state of oversupply and the price of gasoline had decreased by about $.10 per gallon over the previous year (Lundberg Letter, 1982). Current projections suggest that adequate supplies and relative costs should be expected for the foreseeable future.

Since the automobile is the dominant form of transportation, its average fuel economy is a critical determinant of transportation energy consumption in the region. For new vehicles, average fuel economy has increased during recent years, thus increasing the overall fleet average. One consequence of this trend is that total fuel consumption has declined slightly in recent years, even though travel mileage has grown. The trend toward increased automobile fuel economy is expected to continue.

4.6.2 Construction Impacts

Construction of the proposed project would result in the consumption of fossil fuels associated with the operation of construction equipment and vehicles. All of the build alternatives are sufficiently similar that it is not likely that one alternative would consume a measurably different amount of energy from any other. Table 4-51 provides estimated fuel consumption associated with construction equipment and vehicles. As compared with regional daily fuel consumption, these amounts are not considered significant.

4.6.3 Operational Impacts

Energy would be consumed by the proposed project in the form of gasoline and diesel fuel, and also in the form of electricity, although to a much lesser extent. Daily operations of the corridor would use minor amounts of electricity for control signalization and communications systems. This consumption is expected to be very minor and therefore has not been quantified.

Insofar as fuel consumption is concerned, Table 4-52 presents estimated diesel and gasoline consumption, taking into consideration locomotives, automobiles and trucks. Locomotive train miles are taken from computer simulations prepared for the concept study. Vehicular travel is also taken from concept study computer simulations. The study area for this latter portion extends from the I-10 freeway in the north to the ports in the south, and from the Harbor Freeway in the west to the Long Beach Freeway in the east.

Taking into account both gasoline and diesel fuel consumption, future consumption, as compared to the present, would not be considered a significant increase. Future truck travel would be substantially greater than the present, and automobile travel would also increase, but by a less significant margin. Fuel consumption associated with locomotive travel would also increase by a substantial margin. On balance, fuel usage would increase, but not by a significant degree.

4.6.4 Mitigation Measures

<u>Construction</u>

The amounts of energy that would be consumed during construction of the Alameda Corridor would be minor in comparison with areawide energy usage, and adequate supplies of energy would be available therefore this usage is considered not significant. In the interest of promoting energy efficiency, however, the following mitigation measures are suggested:

- Select dump sites as close as practicable to the corridor to minimize haul distances and excavation-related fuel consumption.
- Reuse existing rail steel and lumber wherever possible, such as for falsework, shoring and other applications during the construction process.
- Recycle asphalt taken up from roadways, if practicable and cost-effective.

TABLE 4-51
ESTIMATED ENERGY CONSUMPTION FROM PROJECT CONSTRUCTION EQUIPMENT AND VEHICLES

Equipment	Fuel Consumptio n Rate	% Daily Use	Alternative 1				Alternative 2.1A/2.2			
			No.	Consumptio n	Gal. Gas	Gal. Diesel	No.	Consumption	Gal. Gas	Gal. Diesel
Cranes	5GPH	75	4	45,000 HR		225,000	7	90,000 HR		450,000
Compressors	2.6 GPH	50	8	40,000 HR		104,000	16	80,000 HR		208,000
Compactor	5 GPH	100	2	[illegible]		50,000	2	20,000 HR		100,000
Materiels Truck	10 MPG	100	5	20,000 MI		2,000	5	20,000 HR		2,000
Front-end Loader	5 GPH	100	2	49,000 HR		200,000	5	110,000 HR		550,000
Paver	5 GPH	100	1	2,000 HR		10,000	1	2,000 HR		10,000
Motor-Grader	21 GPH	80	1	12,800 HR		268,800	1	12,800 HR		268,000
Watertank	10 MPG	80	1	16,000 MI		1,600	1	30,000 MI		3,000
Backhoe	13 GPH	80	2	25,600 HR		332,800	3	51,200 HR		665,600
Welding Machine	1 GPH	40	1	400 HR		400	1	400HR		400
Roller	24 GPH	100	2	4,000 HR		96,000	3	10,000 HR		240,000
Heavy Duty Truck	8 MPG	100	10	1,500 MI		1,875	30	50,000 MI		6,250
Wheeled Tractor	16 GPH	80	1	[illegible] HR		25,600	1	1,600 HR		25,600
Chainsaw	4 GPH	50	1	500 HR	2,000		1	500 HR	2,000	
Scraper	13 GPH	100	1	2,000 HR		26,000	3	50,000 HR		650,000
Worker's Vehicles	15 MPG	NA	100	40,000 MI	2,667		100	40,000 MI	2,667	
RR Track Machine	10 GPH	100	1	1,000 HR		10,000	1	1,000		10,000
Pile Driver	20 GPH	90	1	900 HR		18,000	1	900 HR		18,000
Project Total					4,667	1,372,075			4,667	3,207,650
AVG/HR					467	137,210			467	320,765

Source: DMJM/M&N, 1992.

TABLE 4-52
ESTIMATED DAILY LOCOMOTIVE AND VEHICULAR ENERGY CONSUMPTION

	1990	2010		2020	
		No Project	Consolidated Corridor	No Project	Consolidated Corridor
LOCOMOTIVE ENERGY					
Train - Miles [1]	815.8	1953.1	1885.8	2601.9	2455.8
Fuel Consumption Rate[2] (Diesel; gallons per train miles)	7.85	7.85	7.85	7.85	7.85
Diesel Fuel Consumed (gallons)	6,400	15,300	14,800	20,400	19,300
VEHICULAR ENERGY					
Auto - miles[3]	21,532,600	24,022,800	24,111,310	26,708,400	26,826,400
Fuel consumption rate[4] (gasoline; miles/gallon)	22.2	29.6	29.6	29.9	29.9
Gasoline consumed (gallons)	969,900	811,600	814,600	895,300	897,200
Truck - miles[3]	1,566,700	2,147,500	2,163,500	2,787,900	2,819,600
Fuel consumption rate[4] (Diesel; miles/gallon)	5.6	6.6	6.6	6.7	6.7
Diesel fuel consumed (gallons)	279,800	325,400	327,800	416,100	420,800
TOTAL FUEL CONSUMED (gallons)	1,256,100	1,137,000	1,142,400	1,331,800	1,337,300

Notes:
[1]Train-miles for 2010 & 2020 taken from Appendix G of the concept study. Train-miles for 1990 factored by individual carrier from computer simulations.
[2]Source: Terminal Island Intermodal Container Transfer Facility, Draft EIR, May 1992.
[3]Computer model study area vehicle-miles of travel estimates prepared by DKS Associates, as reported in Concept Study, Appendix G.
[4]Fuel consumption rates taken from California Air Resources Board, EMFAC 7 PC.

Source: DMJM/M&N; Myra L. Frank & Associates, Inc., 1992.

- Maintain construction equipment in good working order.

- Promote carpooling, perhaps involving the use of project vans, among construction workers.

- Schedule construction operations to result in the most efficient use of construction equipment practicable.

Operation

Insofar as freight rail operations are concerned, the proposed project would result in a reduction of diesel fuel consumed by locomotives, as compared with the No Build condition. The Alameda Corridor may thus be regarded as a mitigation measure itself, in this regard.

Should rail electrification become a reality, the project would be able to convert to that mode of power. Additional energy savings should result.

Fuel consumed by automobiles and trucks in the future would be nearly the same with or without the project. The Alameda Corridor would accommodate vehicular travel, but it would not of its own promote such travel. Reliance must be placed on improvements in fuel economy that would occur as a result of efforts at the national and state levels, and by manufacturers carrying out those efforts.

The daily operation of the corridor would use minor amounts of electricity for various functions, such use not being considered significant. The following conservation measures are suggested, however:

- Area lighting systems should use efficient luminaries and should be designed for an efficient placement of individual fixtures.

- Corridor buildings and facilities would incorporate energy efficiency requirements contained within California building codes.

- During final design, every aspect of station energy use would be reviewed in order to minimize heating, lighting, ventilating, air-conditioning and other energy loads. Passive solar lighting, heating and solar hot water preheating would be considered wherever feasible.

4.7 VEGETATION AND WILDLIFE

4.7.1 Setting

The Los Angeles region is primarily urbanized and dominated by paved surfaces and landscaping. The region is arid with highly seasonal rainfall occurring primarily in winter. Native vegetation has been largely replaced by urban landscaping and the intrusion of exotic species, although remnants of the native vegetation of the Los Angeles Coastal Plain occur on some hillsides. In undeveloped but disturbed urban areas, flora and fauna consist of native and non-native encroaching species that are tolerant of disturbances. Typical species found include pigeons, rodents, gulls, eucalyptus, palms, and iceplant.

The Los Angeles River, which parallels much of the corridor, flows from the southwest side of the San Fernando Valley through the Los Angeles Coastal Plain to the San Pedro Bay. The river is channelized and concrete lined for most of its length. In the upper portions of the river, the bottom is not lined, allowing vegetation to grow in the river bottom. Further down the river, vegetation is found growing in areas of debris accumulation. Other organisms found in the river are those associated with warm, nutrient-rich, slow-moving waters such as algae and insects. The mixing zone of the river with the ocean begins near Willow Street in Long Beach. In this area, the river is not lined; many species associated with disturbed habitats are found there, including common varieties of many birds and fish.

Applicable Rules and Regulations

The federal Endangered Species Act of 1973 (as amended), the State of California's endangered species legislation of 1970 (California Administrative Code, Title 14) and the California Fish and Game Code require the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) to list all species threatened with extinction. The USFWS lists species in the Federal Register and the CDFG lists species in California Administrative Code Title 14. In addition, the California Department of Fish and Game Natural Diversity Data Base (NDDB) lists species considered sensitive by the scientific community, though this listing offers no legal protection. The NDDB identifies the location and status of a species by recording observations.

Sensitive habitats are also identified by the USFWS and CDFG. The California Coastal Act of 1976 defines a sensitive habitat as an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem, and which would be disturbed or degraded by human activities and development.

Threatened and Endangered Species

The NDDB located one species, the California Least Tern (Sterna antillarum browni), listed as endangered by both the USFWS and the CDFG in the study area (within one mile of the corridor).

The California Least Tern is a migratory bird species which feeds in the waters of bays. Port of Los Angeles records indicate that in 1990, 32 pairs of the Least Tern nested in the Terminal Island area, and in 1991, 2 pairs nested.

Other NDDB Listed Species

In addition to the species listed above, the NDDB has also identified one Candidate 2 species (candidate for federal listing as endangered or threatened) by the USFWS within the proposed project corridor. The NDDB lists a sighting of the San Diego Horned Lizard (Phrynosoma coronatum blainvillii) in the City of Compton at the junction of Rosecrans Avenue and the Southern Pacific Railroad right of way. The NDDB does not list a date for the sighting and indicates that the species is possibly extirpated at the site.

4.7.2 Impacts

The project corridor is highly urbanized and has been so for many years. Consultation with the NDDB indicates that no state or federally listed endangered species are found within the project corridor. The proposed project is not expected to either create or affect any habitats for sensitive species and therefore would not result in any adverse affects to biological resources within the proposed corridor.

Existing landscaping and common urban vegetation may be removed in the course of construction. This is not a significant impact.

4.7.3 Mitigation

No adverse impacts are anticipated and no mitigation is required. Landscaping would be provided when possible along the corridor. Native and/or drought resistant plants would be used where feasible.

CHAPTER 5

THE SOCIOECONOMIC ENVIRONMENT

5.0 THE SOCIOECONOMIC ENVIRONMENT

5.1 LAND USE

5.1.1 Existing Land Uses

The Alameda Corridor is located within the greater Los Angeles basin and extends from downtown Los Angeles to the Port of Los Angeles. The corridor traverses several cities and portions of Los Angeles County. Municipal jurisdictions adjacent to the corridor consist of the cities of Los Angeles, Vernon, Huntington Park, South Gate, Lynwood, Compton, and Carson.

Methodology

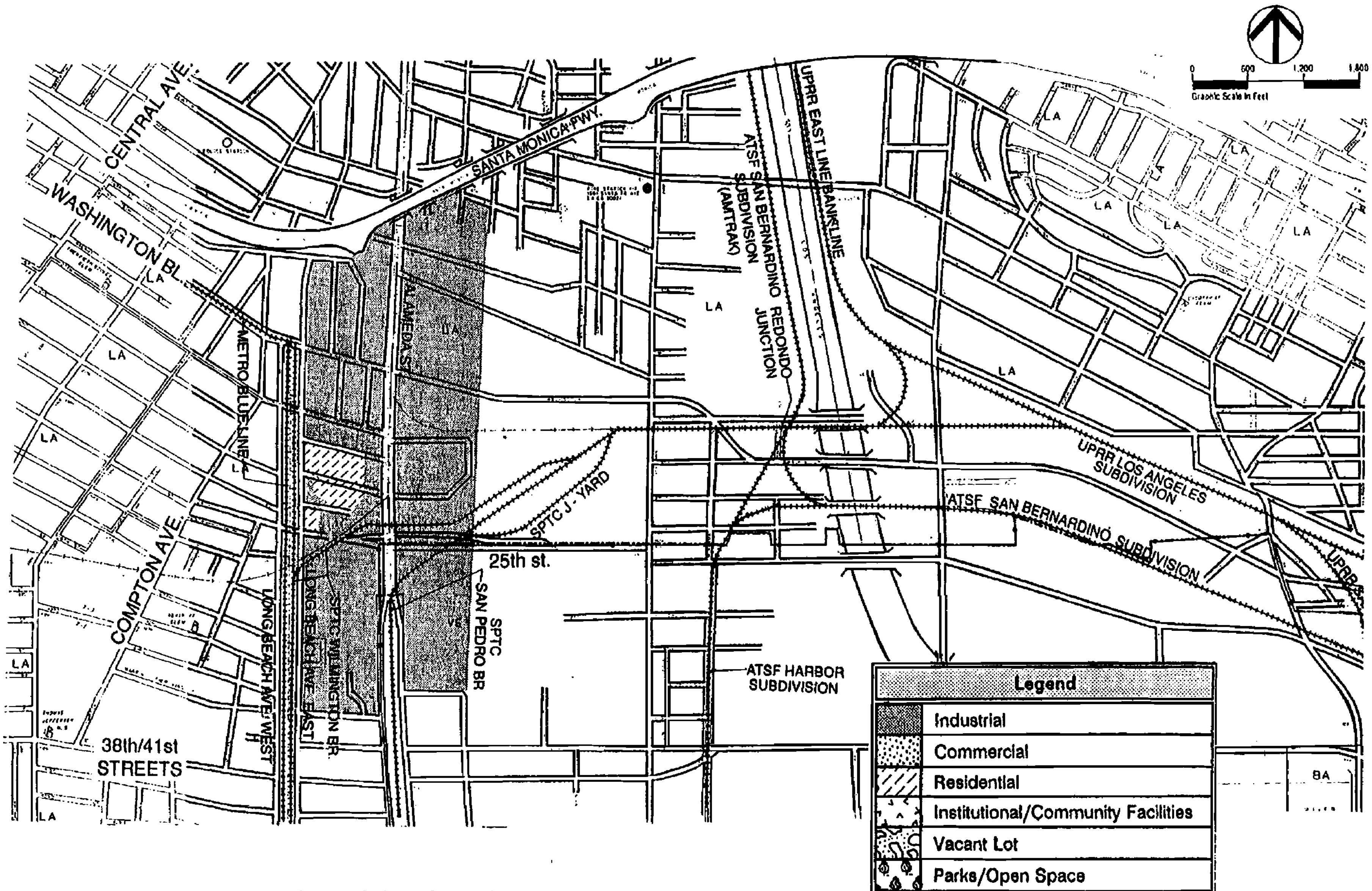
Windshield field surveys were conducted along Alameda Street to identify the major land uses adjacent to the corridor and along the east-west axes of major intersections. Residential neighborhoods on either side of the corridor were noted and the location of sensitive uses such as schools and community facilities were recorded.

A land use impact area was defined extending approximately 1,000 feet on either side of the Alameda Corridor, bounded generally to the east by Santa Fe Avenue and to the west by Long Beach and Wilmington Avenues. At locations of major intersections proposed for grade separations, the impact area was extended to approximately 1,500 feet. The boundary of the land use impact area coincides with the boundaries of noise and traffic impacts associated with the project because, in addition to direct physical displacement, land use impacts are further defined by the intrusion of the project on residential neighborhoods and other sensitive land uses as well as by the reconfiguration of traffic flow and access resulting from the project.

Segment A (Pasadena Junction to 24th/25th Street) [See Figures 5-1 and 5-10]

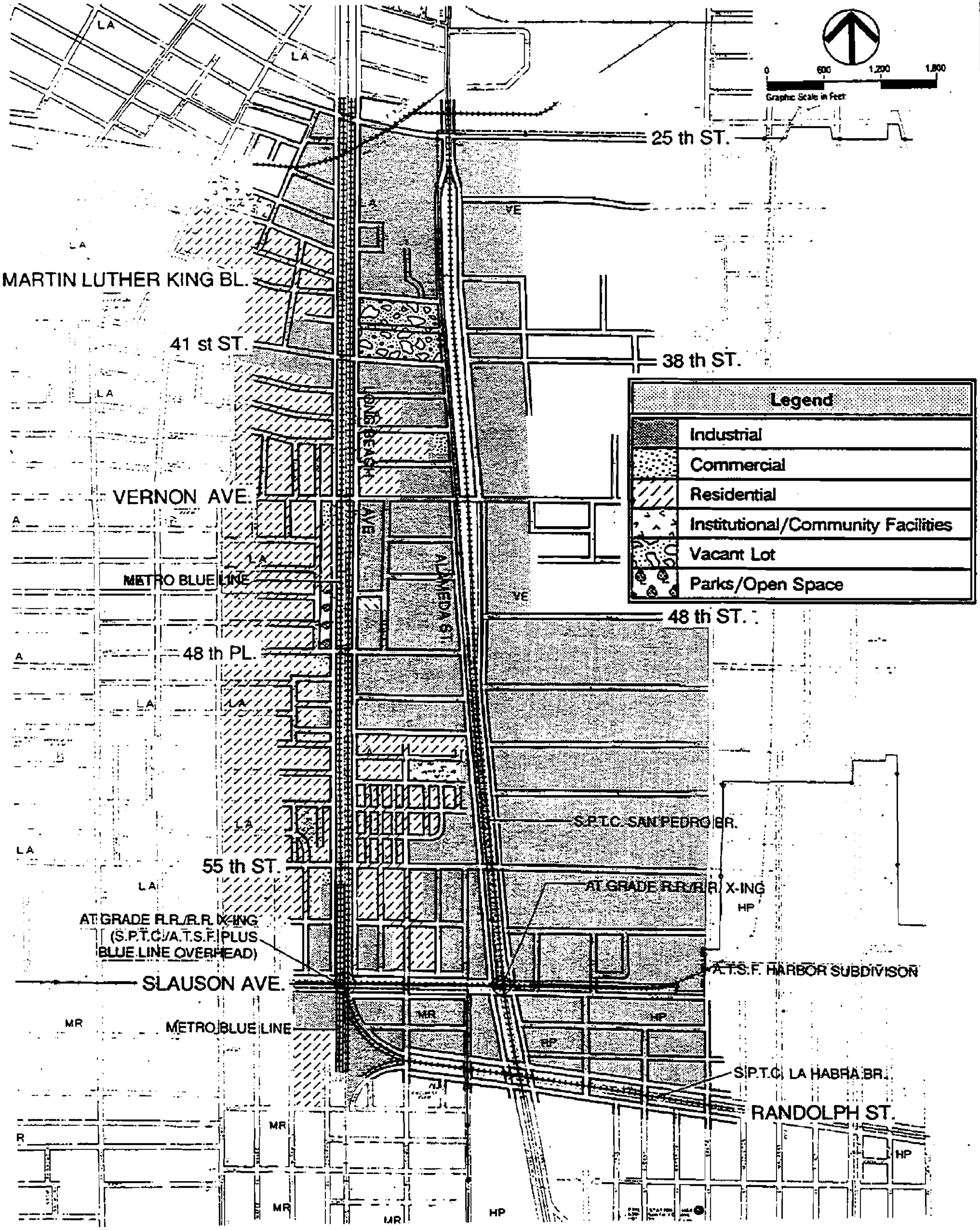
Segment A is contained entirely within the City of Los Angeles and includes railroad track facilities extending from Pasadena Junction along the east side of the Los Angeles River to the vicinity of Redondo Junction and "J" Yard, proceeding southerly to the vicinity of 25th Street. Rail track facilities also extend from the "J" Yard/Redondo Junction area to the Union Pacific East Los Angeles Yard, located north of Washington Boulevard and east of Downey Road. Heavy industrial land uses predominate in this area, including railroad yards as well as trackage and storage facilities.

Segment A also includes the roadway along Alameda Street that extends from the Santa Monica Freeway (I-10) south to 24th/25th streets. Land uses on both sides of the Alameda Corridor are comprised primarily of heavy industrial uses; older industrial uses such as salvage lots and auto repair yards are predominant on the west side of the corridor, and heavy industrial uses on large lots occupy the east side of the corridor. Single-family residential uses extend from behind industrial structures adjacent to Alameda Street between 21st and 23rd streets and extend west to Long Beach Boulevard. Figures 5-1 through 5-9 show the pattern of existing land uses



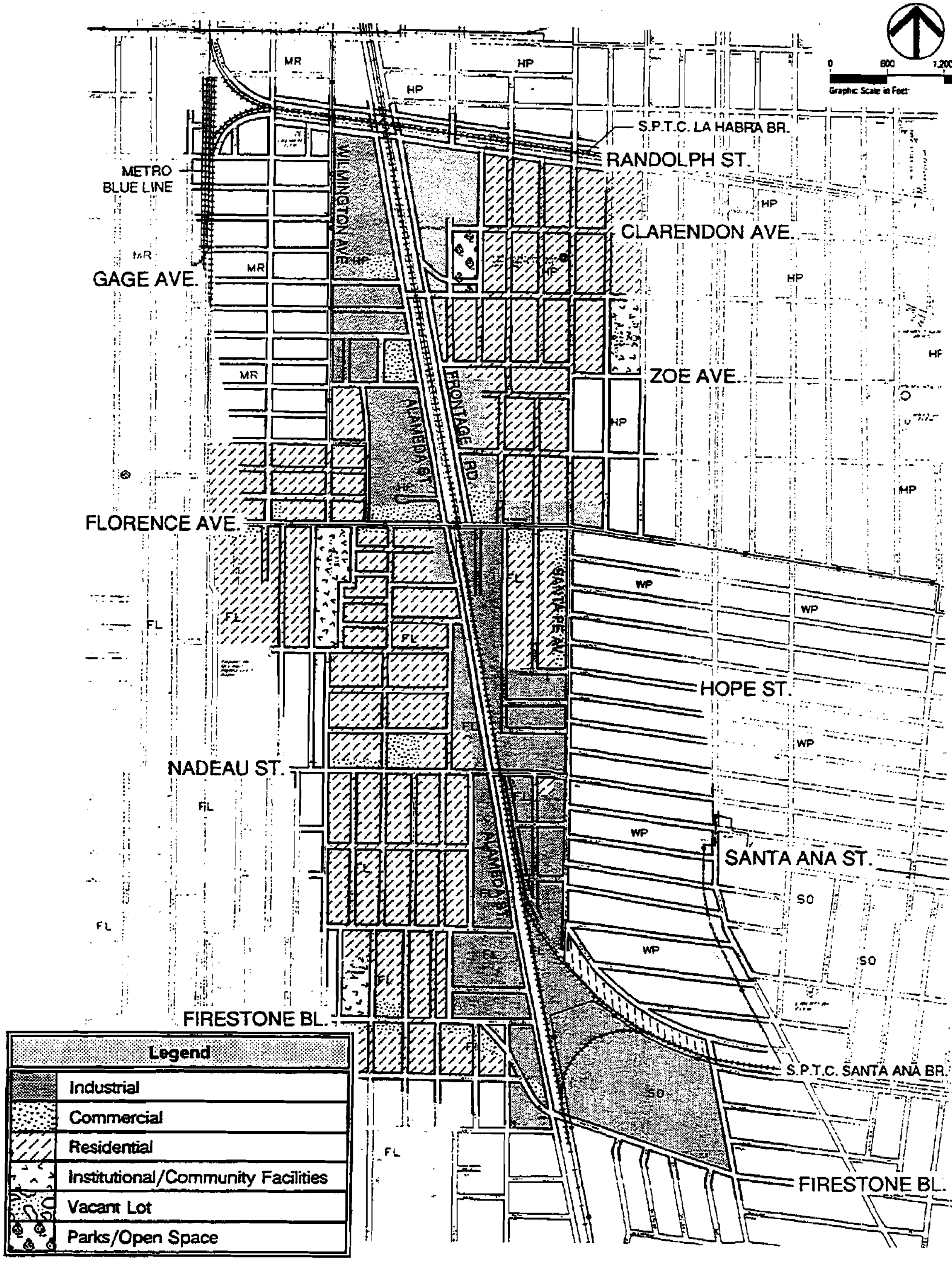
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-1	Existing Land Uses Alameda Corridor - Segment A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



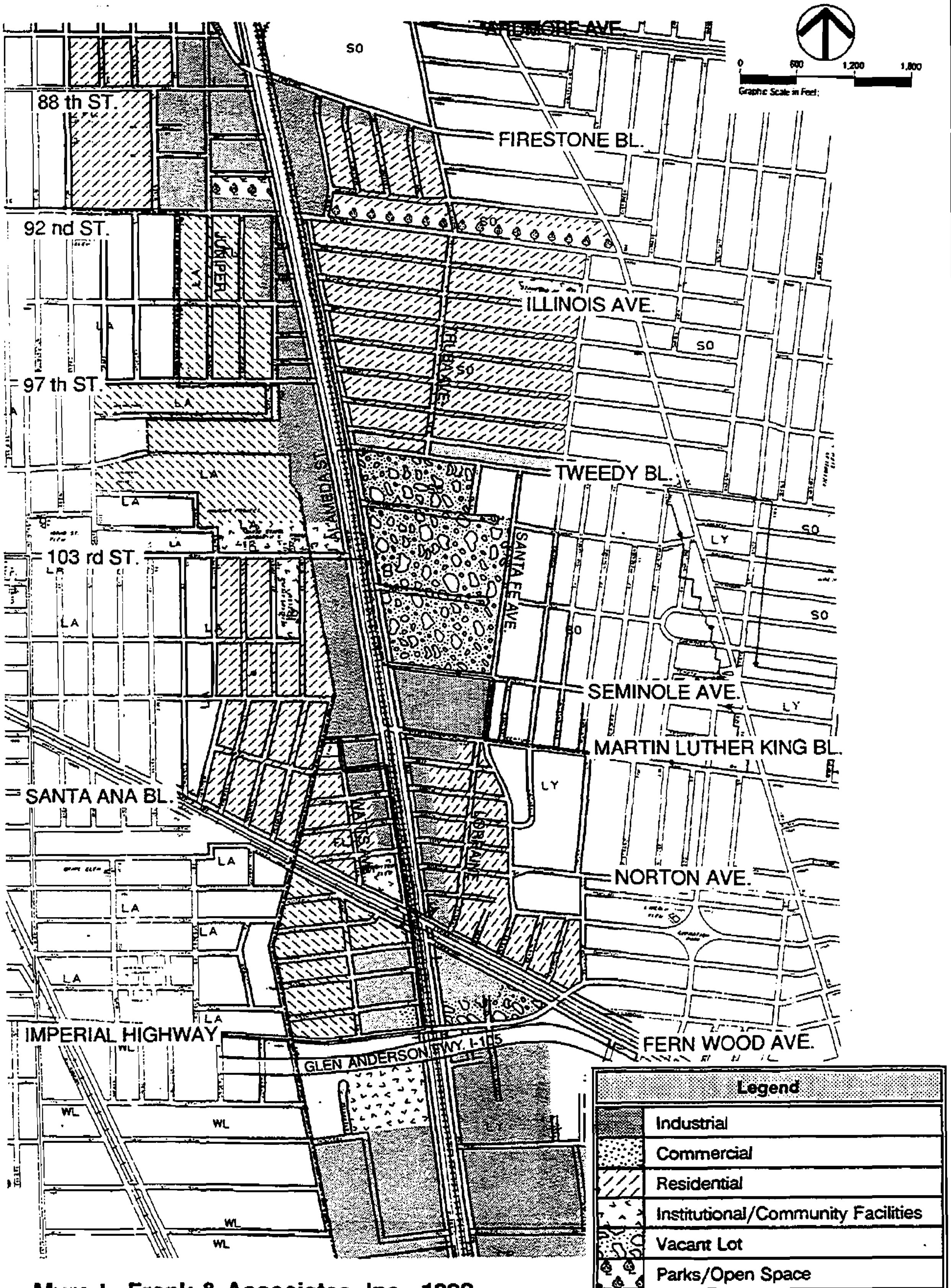
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-2	Existing Land Uses Alameda Corridor-Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



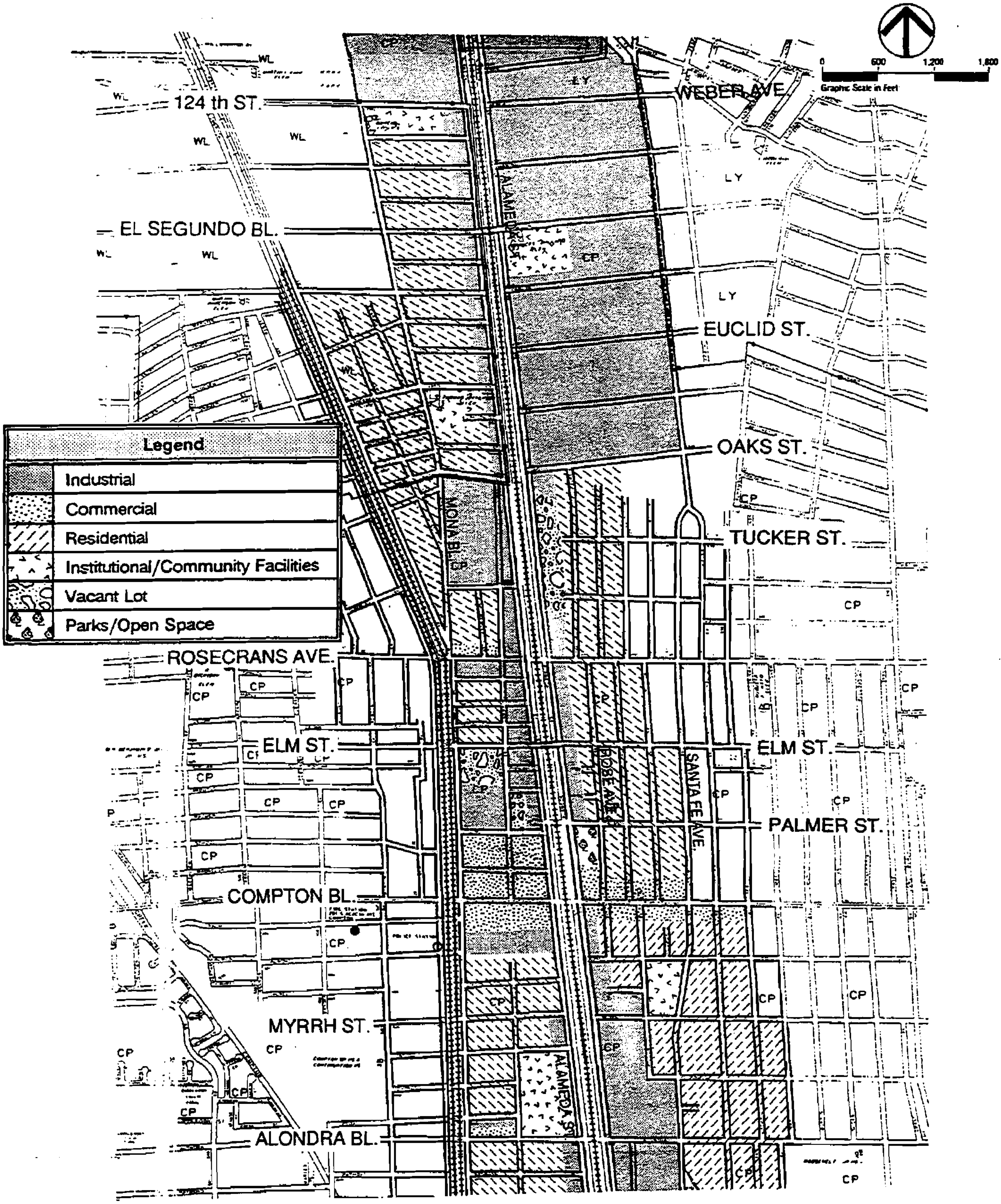
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-3	**Existing Land Uses Alameda Corridor-Segment B2**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



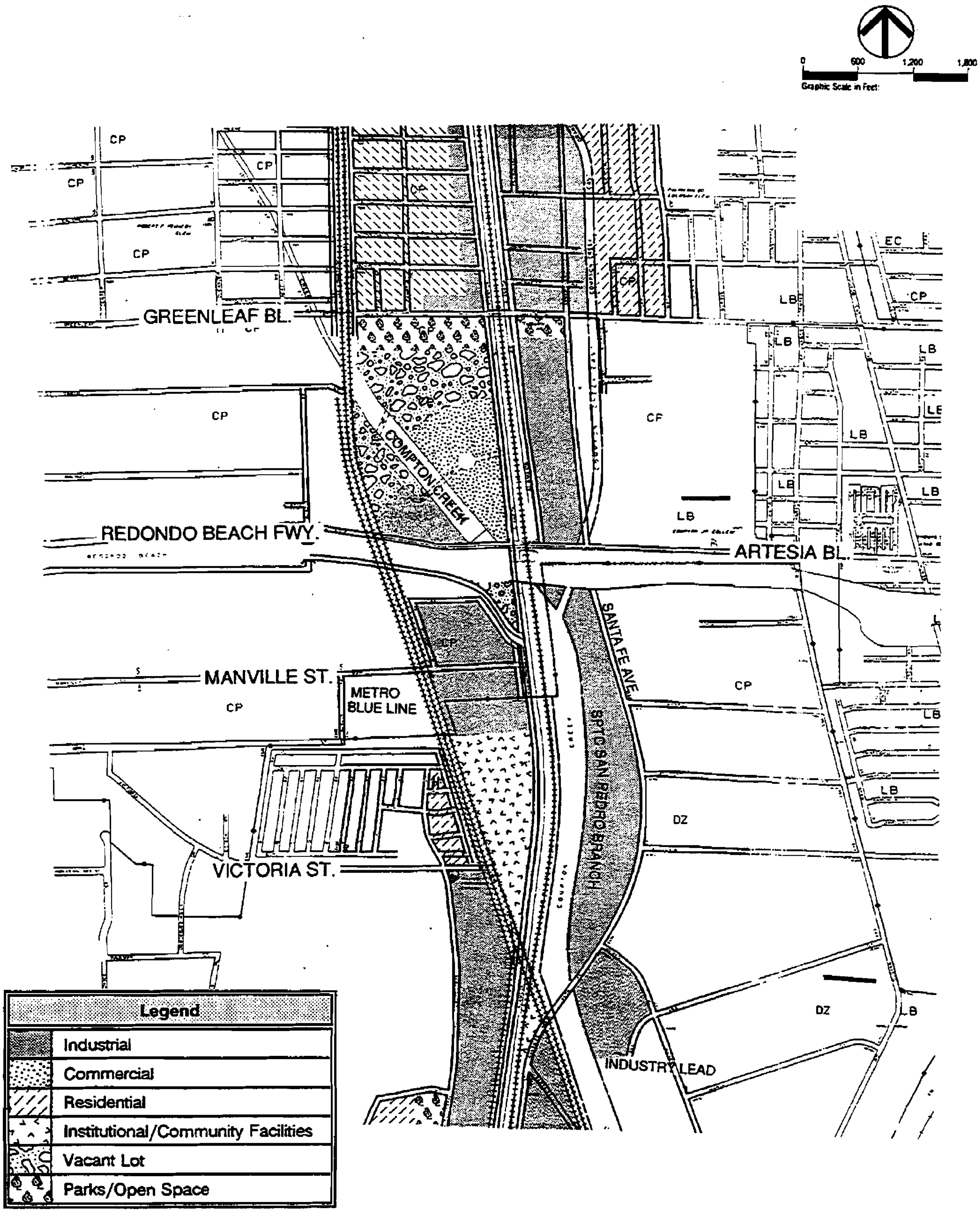
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-4	Existing Land Uses Alameda Corridor-Segment C1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



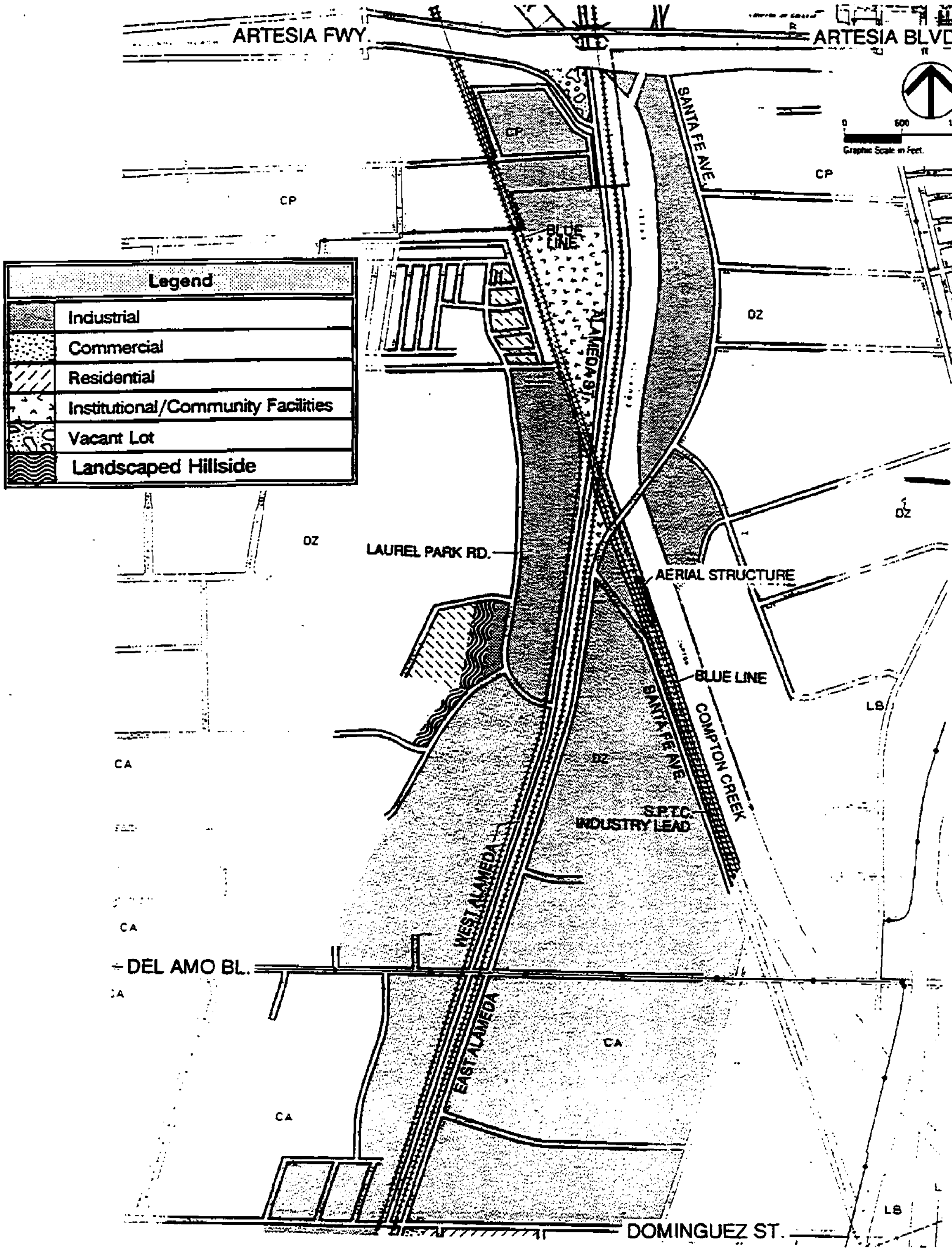
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-5	Existing Land Uses Alameda Corridor-Segment C2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



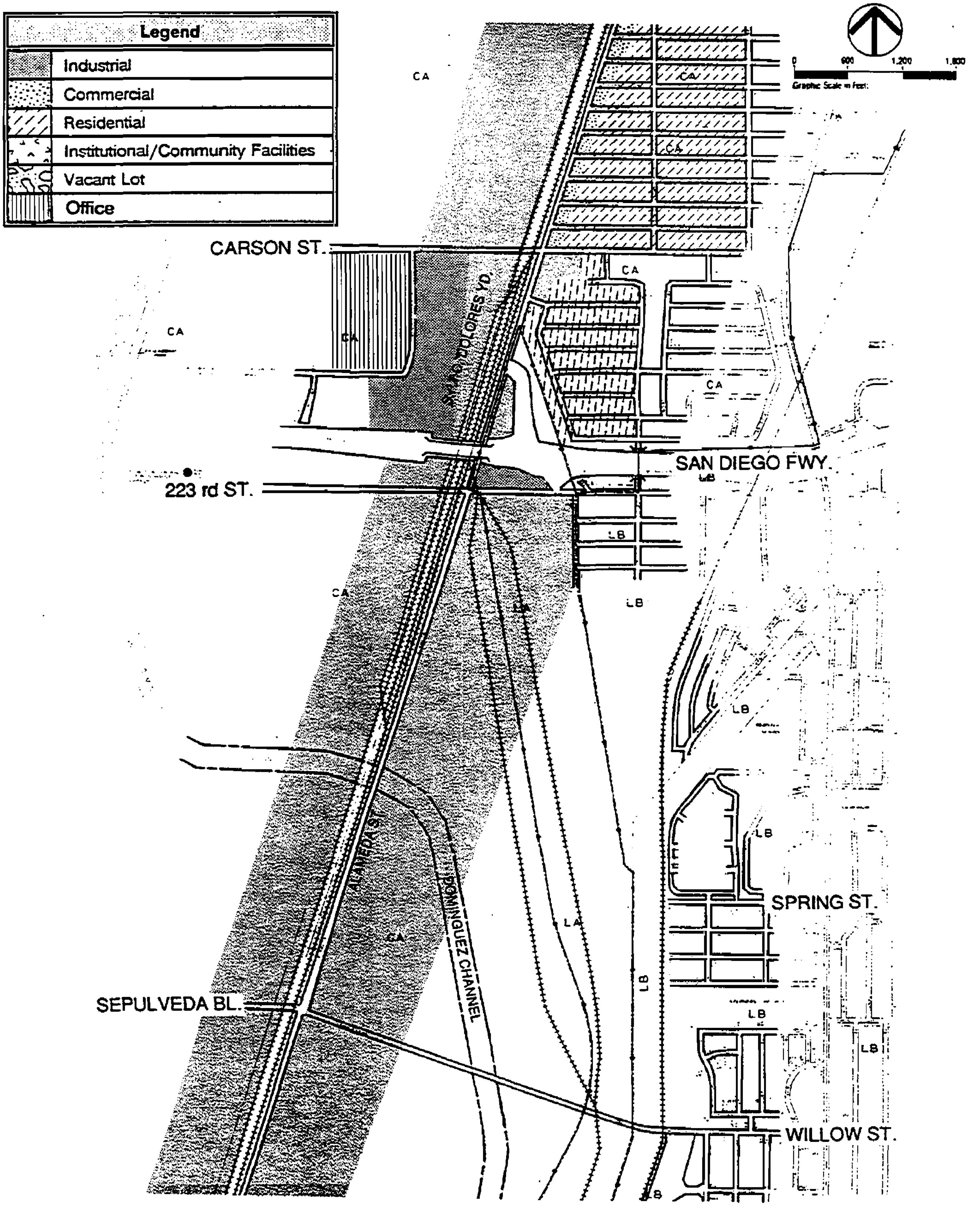
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-6	Existing Land Uses Alameda Corridor-Segment C3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



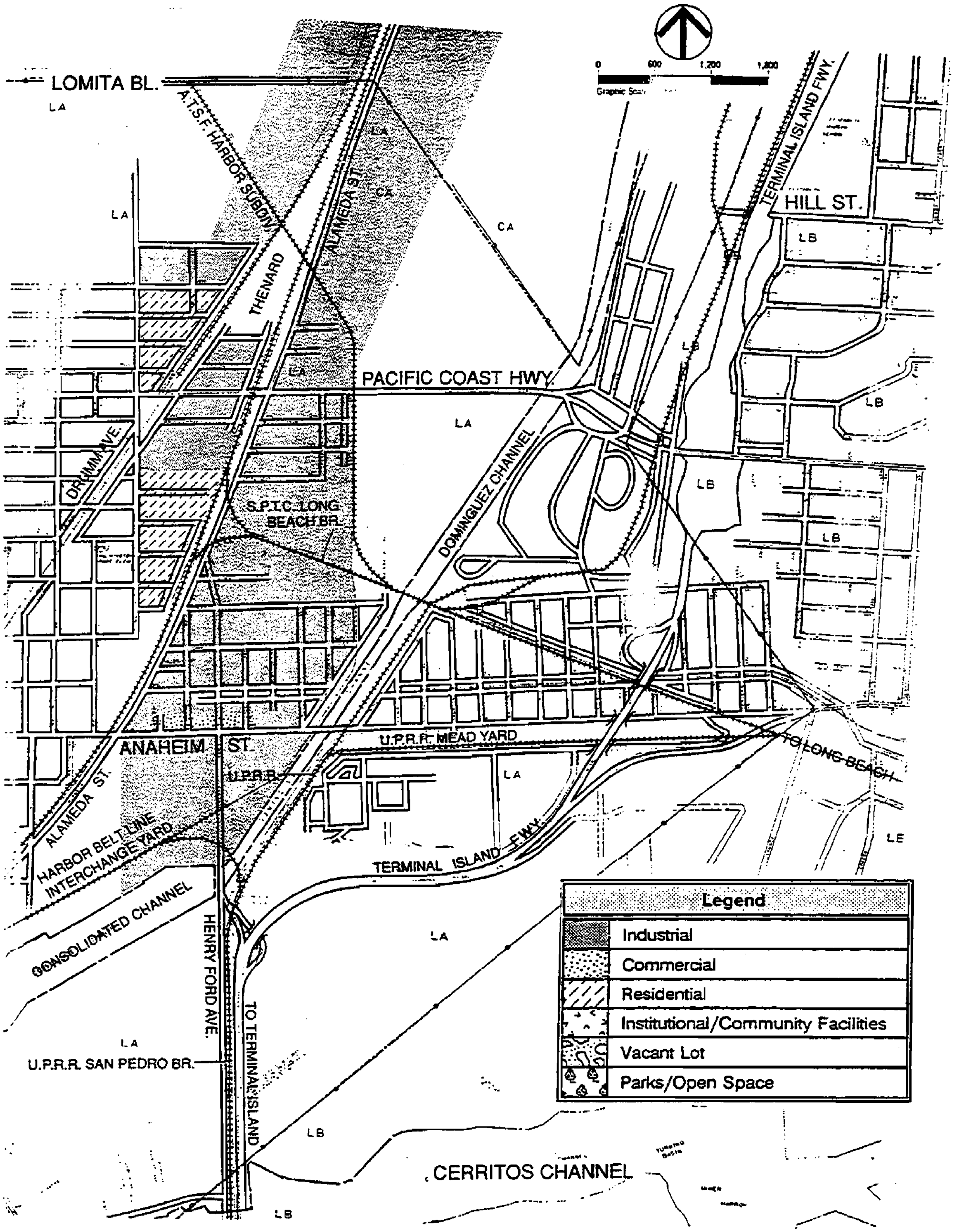
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-7	Existing Land Uses Alameda Corridor-Segment D1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-8	**Existing Land Uses** **Alameda Corridor-Segment D2**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-9	Existing Land Uses Alameda Corridor-Segment D3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

within the Alameda Corridor impact area. Figures 5-10 through 5-18 illustrate the city and county jurisdictions adjacent to the Alameda Corridor.

Segment B1 (25th Street to Randolph Street) [See Figures 5-2 and 5-11]

Segment B1 begins in the vicinity of 24th/25th streets and continues along Alameda Street to the vicinity of Randolph Street. Segment B1 also includes the SP Wilmington Branch that runs along Long Beach Avenue, between 25th Street and Randolph Street. Land on the west side of Alameda Street is contained within the City of Los Angeles, with the exception of two blocks south of Slauson Avenue located in the County of Los Angeles. Land on the east side of Alameda Street is contained within the City of Vernon, with the exception of two blocks south of Slauson Avenue located in Huntington Park.

Along Alameda Street heavy industrial uses predominate on both sides of the Alameda Corridor. On the west side of Alameda Street the Alameda Business Center extends south of 24th Street to Martin Luther King Boulevard. There is an expanse of vacant land bordered by Martin Luther King Boulevard to the north, 41st Street to the south, Alameda Street to the east, and Long Beach Boulevard to the west. Heavy industrial uses comprised of auto repair shops, old industrial buildings, scrap metal shops, and a large area used for swap meets extend south of 41st Street to Randolph Street on the west side of the Alameda Corridor.

Between 41st Place and Vernon Avenue single family residential land uses extend westward from behind industrial uses adjacent to the Alameda Corridor to Long Beach Boulevard. The Pueblo Del Rio Housing Project, a 676 unit multi-family housing project built in the early 1940s, extends from a point south of Vernon Avenue to 55th Street, and continues west of Alameda Street from behind a buffer of heavy industrial uses west to Compton Boulevard. The housing project, which is operated by the City of Los Angeles Housing Authority, provides accommodations for low-income families. Several units of the Pueblo Del Rio Housing Project are located within 200 feet of the Alameda Corridor. The Holmes Avenue Elementary School, located behind a milling plant adjacent to the Alameda Corridor, is surrounded by the Pueblo Del Rio Housing Project.

From south of 25th Street to Randolph Street the east side of Alameda Street is comprised of newer heavy industrial uses occupying large lots. The Liquid Carbonic Company is located on the east side of Alameda Street north of Slauson Street.

On the west side of Long Beach Avenue, predominant land uses include the Southern Pacific railroad tracks, the Metro Blue Line, heavy industrial uses, units of the Pueblo Del Rio Housing Project, neighborhood grocery stores and single-family residential areas north and south of Vernon Avenue. Institutional land uses include the Fred Roberts Park and Recreation Center located west of Long Beach Boulevard between 46th and 43rd streets and the Slauson Recreation Center located between 53rd and 55th streets also on the west side of Long Beach Boulevard.

On the east side of Long Beach Avenue, land uses are defined by large scale heavy industrial uses, the site of a proposed 300-unit condominium, scattered single-family housing, and the Pueblo Del Rio Housing Project. Railroad tracks border Randolph Street.

Segment B2 (Randolph Street to Firestone Boulevard) [See Figures 5-3 and 5-12]

Segment B2 begins in the vicinity of Randolph Street and continues south along Alameda Street to the vicinity of Firestone Boulevard. The Corridor passes through the City of Huntington Park from Slauson Avenue south to Florence Avenue. South of Florence Avenue the project traverses the County of Los Angeles to approximately 85th Street. From 85th Street to Firestone Boulevard, the project is bounded to the east by the City of South Gate and to the west by the County of Los Angeles.

In this segment heavy industrial uses predominate on both sides of the Alameda Corridor, interspersed with regional retail/commercial uses, such as a large BMW/Volkswagen dealership located at the northwest corner of Gage Avenue and Alameda Street and the Huntington Park Casino located in the northwest corner of Alameda Street and 67th Street. Industrial uses west of the Alameda Corridor are typically comprised of older small-lot salvage yards and auto repair facilities. Industrial uses east of the Alameda Corridor consist of large scale newer industrial and warehousing facilities surrounded by at-grade parking facilities. Local commercial and retail land uses such as family restaurants, ethnic grocery stores, mini-malls and gas stations extend on both sides of the Alameda Corridor along Florence Avenue, Nadeau Street, and Firestone Boulevard.

Between Randolph and Nadeau streets single-family residential land uses extend east and west behind blocks of large industrial uses adjacent to the corridor.

Segment C (Firestone Boulevard to SR-91 Freeway) [See Figures 5-4, 5, 6, 13, 14 and 15]

Segment C begins in the vicinity of Firestone Boulevard and extends along Alameda Street to the vicinity of the Artesia Freeway (SR-91). In this segment, the corridor passes through the cities of South Gate, Lynwood, and Compton, as well as the County of Los Angeles.

Within this segment, heavy industrial land uses extend from Firestone Boulevard to 124th Street on the west side of Alameda Street. Exceptions to these industrial uses include single-family residential areas west of Alameda Street which are concentrated north and south of El Segundo Boulevard, between Rosecrans Avenue and Compton Boulevard, and between Alondra and Greenleaf Boulevards. On the west side of Alameda Street commercial flower garden plots are located between 90th and 92nd streets, Jordan High School is located above the northwest corner of 103rd Street and Alameda Street, and Ritter School is located at the northwest corner of Santa Ana Boulevard and Alameda Street. The west side of Alameda Street between 124th and Myrrh streets is bordered by older heavy industrial land uses including auto repair shops and salvage yards. The Lynwood Justice Center is an institutional use under construction located immediately south of Imperial Highway, adjacent to the west side of the Alameda Corridor. Local and regional commercial uses such as shopping centers, fast food restaurants, and grocery stores cluster around intersections at Compton and Alondra Boulevards. A large auto plaza mall is located north of SR-91, adjacent to the west side of Alameda Street.

The east side of Alameda Street between Firestone Boulevard and Oaks Street is bordered by heavy industrial uses such as salvage yards and auto repair lots. Vacant land formerly occupied by the General Motors plant is located at the southeast corner of Tweedy Boulevard and Alameda Street. Between Oaks Street and a point north of Rosecrans Boulevard an area of vacant land approximately 250-300 feet wide buffers single-family residential uses. East of Alameda Street single-family residential land uses are concentrated between Firestone Boulevard and the I-105 (Century) Freeway; and between a point south of El Segundo Boulevard extending to a point south of Compton Boulevard. The Veterans of Foreign Wars center and Wilson Park comprise public institutional land uses located adjacent to the east side of Alameda Street from a point north of Palmer Street to Compton Boulevard. The east side of Alameda Street between a point north of Rosecrans Avenue and SR-91 is bordered by heavy industrial uses and some vacant land.

<u>Segment D (SR-91 Freeway to Cerritos Channel)</u> [See Figures 5-7, 8, 9, 16 and 18]

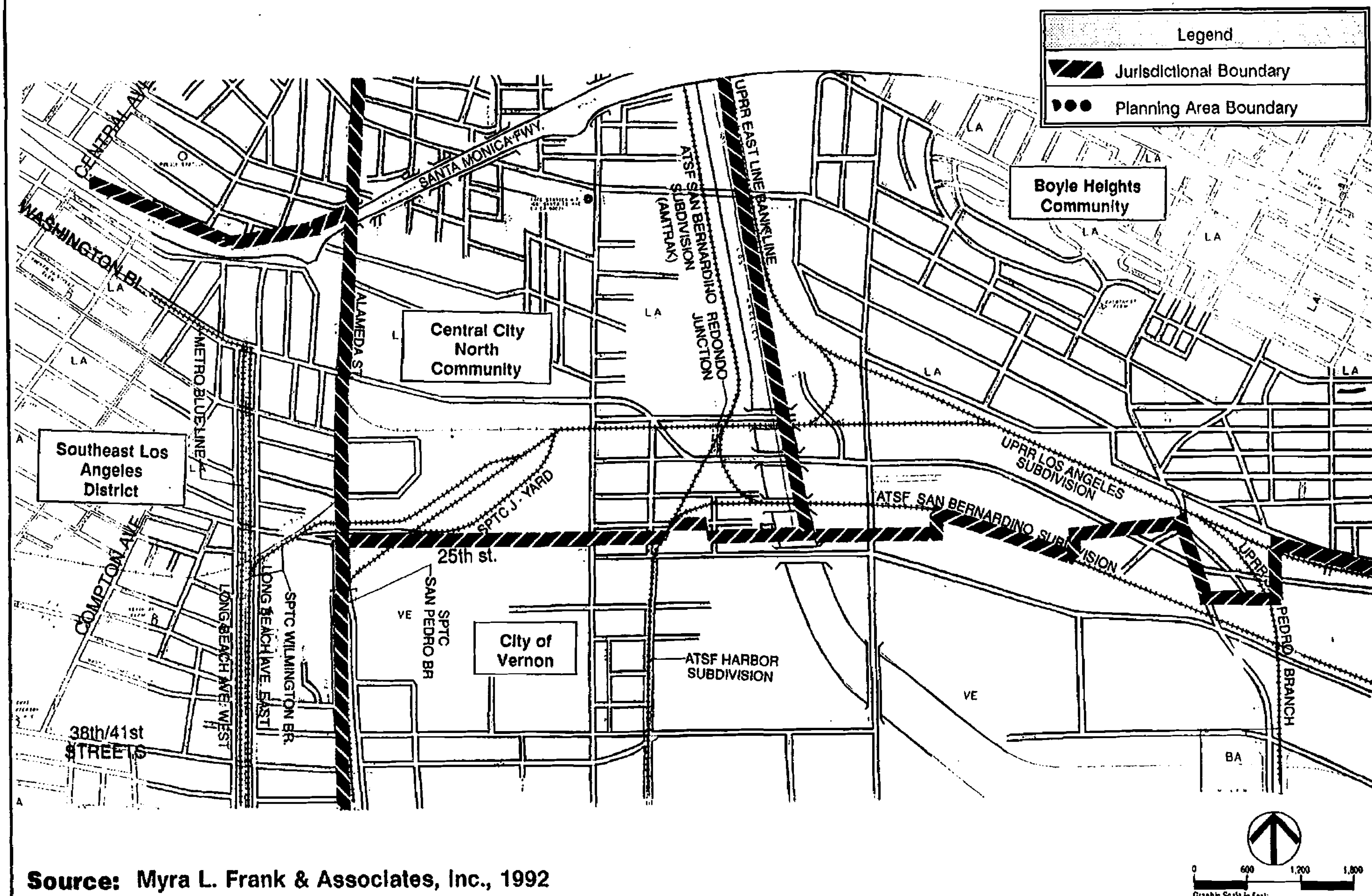
Segment D begins in the vicinity of SR-91 and extends to the southern end of the project, at the north side of the Cerritos Channel along Henry Ford Avenue. From SR-91 to Manville Street the Alameda Corridor passes through the City of Compton, and proceeds southward through the County of Los Angeles to Del Amo Boulevard. Alameda Street traverses the City of Carson from Del Amo Boulevard to Lomita Boulevard, with the exception of a portion of the Corridor east of Alameda Street which borders on the Wilmington-Harbor Community between 219th Street to Wardlow Road. From Lomita Boulevard to the Cerritos Channel the project is entirely contained within the Wilmington-Harbor Community in the City of Los Angeles.

On the west side of Alameda Street between SR-91 and Laurel Park Road the predominant land uses are comprised of large-scale industrial parks, such as the Homestead Place Industrial Park and a landscaped industrial park along Laurel Park Drive. Industrial uses in this segment date almost entirely from the post-war period and are in sound condition. The Dominguez Seminary, a Claretian mission encompassing 17 acres, is located adjacent to the west side of Alameda Street south of SR-91.

Continuing southward, a DWP substation is located adjacent to the west side of Alameda Street north of the junction of Alameda Street and Willowbrook Avenue. The west side of Alameda Street between Laurel Park Road and Sepulveda Boulevard is comprised of heavy industrial uses, such as industrial parks, oil tanks and refineries. South of Sepulveda Boulevard to Henry Ford Avenue, industrial uses west of Alameda Street transition from large-scale heavy industrial to small-lot salvage yards backed by single-family residential neighborhoods. Single- and multi-family residential land uses abut the junction of Alameda Street and Henry Ford Avenue.

On the east side of Alameda Street between SR-91 and Dominguez Street, land uses are comprised of heavy industrial uses such as industrial parks and warehouse facilities in sound condition. From Dominguez Street to Carson Street, land uses transition on the east side of Alameda Street from large scale to small-lot industrial uses backed by single-family residential uses. South of Carson Street, heavy industrial uses comprised of oil tank and railroad related land uses predominate on the east side of Alameda Street. A single-family residential area abuts the east side of the corridor in the vicinity of Carson Street. A large private shooting range is located adjacent to the east side of the corridor south of the I-405 Freeway.

From Henry Ford Avenue to south of the Terminal Island Freeway (SR-47) heavy industrial land uses comprised of oil pump and refining facilities, boat repair yards, and salvage lots predominate on both sides of Alameda Street. A recreational marina is in the Cerritos Channel.

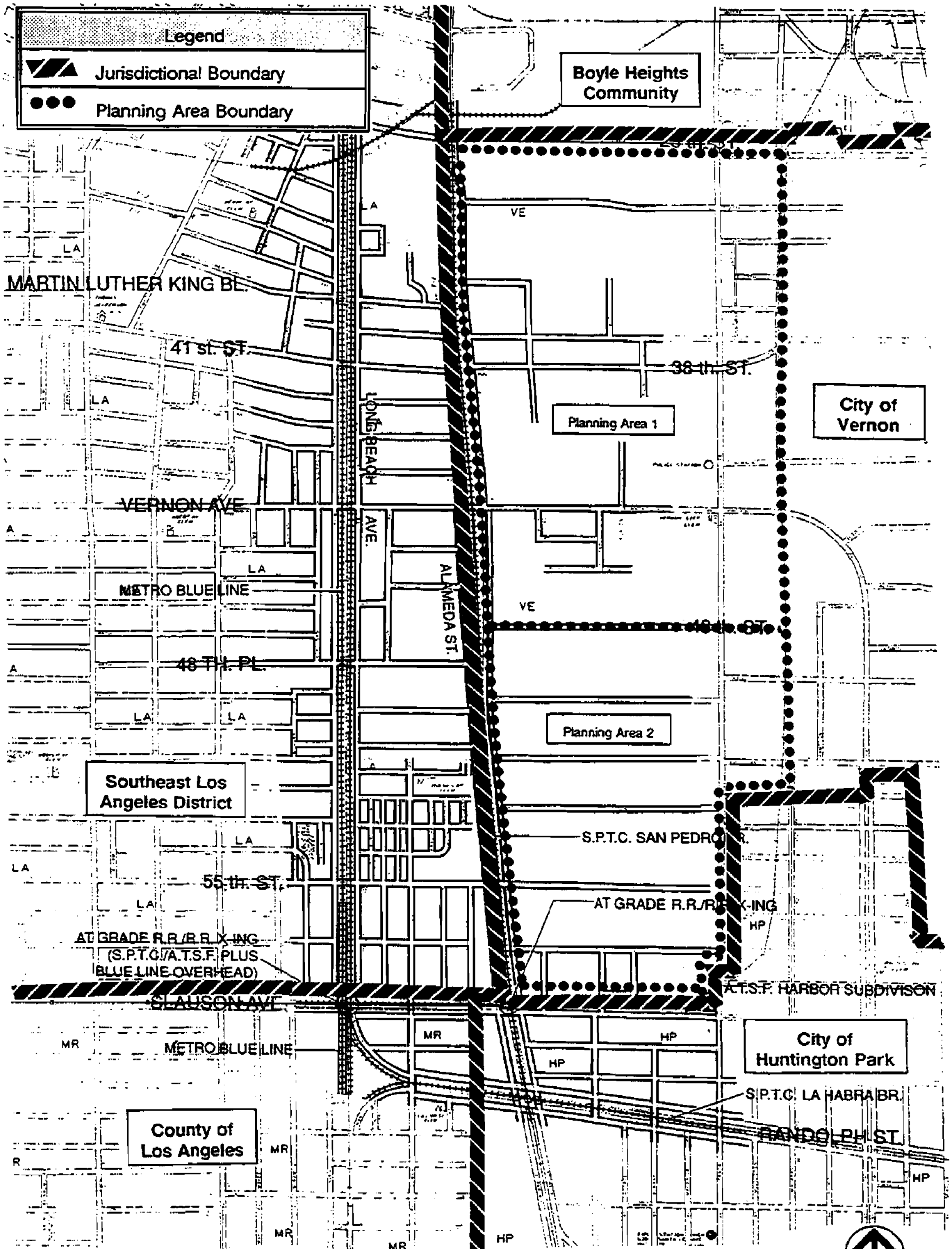


Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-10

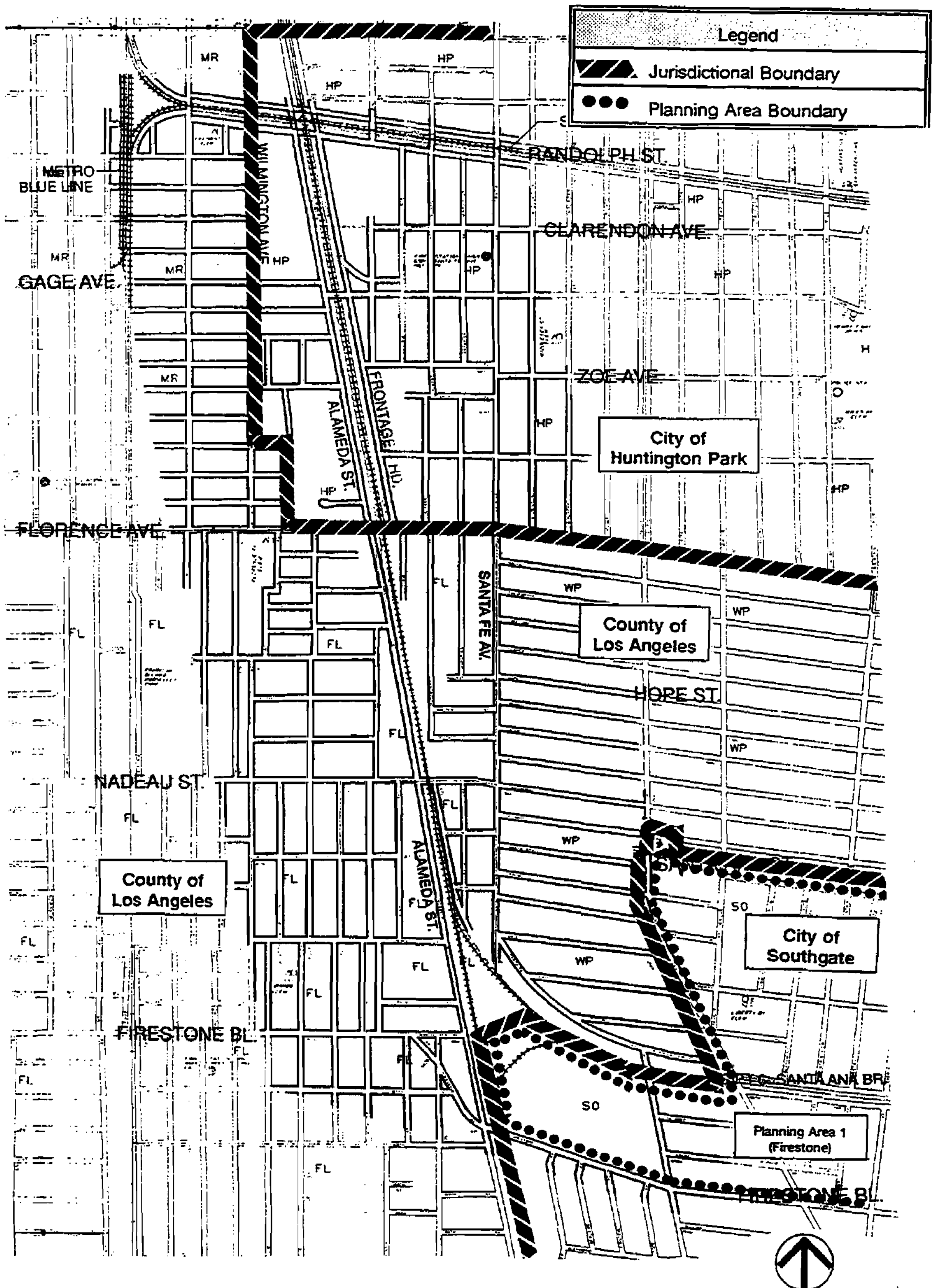
Jurisdictional and Planning Area Boundaries
Alameda Corridor - Segment A

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



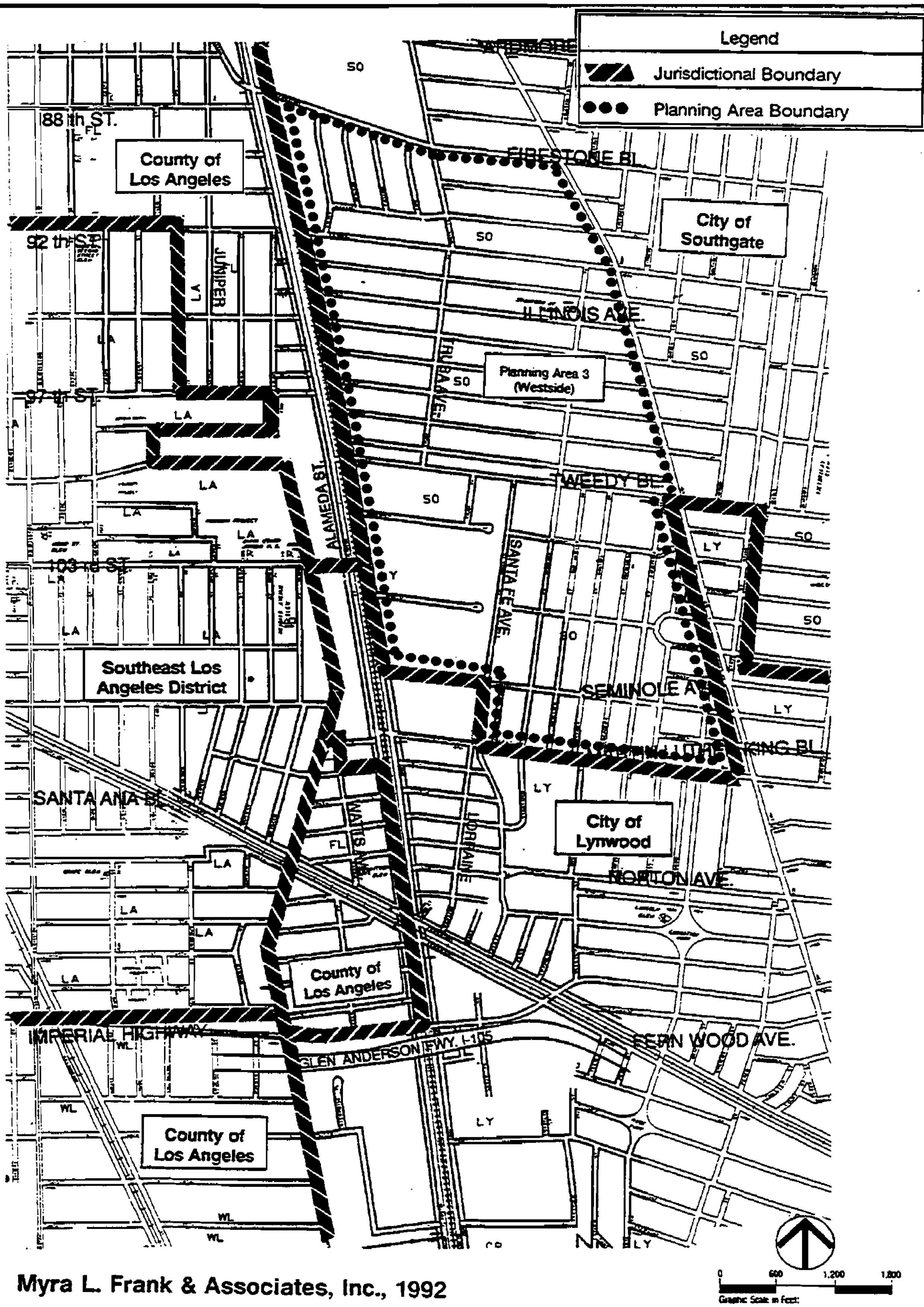
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-11	Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



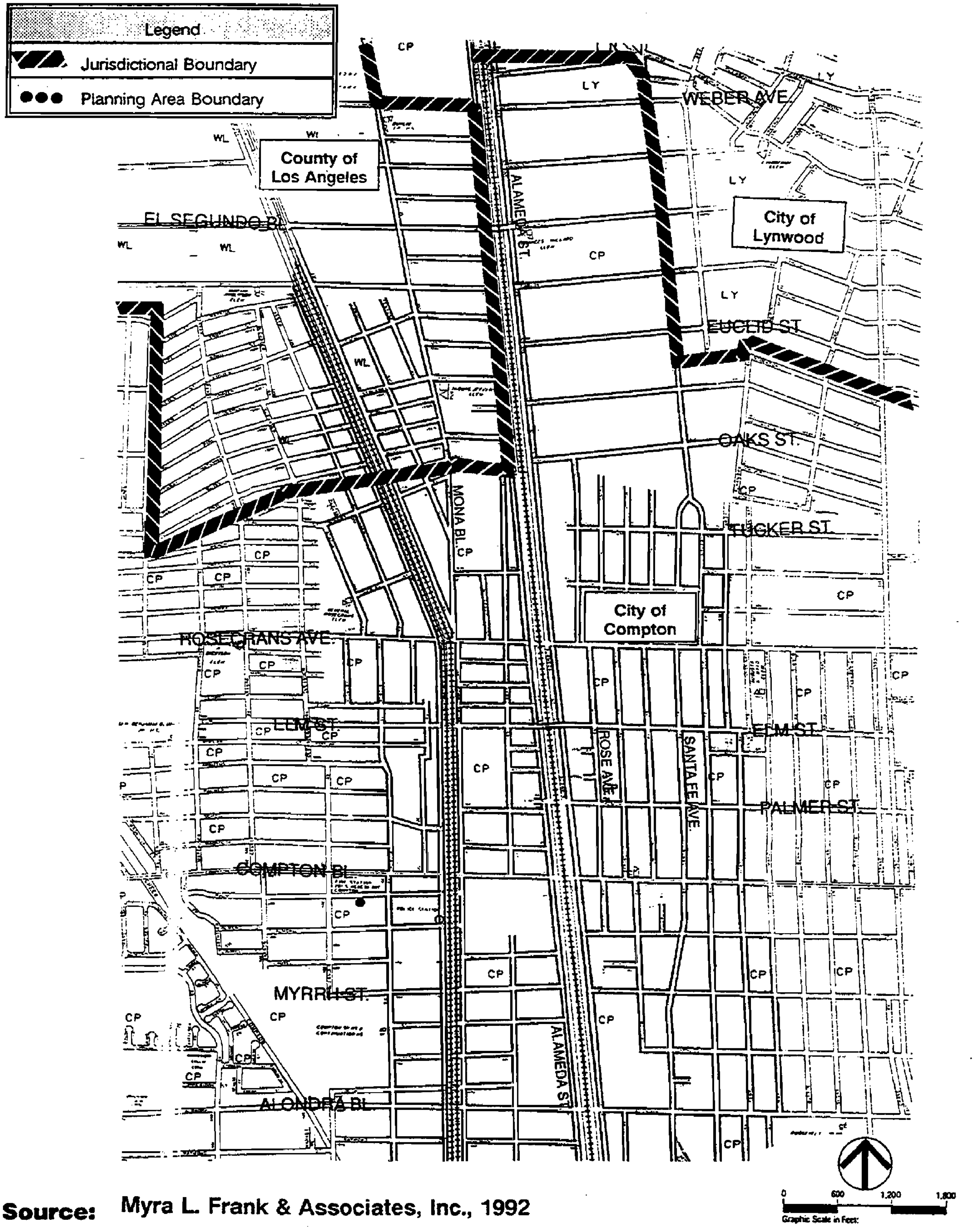
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-12	Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment B2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



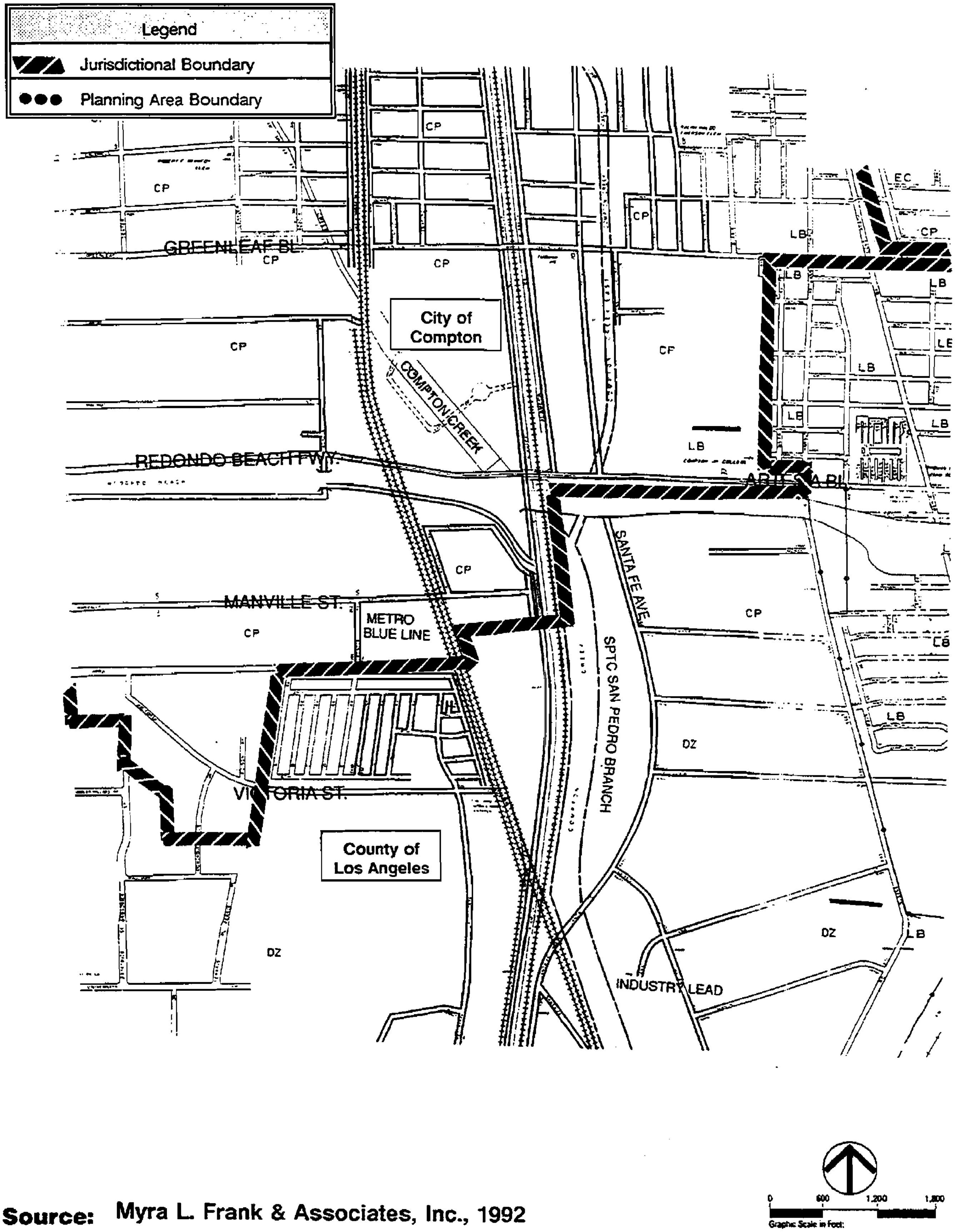
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-13	Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment C1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



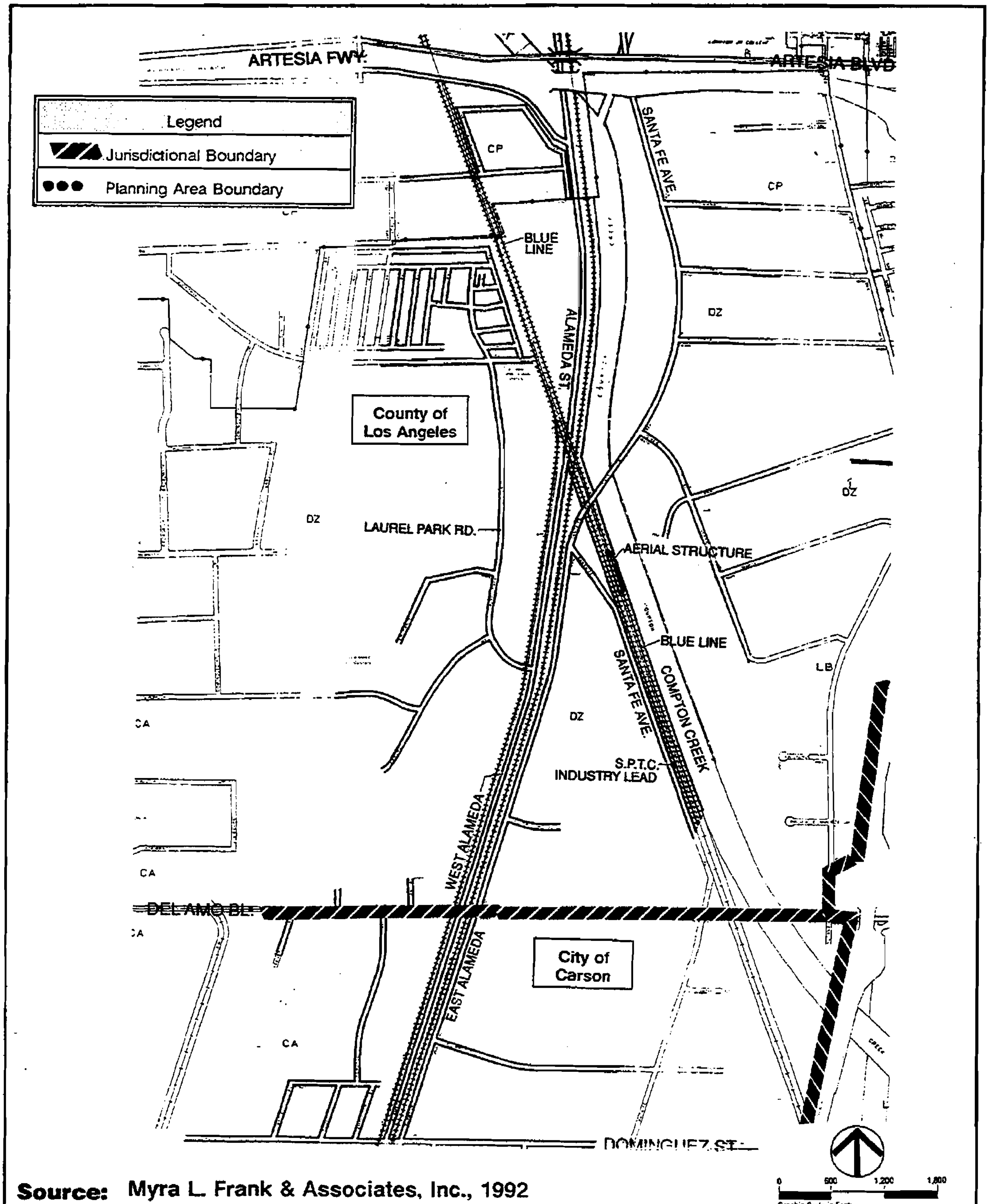
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-14	Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment C2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



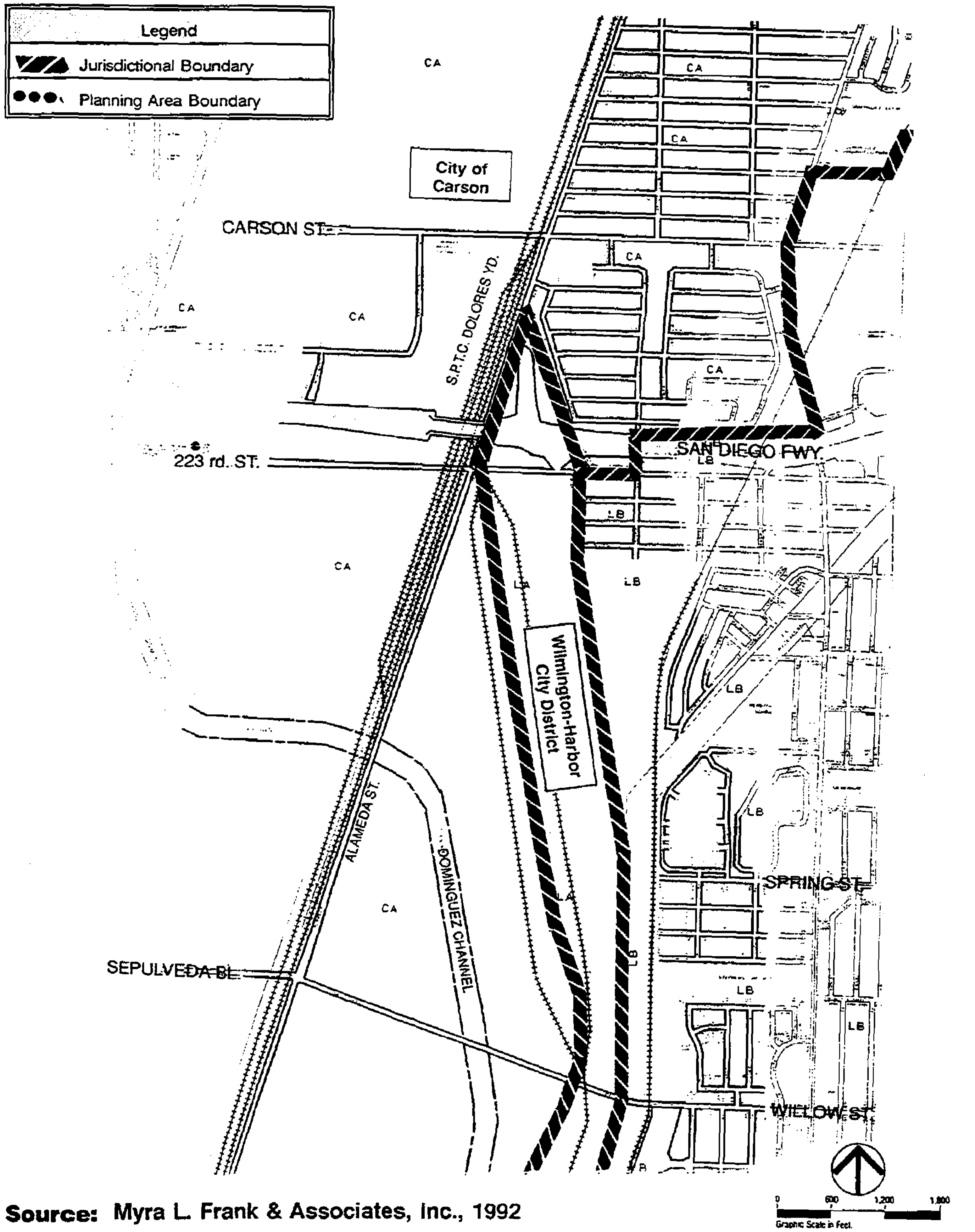
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-15	Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment C3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



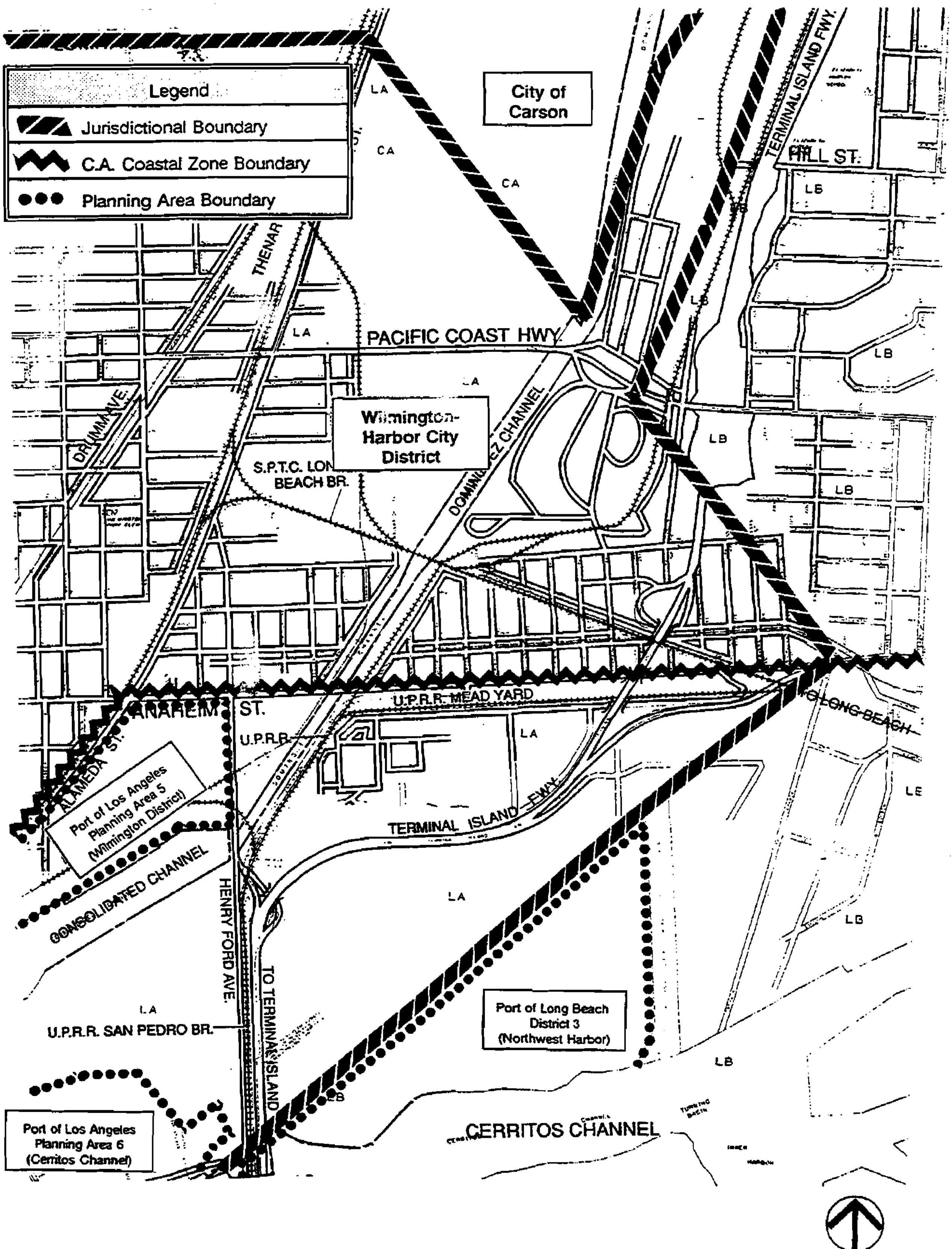
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-16	Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment D1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-17	Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment D2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-18	**Jurisdictional and Planning Area Boundaries: Alameda Corridor - Segment D3**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

5.1.2 General Plan and Redevelopment Project Summaries

The Alameda Corridor traverses or is adjacent to the cities of Los Angeles, Vernon, Huntington Park, South Gate, Lynwood, Compton, and Carson, as well as portions of the County of Los Angeles. The General Plan of each jurisdiction serves as a policy document describing in broad terms the type and distribution of land uses necessary to support a projected population usually within a twenty-year planning horizon. General Plans typically contain: (1) goals and objectives which establish the framework of desired land uses within specified planning areas in the city and (2) programs intended to achieve those goals in the short and long term.

This section examines the General Plans of each jurisdiction affected by the Alameda Corridor project, focussing on those policy goals and programs which are pertinent to the land use impact area. Figures 5-19 through 5-23 show municipal planning area boundaries and redevelopment project areas of affected jurisdictions, respectively.

<u>City of Los Angeles</u>

The City of Los Angeles is comprised of 35 District Planning Areas. Within each District Plan Area the City of Los Angeles establishes goals regarding the long term intensity and mix of desired land uses. District Plan Areas adjacent to the Alameda Corridor include Boyle Heights, Southeast Los Angeles, Central City North, and Wilmington-Harbor.

- Boyle Heights Community Plan

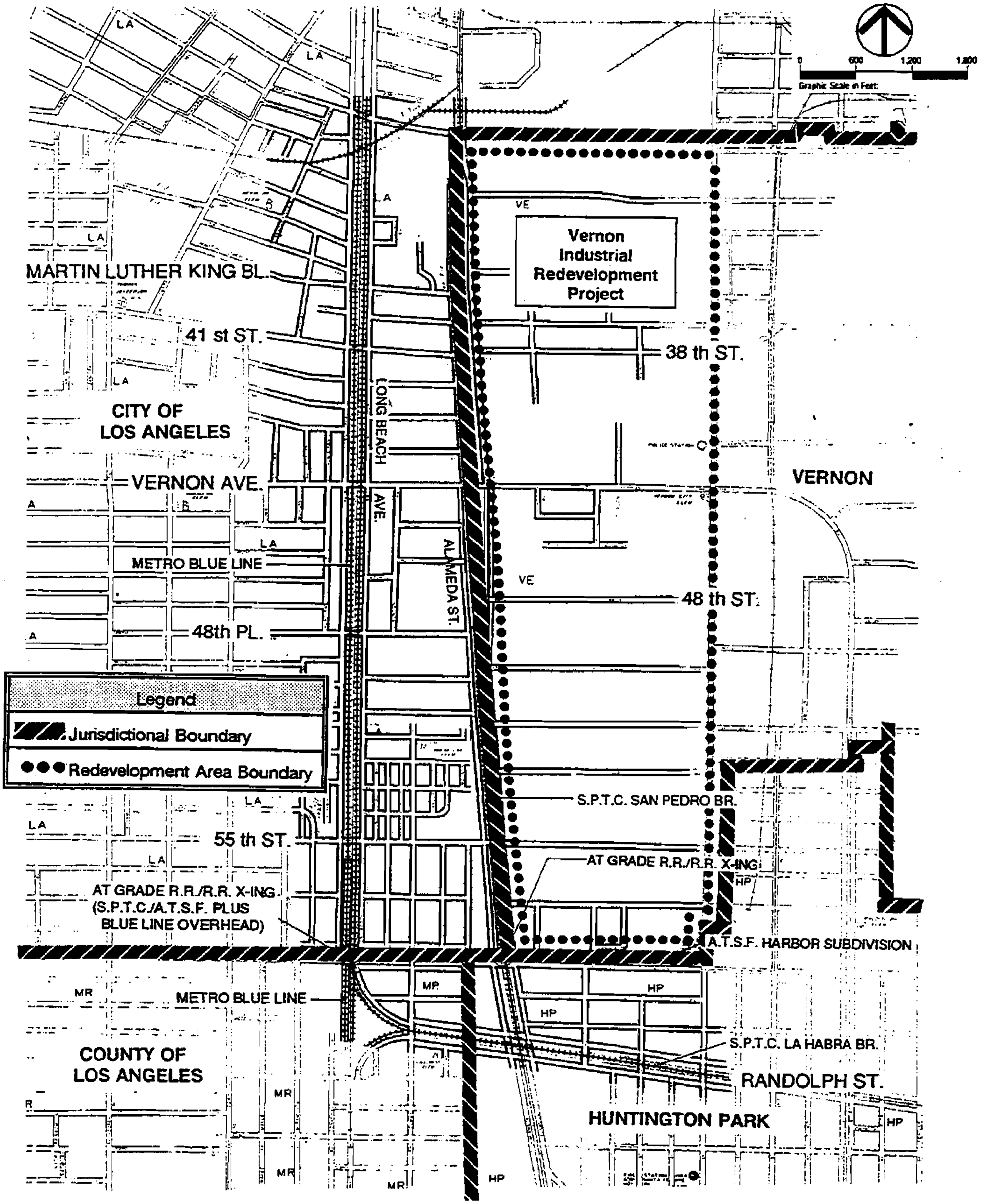
The Boyle Heights Community Plan was adopted by the Los Angeles City Council on August 14, 1979. Containing 3,842 acres, sufficient to support a projected population of 83,000 inhabitants, the Boyle Heights Community is bounded by Marengo Street and the San Bernardino Freeway on the north, the City of Los Angeles boundary at approximately 25th Street on the south, the City of Los Angeles boundary at Indiana Street on the east, and the Los Angeles River on the west.

The major goals of the Boyle Heights Community Plan are to conserve the area as a residential community and to improve the quality of its service systems and public facilities.

The Boyle Heights Community Plan designates land east of the Los Angeles River from the southern portion of the plan area to Mission Street as Heavy Industry. A major goal of the Boyle Heights Community Plan is to preserve designated industrial lands for industrial uses and to improve the quality of industrial development while protecting the amenities of adjacent areas.

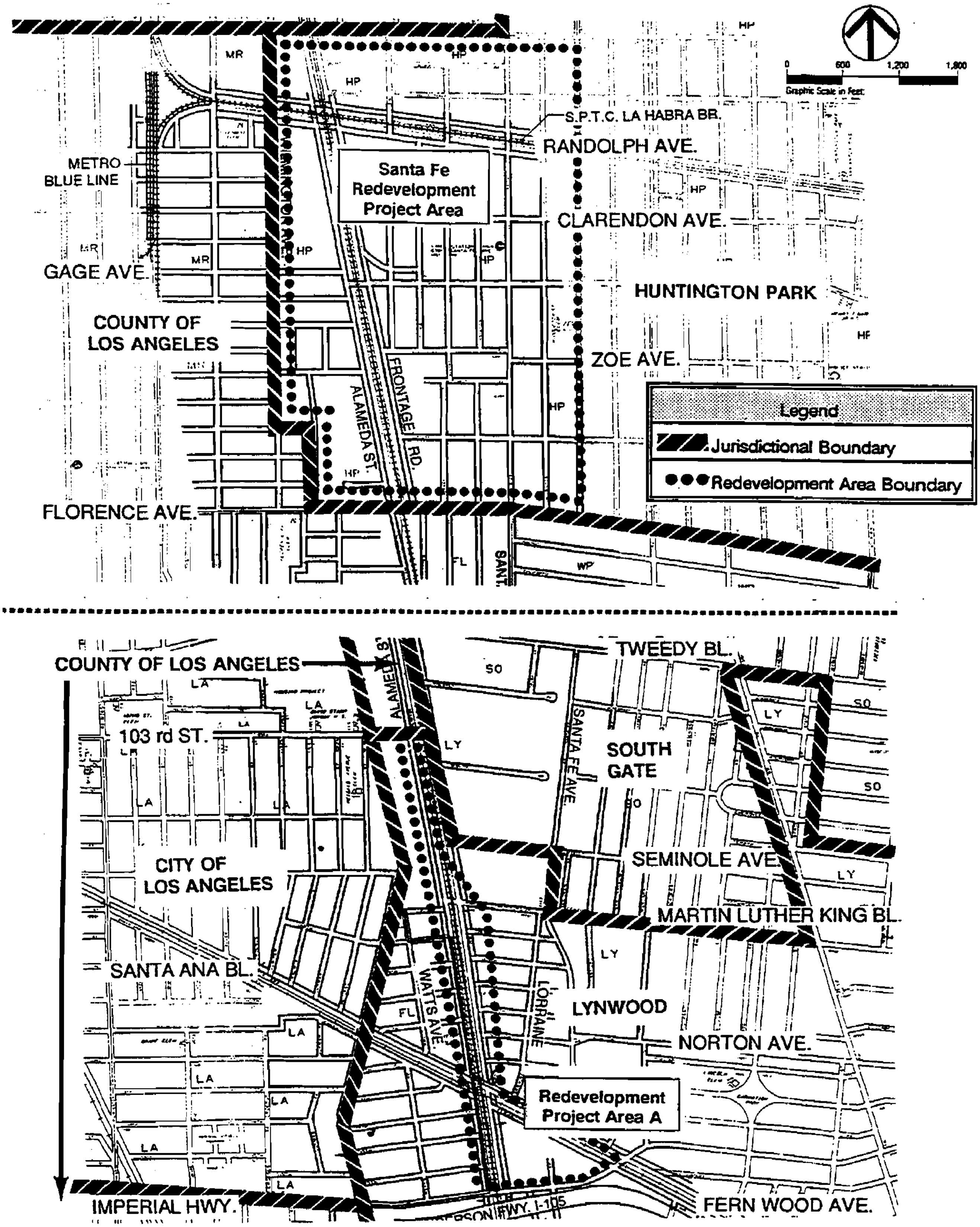
- Southeast Los Angeles District Plan

The Southeast Los Angeles District Plan was adopted by the Los Angeles City Council on January, 1980. The Southeast Los Angeles District Plan contains the communities of Central, Avalon, Green Meadows, and Watts. The Watts Community is bounded by 92nd Street to the north, the Century Freeway (I-105) to the south, and the County of Los Angeles to the east. The District has an area of 9,430 acres and a projected population of 190,000 residents. In the



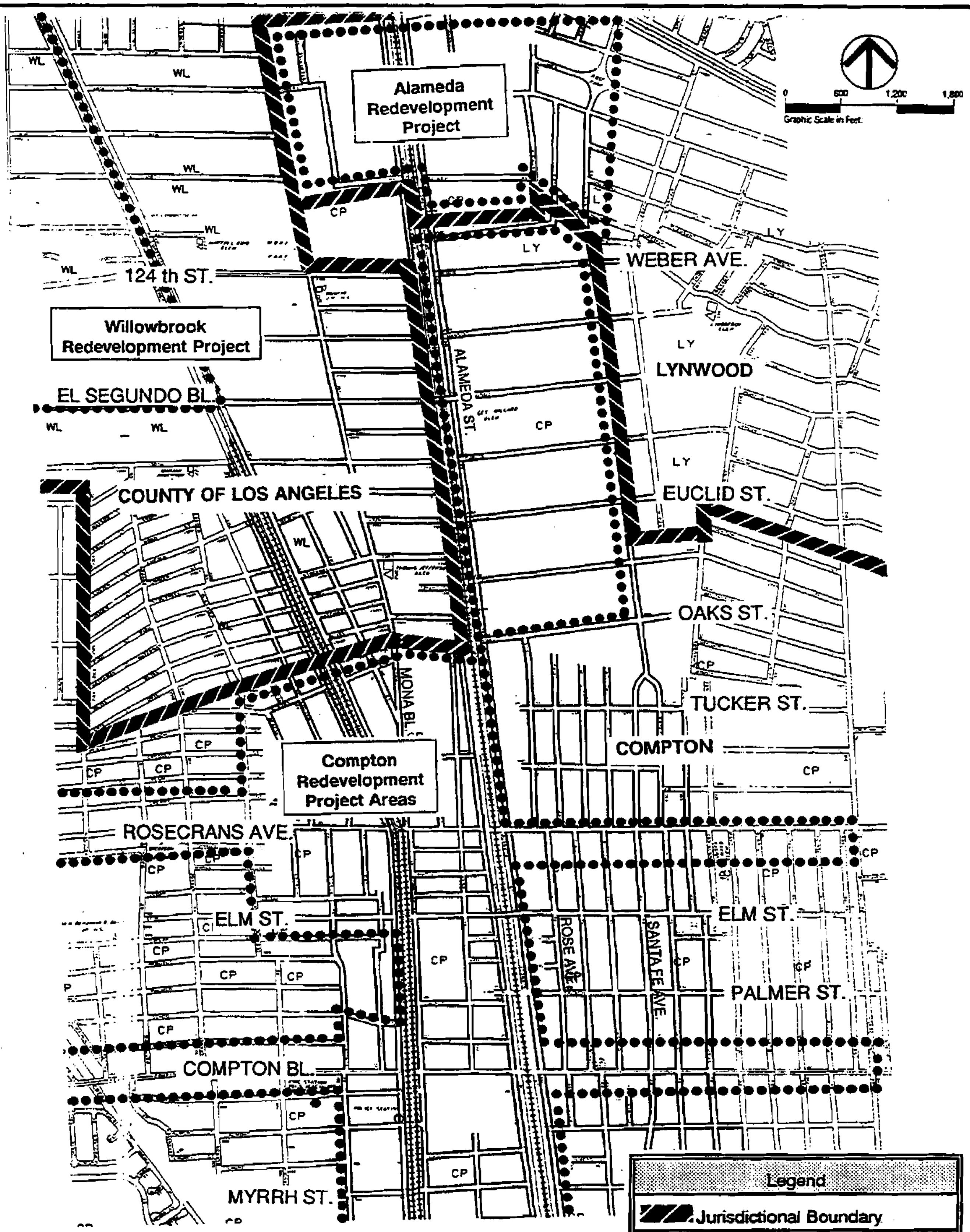
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-19	Redevelopment Project Boundaries Alameda Corridor - Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



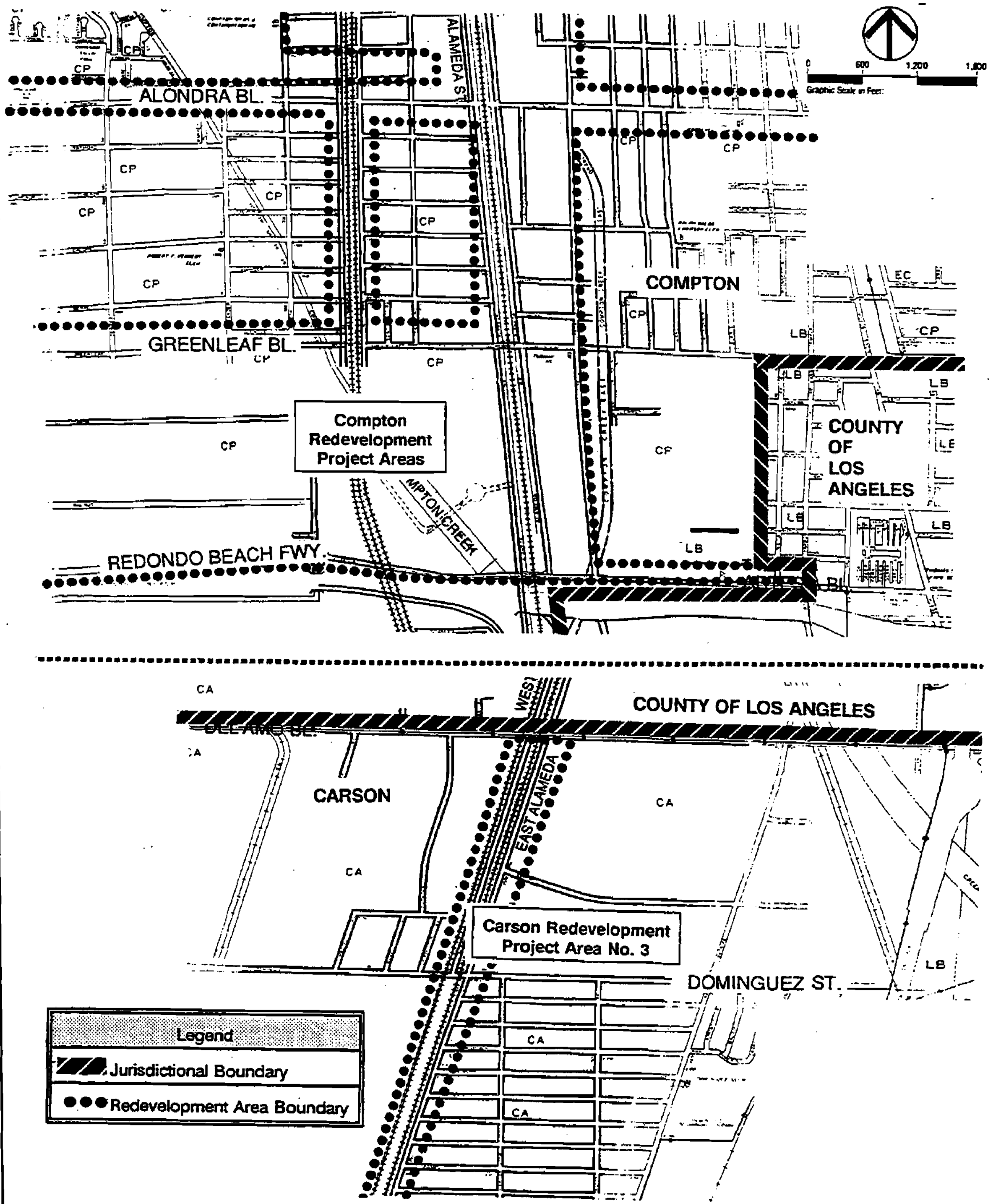
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-20	Redevelopment Project Boundaries Alameda Corridor - Segment B2 & C1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



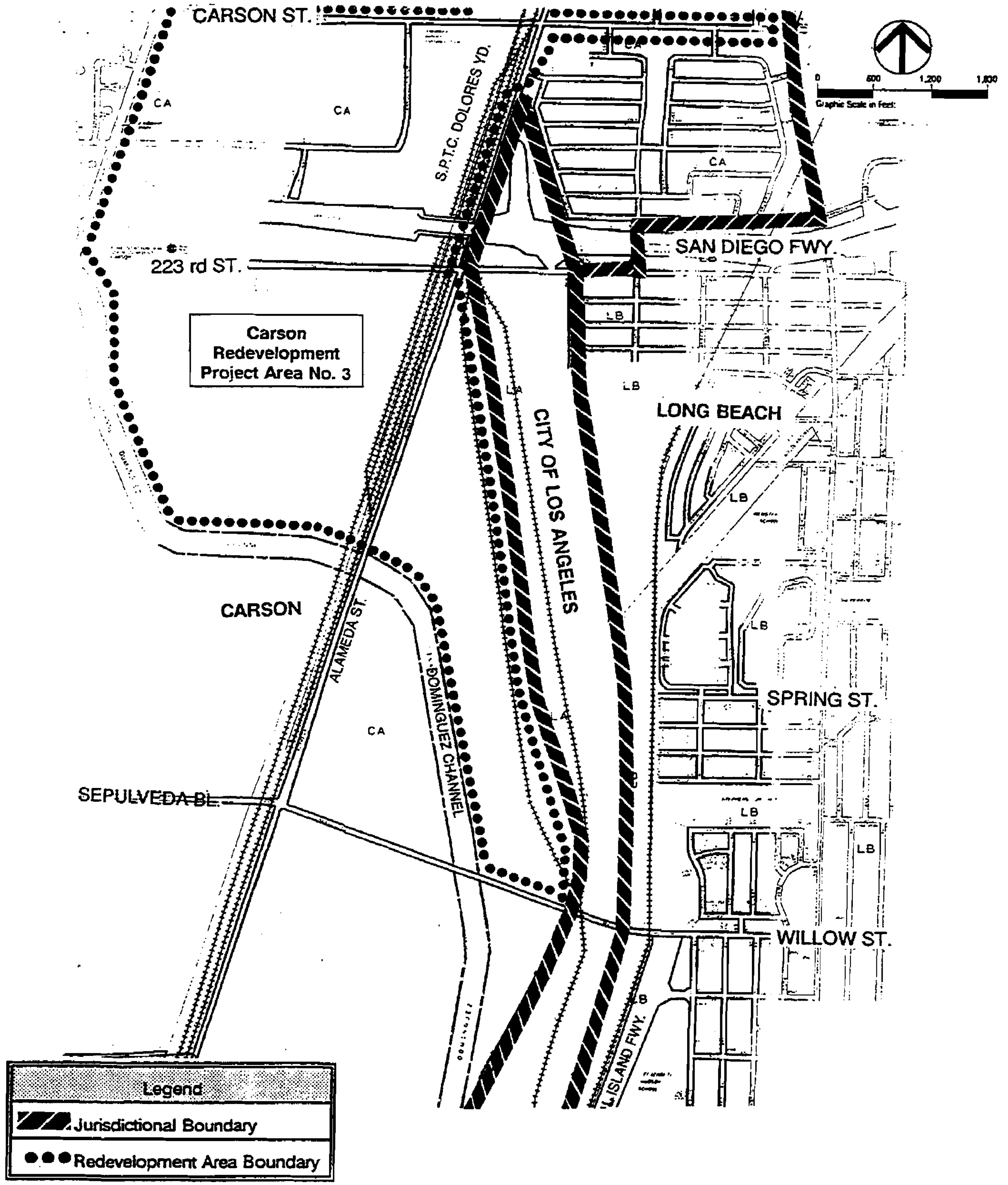
Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-21	Redevelopment Project Boundaries Alameda Corridor - Segment C2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-22	Redevelopment Project Boundaries Alameda Corridor - Segment C1, C2 D1 & D2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

FIGURE 5-23	Redevelopment Project Boundaries Alameda Corridor - Segment D2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

northern part of the District Plan area land west of Alameda Street is designated as Light and Heavy Industry. In the southern portion, land west of Alameda Street is designated as Housing (Low and Medium) and Public.

It is the City's policy to protect, consolidate and improve existing industrially zoned areas for industrial purposes; encourage improvement of the appearance, attractiveness and image of industrial areas; and demolish industrial structures that have deteriorated to a condition of disrepair and are structurally unsafe. With regards to residential areas in the District Plan area, the City seeks to preserve stable neighborhoods; separate residential and industrial uses; encourage the maintenance and improvement of existing structurally sound housing; and encourage the utilization of vacant lots for the construction of new housing units.

- Central City North Community Plan

The Central City North Community Plan was adopted by the Los Angeles City Council in February, 1979 and has been updated through January 5, 1988. The District Plan Area extends from Sunset Boulevard and the Pasadena Freeway in the north to 25th Street to the south and is bounded to the west by Alameda Street. The District Plan area south of I-10 is designated almost entirely as Heavy Industrial.

The Central City North Community Plan Area is divided into seven Neighborhoods, each of which is characterized by different land uses and functions. The neighborhood corresponding to the project area is the South Industrial Area, which extends from Third to 25th streets. In this Neighborhood the Central City North Community Plan seeks to preserve land uses devoted to fabrication, warehousing and distribution activities as predominant industrial activities. The Plan also proposes improving access to the area via an Industrial Transportation Corridor along Alameda Street.

- Wilmington-Harbor City District Plan

The Wilmington-Harbor City District Plan was adopted by the Los Angeles City Council on June 26, 1990. The population capaCity of the District Plan area is 73,600 residents. The District Plan Area is bounded by Western Avenue to the west, the City of Long Beach to the east, Lomita Boulevard to the north, and the Port of Los Angeles to the south. A narrow prolongation of the District Plan area extends from the eastern end of the Plan Area north along the eastern edge of the City of Carson to a point north of the San Diego Freeway (I-405).

The Wilmington-Harbor City District Plan designates land west of the Alameda Corridor as Limited Industrial. The District Plan designates land east of the Alameda Corridor and on both sides of Henry Ford Avenue as Light and Heavy Industrial. Regarding industrially designated land the draft District Plan emphasizes the policy goals of improved land use regulatory controls, urban design techniques, and upgrading of the area with high quality industrial development. The Plan seeks to protect industrially zoned land where it does not encroach into residential areas.

The Wilmington-Harbor City Plan is further divided into eight planning areas; Planning Areas 3 and 4 lie within the Alameda Corridor impact area. In Planning Area 3, which is bounded by the City of Carson on the north, Anaheim Street on the south, Alameda Street on the east, and

Eubank Street on the west, the City of Los Angeles seeks to consolidate surface oil extraction operations to free land for other uses in order to increase compatibility between oil operations and nearby residential uses. In Planning Area 4, which is bounded by the cities of Carson and Long Beach to the north, the Cerritos Channel to the south, the City of Long Beach to the east, and Alameda Street to the west, the City of Los Angeles seeks to reserve the Cerritos Channel area of the Port for recreational uses, allocating an additional 40 acres of land for recreational uses when oil extraction activities at this location have ceased.

No City of Los Angeles redevelopment projects have been identified for the three plan areas adjacent to the corridor.

City of Vernon

The City of Vernon covers 3,238 acres and is bounded on the north and west by Los Angeles, on the east by Commerce and Bell, and on the south by Huntington Park and Maywood. In the Alameda Corridor study area Vernon extends from 25th Street to Slauson Avenue on the east side of Alameda Street.

The City of Vernon General Plan was adopted on April 18, 1989. In 1988, Vernon had a small residential population of 77 persons living in 32 residential units. The primary land use goal of the Vernon General Plan is to preserve manufacturing as the predominant land use and to encourage revitalization of aging industrial buildings and infrastructure. Vernon is divided into eight Planning Areas, the first two of which are adjacent to the Alameda Corridor. In Planning Area 1, bounded by 25th Street to the north, 48th Street to the south, AT&SF railroad tracks to the east, and Alameda Street to the west, the Vernon General Plan designates the major portion of the area as General Industrial, with the retention of existing public facilities west of the intersection of Vernon and Santa Fe Avenues as well as the commercial uses along Santa Fe Avenue. In Planning Area 2, bounded to the north by 48th Street, to the south by Slauson Avenue, to the east by the AT&SF railroad tracks, and to the west by Alameda Street, almost all of the Planning Area is designated as General Industrial, with the exception of a portion of the area adjacent to Santa Fe Avenue which should support accessory commercial uses.

The Vernon Redevelopment Agency manages the Industrial Redevelopment Project, which encompasses all of the properties directly fronting on the east side of Alameda Street and extends generally to Santa Fe Avenue. Redevelopment objectives for the Industrial Redevelopment Project include the rehabilitation of existing obsolete and deteriorated industrial, commercial, and office development; the assembly of land into parcels suitable for modern industrial and commercial facilities; and the replanning of unsafe and inefficient street and railroad intersections to facilitate truck and automobile traffic.

City of Huntington Park

The City of Huntington Park is located approximately five miles south of downtown Los Angeles and is bounded by the cities of Vernon to the north, South Gate to the south, Bell to the east, and the City of Los Angeles to the west. The City of Huntington Park encompasses both sides of the Alameda Corridor from Slauson Avenue to Florence Avenue.

The City of Huntington Park General Plan was adopted February 19, 1991. Implementation of the Huntington Park General Plan would result in a residential buildout of 15,220 dwelling units, with an associated population of 50,230 residents. The General Plan designates land on either side of the corridor as Industrial Manufacturing, Light Industry, and General Commercial. A primary goal of the Huntington Park General Plan is to preserve low-density quality of single-family residential areas while permitting compatible multi-family development in appropriate areas to meet regional housing needs. The Plan also seeks to buffer residential and commercial uses from industrial activities. Were Southern Pacific Railroad right-of-way to be abandoned, the Plan envisions alternative uses of the railroad right-of-way on Randolph Street, to include green space, parking areas, and bike paths.

The City of Huntington Park Redevelopment Agency manages the Santa Fe Redevelopment Project Area, bounded by Slauson Avenue to the north, Florence Avenue to the south, Malabar Street to the east, and Wilmington Boulevard to the west. Planned redevelopment activities are related primarily to commercial and industrial redevelopment and recycling existing residential uses to higher densities in areas where substantial changes have already taken place.

County of Los Angeles

The County of Los Angeles General Plan was adopted in November, 1980, and has been updated through December, 1987. Los Angeles County consists of 2,613,000 acres of land (4,083 square miles). County Community Plan Areas located near the Alameda Corridor include Florence, Walnut Park, Willowbrook, and Dominguez. Along the Alameda Corridor, county areas extend from Slauson Avenue to Imperial Highway and from Victoria Street to Del Amo Boulevard on the west side of Alameda Street. On the east side of Alameda Street the county extends from Florence Avenue to Santa Fe Avenue and from SR-91 to Del Amo Boulevard.

Major goals of the County of Los Angeles General Plan include the revitalization of declining portions of existing urban development, with particular attention to deteriorated industrial and low income residential areas; maintenance and enhancement of the quality of existing residential neighborhoods through the promotion of neighborhood commercial facilities which provide convenience goods and services and complement community character; coordination of land uses with existing and proposed transportation networks; and the promotion of more intensive use of industrial sites, especially in areas requiring revitalization.

The Community Development Commission (CDC) of the County of Los Angeles operates a number of development and rehabilitation programs to assist unincorporated areas of the County and selected cities. In the vicinity of the Alameda Corridor the Community Development Commission manages the Willowbrook Redevelopment Project, which is bounded by Imperial Highway to the north, El Segundo Boulevard to the south, Willowbrook Avenue to the east, and Compton Avenue to the west. Major goals of the Willowbrook Redevelopment Project include the improvement of the range and quality of housing within the Project Area, the provision of land for recreational, community, and educational facilities, and the return of under-developed and vacant Project Area land to greater residential use.

City of South Gate

The City of South Gate is generally bounded by Nadeau Street to the north, Century Boulevard to the south, and Alameda Street to the west. The City of South Gate General Plan was adopted on November 24, 1986 and provides for residential land uses sufficient to support a projected population of 90,944 persons. The General Plan designates land east of the Alameda Corridor primarily for manufacturing and low density residential uses.

The South Gate General Plan establishes eleven planning areas in the City. Planning Areas adjacent to the Alameda project include Planning Area 1 (Firestone) and Planning Area 3 (Westside).

In Planning Area 1 (Firestone), bounded to the north by Santa Ana Street, to the south by Firestone Boulevard, and to the west by Alameda Street, the General Plan seeks to continue industrial uses in the area west of Santa Fe Avenue on parcels previously occupied by the Firestone Tire and Rubber Plant. The General Plan emphasizes the City's commitment to the preservation and maintenance of existing single-family neighborhoods. The Plan restricts any further residential development which would increase the residential density of the neighborhood.

In Planning Area 3 (Westside), bounded to the north by Firestone Boulevard, to the south by Century Boulevard, and to the west by Alameda Street, the General Plan calls for continued industrial use of the site previously occupied by the General Motors facility in addition to providing for the development of a commercial shopping center on the northwest corner of the site. The Plan designates the area immediately south of Firestone Boulevard and west of Calden Avenue as a commercial/industrial mixed use area. The Plan seeks to maintain the rest of the planning area for low density residential uses.

City of Lynwood

The City of Lynwood is generally bounded by Century Boulevard to the north, Rosecrans Avenue to the south, the Los Angeles River to the east, and Mona Boulevard and Santa Fe Avenue to the west. The Alameda project crosses the western portion of the City of Lynwood, traversing a panhandle in the northwesternmost part of the city and continuing through its western edge. Within the Alameda Corridor study area, the City of Lynwood extends from 103rd to 120th streets on the west side of Alameda Street, and Seminole to Dixon streets on the east side of Alameda Street.

The City of Lynwood General Plan was adopted in August, 1990. A primary goal of the General Plan is to preserve the stable, single-family character of Lynwood's residential communities. Major land use goals include the development of accessible new commercial and retail uses; the protection of residential neighborhoods from the encroachment of incompatible activities; and the restriction of new, heavy industrial uses to designated areas on the eastern and western limits of the City. The Lynwood General Plan designates land on both sides of the Alameda Corridor as Industrial.

The Lynwood Redevelopment Agency manages the Alameda Redevelopment Project Area, which is located on both sides of Alameda Street in an area bounded to the north by Imperial Highway, to the south by Dixon Street, to the east by State Street and to the west by Mona Boulevard; and Project Area A, which generally encompasses properties adjacent to both sides of the Alameda

Corridor. The City of Lynwood has no adopted redevelopment plan for this area at the time of this writing (personal communication of Louis Morales, Jr., Assoc Planner)

City of Compton

The City of Compton is generally bounded to the north by Rosecrans Avenue, to the south by SR-91, to the east by the Los Angeles River, and to the west by Avalon Boulevard. In the Alameda Corridor study area, Compton extends from Rosecrans Avenue to Victoria Street, on the west side of Alameda Street, and from Dixon Street to SR-91, on the east side of the Alameda Street. The Compton General Plan designates land on the west side of Alameda Street as Public/Quasi-Public, Medium and High Density Residential, Industrial, and Mixed Use, and on the east side of Alameda Street as Industrial, Low Density Residential, and Mixed Use.

The City of Compton General Plan: Vision 2010 was adopted in December, 1991. Major goals of the Compton General Plan include the stabilization and protection of single-family housing; maintenance of a balanced distribution of land uses throughout the city; and provision of adequate infrastructure and public services to support planned land uses. In the Alameda Corridor study area the General Plan seeks to encourage mixed use residential and retail/service commercial developments along Compton Boulevard, Rosecrans Avenue, and Wilmington Avenue; focus industrial development in the southern, westernmost, and north-central portion of the City's planning area; and encourage development of a landscaped parkway buffer between the Alameda Corridor project and abutting residences.

Compton has defined a redevelopment project area that extends throughout the city; the redevelopment project area encompasses both sides of Alameda Street and extends on either side of the east-west arterials of Rosecrans Avenue, Compton Boulevard, Alondra Boulevard and SR-91. Implementation of the Compton Redevelopment Plan is intended to eliminate and prevent the spread of urban blight; improve public facilities and infrastructure; stimulate commercial and industrial development; and promote residential rehabilitation. In the Belle Vernon area, bounded by Dixon Street to the north, Oaks Street to the south, Santa Fe Avenue to the east, and Alameda Street to the west, the General Plan promotes the continuation of industrial activities and the relocation of nonconforming residential uses through the power of local redevelopment authority.

City of Carson

The City of Carson is generally bounded by Alondra Boulevard to the north, Lomita Boulevard to the south, the Los Angeles River to the east, and the Harbor Freeway (I-110) to the west. Within the Alameda study area Carson extends from Del Amo to Lomita Boulevard on both sides of the Alameda Corridor, except for a few hundred feet north and south of the San Diego Freeway (I-405) on the east side of Alameda Street.

The City of Carson General Plan Land Use Element was adopted in May, 1982. The Carson General Plan designates land along the west side of Alameda Street as Heavy Industrial and on the east side of Alameda Street as Heavy Industrial and Low Density Residential. Primary goals of the Carson General Plan include the promotion of stable industrial and commercial uses and the protection of residential areas through the abatement of nonconforming land uses.

Carson has defined a Redevelopment Project Area No. 3 located on either side of Alameda Street, between Dominguez Street and Sepulveda Boulevard. The main goal of redevelopment activities in this area involve the elimination of urban blight.

Port of Los Angeles Port Master Plan

The Alameda Corridor is contained within the California Coastal Zone from Anaheim Street to the endpoint of the project at the Badger Avenue bridge north of the Cerritos Channel. The Port of Los Angeles Port Master Plan, which was certified by the California Coastal Commission in July, 1979, constitutes the Local Coastal Plan for the portion of the harbor under the jurisdiction of the City of Los Angeles. The Los Angeles Harbor District is divided into 9 planning areas. Planning Area 5, which encompasses the portion of the project on the west side of Henry Ford Avenue between Anaheim Street and the north side of the Consolidated Channel, designates land in the project area as Other and seeks to integrate land and port-related activities in the short-term period.

Planning Area 6, which encompasses the endpoint of the project west of Henry Ford Avenue and north of the Cerritos Channel, designates the land adjacent to the project as Liquid Bulk and seeks to give preference to recreation and compatible activities for an oil field site when it becomes available for alternative uses.

Port of Long Beach Port Master Plan

The Port of Long Beach Port Master Plan, which was certified by the California Coastal Commission in October, 1978, constitutes the Local Coastal Plan for the portion of the harbor under the jurisdiction of the City of Long Beach. An update to the Port of Los Angeles Port Master Plan was adopted by the Board of Harbor Commissioners in May, 1990. The Long Beach Harbor District is divided into eleven planning districts. Planning Area 3 (Northwest Harbor), which contains approximately 200 feet of the project north of the Badger Avenue Bridge at the Cerritos Channel, seeks to remove and consolidate oil production facilities, eliminate marina facilities, construct "minor" landfill development for Port expansion along the edges of the Cerritos Channel, and pursue primary port terminal development on available lands within the district.

5.1.3 Project Impacts

The following sections discuss the effects resulting from project implementation on land uses within the project study area. Land use impacts associated with the project were determined by superimposing the right-of-way resulting from each alternative project configuration onto aerial photographs of the corridor. Both full and partial property takes were considered. Partial takes would remove a portion of landscaping, parking, or land surrounding a structure, but would not take the improvements located on the affected parcel. Partial takes were also recorded in instances where the project would result in the removal of only a small portion of a non-residential land use that could be reconfigured and remain operational on that same site. In instances where project right-of-way would require the taking of a substantial portion of multi- or single-family residential structures or result in the total displacement of non-residential development, full property takes were assumed.

The significance of land use impacts associated with the Alameda Corridor project was primarily determined by evaluating the consistency of remaining land uses resulting from the project with the land use policy goals and objectives of the affected corridor cities. Land use impacts were considered significant adverse if they conflicted with city land use objectives expressed in General Plans and Land Use Elements. Land use impacts were judged to be potentially beneficial if they helped to promote or were supported by city land use policies. For example, a project-related impact would be deemed significant if it resulted in the displacement of a single-family community in a city whose stated land use goal was to preserve and protect such neighborhoods. Conversely, the project could cause a potentially beneficial land use effect by removing small-lot heavy industrial uses in an area targeted for industrial consolidation and structural rehabilitation.

The Federal Transit Administration (FTA) provides guidance in determining the significance of land use impacts related to transit projects, and thus offers another means of judging impact significance. According to FTA, a land use impact is Possibly Significant if it requires the acquisition of privately-owned land resulting in the relocation of 1 to 10 residences/businesses or requires a change in zoning supported by the local land use planning agency. The FTA defines a land use impact as Generally Significant if it requires the acquisition of privately-owned land resulting in the displacement of ten of more residences or buildings and causes a change in land use which is incompatible with surrounding uses. Table 5-1 describes FTA land use impact significance criteria.

A mix of incompatible land uses could result if the project caused the disruption of the physical arrangement of an established residential community. Along the Alameda Corridor the significance of such impacts were gauged by considering the number of sensitive land uses directly exposed to the project as a result of project construction. Sensitive land uses pertinent to this analysis included single- and multi-family residential uses and schools. For a discussion of the specific noise, visual, and traffic impacts on sensitive land uses throughout the corridor refer to Sections 4.4, 5.7, and 5.4, respectively.

The following discussion examines the land use impacts associated with each Alameda Corridor alternative and describes their significance on the basis of the foregoing significance criteria. Where an impact is determined to be significant, appropriate mitigation measures are referenced at the end of this section.

5.1.4 Impacts and Mitigation - Alternative 1.0

Alternative 1.0 consists of an at-grade two-track railroad main line consolidated freight rail corridor with drill track, together with a six-lane roadway section throughout. At 22 selected streets, above-grade east-west grade separation structures are provided. The land use impacts associated with Alternative 1.0 are generally comprised of partial industrial takes along Alameda Street and industrial, residential and commercial displacement at the locations of proposed overcrossings and underpasses.

TABLE 5-1 FTA LAND USE IMPACT SIGNIFICANCE CRITERIA		
Generally Not Significant	**Potentially Significant**	**Generally Significant**
Acquisition of land is not required	Acquisition of privately-owned land is required and would result in relocation of 1 to 10 residences and/or businesses.	Acquisition of privately-owned land is required and would result in relocation of ten or more residences and/or businesses.
No displacements would result from implementation of the proposed project.	Replacement facilities matching the needs of the displaced households and businesses are not available in the same or nearby neighborhoods.	Adequate replacement facilities for displaced households and businesses are not available.
Proposed project is compatible with surrounding land use and conforms to zoning requirements, as determined through consultation with the appropriate local agency.	Proposed project requires a change in zoning and the local land use planning agency supports the change.	Housing sites and/or funds to construct replacement facilities are not available.
Source: Federal Transit Administration, 1979.		

Segment A

- Impacts

Along the trainway legs extending from Pasadena Junction south to 25th Street, no land use impacts are associated with the project.

On the west side of Alameda Street, south of I-10, the project would cause the partial taking of industrial land uses by (1) removing the corner of a large industrial building at the southeast corner of 22nd and Alameda streets and (2) taking 10 feet of property frontage from salvage yards from 22nd to 24th streets.

On the east side of Alameda Street the project would cause partial takes involving the removal of 10 to 25 feet of truck and automobile parking on the western edge of large industrial properties from I-10 to 25th Street.

- Impact Significance

The partial taking of industrial uses on the west side of Alameda Street do not represent significant adverse impacts because the project (1) only removes the corner of a large industrial use and sufficient space exists behind the property for the affected portion to be relocated on site; and (2) removes only 10 to 15 percent from the site of each small-scale salvage lot activity, enabling such uses to remain in operation.

The project would not create significant adverse impacts on the east side of Alameda Street because the removal of truck and automobile parking associated with industrial uses represent only 10 to 20 percent of available parking at each site.

- Mitigation Measures

Industrial uses subject to a partial take should be reconfigured in such a manner as to allow present operations to continue.

Segment B1

- Impacts

At the 24th/25th Street underpass west of Alameda Street and north of 25th Street, the project would cause partial and full takes by removing 20 feet of property frontage from scrap metal and salvage yards. West of Alameda Street and south of 24th Street, the underpass would take about 50 feet from the north side of the Alameda Business Center, remove its northern parking lot, and eliminate access to the property from 24th Street. East of Alameda Street and north of 25th Street, the project would result in the full taking of large industrial uses for approximately 1,000 feet and then cause the removal of 20 to 30 feet from the southern end of large heavy industrial buildings for an additional 1,000 feet, with the extent of taking representing from one quarter to one third of affected industrial structures.

On the west side of Alameda Street the project would result in partial takes that are typically 10 to 15 feet of sidewalk and landscaping from large-scale industrial uses between 25th and 42nd streets. The project would also remove 10 to 15 feet from the eastern end of a vacant parcel proposed for a 300-unit condominium complex between Martin Luther King Boulevard and 41st Street.

On the east side of Alameda Street, proposed cul-de-sacs would cause partial land takes adjacent to a railroad spur between 25th and 26th streets and would remove approximately one eighth of a parking area associated with a large industrial use south of 26th Street. Between 26th and 38th streets the project would extend approximately 10 feet into parking areas bordering the western edge of large industrial uses.

At the 41st/38th Street overcrossing the project would cause a partial take involving the removal of 100 feet from the southern end of a vacant parcel west of Alameda Street and north of 41st Street. The project would also remove approximately one third of the parking area associated with the Los Angeles Regional Food Bank west of Alameda Street and south of 41st Street. The project would result in the full taking of large industrial buildings east of Alameda Street and north of 38th Street. A proposed cul-de-sac street would remove approximately ten parking spaces from a large warehouse east of Alameda Street and south of 38th Street.

On the west side of Alameda Street, the project would result in (1) the full take of the Alameda Inn, a restaurant located on the northwest corner of 42nd and Alameda streets; (2) a partial take involving the removal of 25 feet from an older industrial building on the northwest corner of 43rd Place and Alameda streets; and partial takes that are typically 25 feet of property frontage from large industrial uses and a minimart from 43rd Place to Vernon Avenue.

On the east side of Alameda Street the project would remove 8 to 10 feet of landscape from large industrial uses between 38th Street and Vernon Avenue.

At the Vernon Avenue overcrossing west of Alameda Street and south of Vernon Avenue the project would result in (1) partial takes involving the removal of 40 feet from an older industrial building and an associated parking area; (2) full takes of single-family residential uses; (3) the direct exposure of additional residential uses as a result of residential takes; and (4) a full take involving the removal of 75 percent of an auto repair/storage facility. East of Alameda Street and south of Vernon Avenue the project would cause (1) the full taking of a corporate building at the southeast corner of Alameda Street and Vernon Avenue, (2) the full taking of a parking area associated with a large industrial warehouse on the west side of Hawthorne Avenue; and (3) partial takes involving the removal of approximately 50 feet from the northern end of large industrial uses between Hawthorne Avenue and Charles Street.

On the west side of Alameda Street the project would cause partial takes that are typically five feet of street frontage from large-scale, heavy industrial uses between Vernon and Slauson avenues. On the east side of Alameda Street the project would result in partial takes involving the removal of approximately 10 feet of street frontage buffering large heavy industrial uses.

At the Slauson Avenue overcrossing east of Alameda Street and south of Slauson Avenue, the project would result in (1) the partial taking of heavy industrial uses involving the removal of approximately 40 feet of buildings associated with warehousing, distribution, and metal working facilities between Alameda and Regent streets; and (2) the partial taking of heavy industrial uses that entail the removal of approximately 25 feet from the northern end of large-scale heavy industrial uses east of Regent Street. Two proposed north-south street segments east of Regent Street would cause the full taking of large heavy industrial buildings.

- Impact Significance

At the 24th/25th Street underpass west of Alameda Street and north of 25th Street, the partial taking of property frontage from scrap metal and salvage yards represents a potentially beneficial effect by providing opportunities for consolidating and improving such industrial lots, a goal that is further supported by the Southeast Los Angeles District Plan. West of Alameda Street and south of 24th Street, the partial taking of the Alameda Business Center represents a significant adverse impact that is not consistent with the Southeast Los Angeles District Plan's goal of protecting industrial uses, because the affected portion cannot be relocated on site and access to the property is eliminated from 24th Street. East of Alameda Street and north of 25th Street, the full taking of large industrial uses and parking areas represents a significant adverse impact not in conformance with the goals of the Central City North Community Plan to preserve land uses devoted to industrial activities and improve access to such uses within the Industrial Transportation Corridor along Alameda Street. The partial taking of large heavy industrial buildings along the north side of 25th Street represents a significant adverse impact because the extent of takes range from one quarter to one third of affected industrial structures and the adjacency of Southern Pacific Railroad spurs behind affected properties precludes their reconfiguration on site.

On both sides of Alameda Street between 25th and 38th streets, the partial taking of street frontage, land and parking from large, heavy industrial uses does not represent a significant adverse impact because only one eighth to one quarter of frontage is affected, and also because the continued operation of the present use would not be compromised.

Between 25th and 38th streets, partial takings of parking areas from large industrial uses on both sides of Alameda Street are not significant adverse impacts because affected parking represent between one tenth and one eighth of available parking space at each site.

West of Alameda Street and south of 41st Street, the partial parking take at the Los Angeles Regional Food Bank is not significant adverse because it affects only one third of available parking spaces. East of Alameda Street and north of 38th Street the full taking of large industrial buildings represents a significant adverse impact that is not consistent with the goal of the City of Vernon Industrial Redevelopment Project, which seeks to rehabilitate and upgrade existing industrial development. East of Alameda Street and south of 38th Street the partial parking take from a large warehouse is not a significant adverse impact because the affected parking area represents approximately 10 percent of available parking.

On the west side of Alameda Street, the full take of the Alameda Inn on the northwest corner of 42nd and Alameda streets is a significant adverse impact and is not consistent with the goal of the Southeast Los Angeles District Plan to maintain and improve existing commercial uses. The partial taking of an older industrial building on the northwest corner of 43rd Place and Alameda Street and from large industrial uses and a minimart from 43rd Place to Vernon Avenue do not represent significant adverse impacts because sufficient space exists at each site for affected buildings to be reconfigured.

At the Vernon Avenue overcrossing west of Alameda Street and south of Vernon Avenue, (1) the partial take of an older industrial building and associated parking area does not represent a significant adverse impact because the affected structure can be reconfigured on adjacent available space; (2) the full taking of single-family residential uses and the resultant direct exposure of additional residential uses represent significant adverse impacts and are not in conformance with the goal of the Southeast Los Angeles District Plan to encourage the maintenance and rehabilitation of existing housing stock; and (3) the full taking of an auto repair/storage facility is a significant adverse impact.

East of Alameda Street and south of Vernon Avenue, (1) the full taking of a corporate building at the southeast corner of Alameda Street and Vernon Avenue is a significant adverse impact; (2) the full taking of a parking area associated with a large industrial warehouse on the west side of Hawthorne Avenue is a significant impact because it deprives access to the warehouse from Vernon Avenue; and (3) partial takes involving the removal of one-fifth of large industrial buildings between Hawthorne Avenue and Charles Street represent significant adverse impacts because no space exists on which to relocate affected portions of property.

At the Slauson Avenue overcrossing east of Alameda Street and south of Slauson Avenue, (1) the partial taking of heavy industrial uses between Alameda and Regent streets is a significant adverse impact because affected properties cannot be reconfigured on site without the elimination of adjacent parking and open air storage yards; and (2) the partial taking of heavy industrial uses east of Regent Street is not a significant adverse impact because affected buildings can be reconfigured on site; and (3) the full taking of large heavy industrial buildings east of Regent Street is a significant adverse impact and is not in conformance with the goal of the Santa Fe Redevelopment Project, which strives to maintain and improve the physical integrity of industrial buildings in Huntington Park.

- Mitigation Measures

The project should cooperate with the cities of Los Angeles, Vernon and Huntington Park to ensure that industrial uses subject to full acquisition are relocated within city boundaries on available industrial land, to the greatest extent practicable.

The project should strive to reconfigure industrial uses subject to partial takes in the cities of Los Angeles, Vernon and Huntington Park in such a manner as to permit continued operation; if not, the project should cooperate with the cities of Los Angeles and Vernon in relocating affected industries.

The project should cooperate with the City of Los Angeles to ensure that commercial and residential uses subject to full acquisition are relocated within city boundaries on available appropriately designated land. In the event that additional residential uses are exposed to the project, sound walls should be erected to reduce noise to acceptable levels.

<u>Segment B2</u>

- Impacts

Between Randolph Street and Gage Avenue no land use impacts are associated with the project on either side of Alameda Street.

At the intersection of Alameda Street and Gage Avenue, the project cause the full taking of heavy industrial buildings and a Los Angeles Department of Transportation bus storage yard west of Alameda Street and south of Gage Avenue. East of Alameda Street and south of Gage Avenue the project would cause the full taking of a heavy industrial building on the southeast corner of Alameda Street and Gage Avenue and the full taking of single- and multi-family residences extending approximately 200 feet deep and 700 feet in length along the easterly extension of Gage Avenue.

At the Florence Avenue overpass west of Alameda Street and south of Florence Avenue, the project would result in (1) full takes of community-serving retail land uses, such as local markets and auto repair yards, (2) partial takes involving the removal of sidewalk and landscaping from the northern and eastern side of the Florence Avenue School; (3) partial takes involving the removal of sidewalk space of residences along 73rd Street; and (4) the full take of a small industrial use adjacent to Alameda Street resulting from the creation of a new access road along 73rd Street. East of Alameda Street and south of Florence Avenue, the project would result in (1) full takes of large-scale heavy industrial and vacant land uses, (2) full takes of single-family residential units; (3) direct exposure of additional single-family residential neighborhoods; and (4) full takes of a gas station and commercial minimall on the southwest corner of Florence and Santa Fe avenues.

At the Nadeau Street underpass west of Alameda Street and north of Nadeau Street, the project would result in a partial land take involving the removal of the southeast corner of an industrial use and partial takes involving the removal of approximately 5 feet of street frontage from industrial and residential uses up to Lou Dillon Avenue. West of Alameda Street and south of Nadeau Street, the project would result in (1) the full taking of industrial uses comprised of salvage lots, (2) the full taking of single-family residential uses, and (3) the exposure of additional multi-family residences. East of Alameda Street and north of Nadeau Street, the project would cause the full taking of a truck depot/storage yard and partial takes involving the removal of approximately 50 feet of parking from an industrial use at the northwest corner of Nadeau Street and Santa Fe Avenue.

At the Firestone Boulevard underpass west of Alameda Street and north of Firestone Boulevard, the project would result in the full taking of a fast food restaurant on the northwest corner of Alameda Street and Firestone Boulevard and partial takes involving the removal of approximately 25 feet from the west side of industrial buildings. West of Alameda Street and south of Firestone Boulevard the project would cause (1) a partial take involving the removal of about 75 feet from a paper pulp processing yard to Juniper Street; (2) the partial taking of a multi-family residence west of Juniper Street; (3) the full taking of an auto repair/storage facility; and (4) and the full taking of a minimall and associated parking area on the northeast corner of Ivy Street and Firestone Boulevard. East of Alameda Street and south of Firestone Boulevard, the project would result in the removal of approximately 20 feet of parking associated with a heavy industrial use.

- Impact Significance

At the intersection of Alameda Street and Gage Avenue, the full taking of heavy industrial buildings and of a Los Angeles Department of Transportation bus storage yard west of Alameda Street and south of Gage Avenue represent significant adverse impacts and is not consistent with the goals of the Santa Fe Redevelopment Project, which strives to maintain and improve the physical integrity of industrial buildings in Huntington Park. East of Alameda Street and south of Gage Avenue, the full taking of a heavy industrial building on the southeast corner of Alameda Street and Gage Avenue is a significant adverse impact and is not consistent with the goals of the Santa Fe Redevelopment Project, and (2) the full taking of single- and multi-family residences represent significant adverse takes and are not consistent with the goals of the Huntington Park General Plan to preserve single-family residential areas.

At the Florence Avenue overpass west of Alameda Street and south of Florence Avenue, (1) the full taking of community-serving retail land uses, with resulting exposure of single-family residential uses, represents significant adverse impacts and is not consistent with the goals of the County of Los Angeles General Plan to encourage neighborhood commercial facilities which complement community character and improve the quality of existing residential areas; (2) the partial taking of land from the Florence Avenue School is not a significant adverse impact because it does not eliminate access to the school grounds; and (3) the full taking of a small industrial use adjacent to Alameda Street resulting from the creation of a new access road along 73rd Street is not a significant adverse impact because the structure can be relocated immediately south of its current location. East of Alameda Street and south of Florence Avenue (1) the full taking of large-scale heavy industrial buildings, with resultant exposure of single-family residences, is a significant adverse impact and is not consistent with the goals of the County of Los Angeles General Plan to maintain and enhance the quality of existing residential neighborhoods; (2) the full taking of single-family residential units is a significant adverse impact and is not consistent with the goals of the County of Los Angeles General Plan; and (3) the full taking of a gas station and commercial minimall on the southwest corner of Florence and Santa Fe avenues is a significant adverse impact that is not consistent with the goal of the County of Los Angeles General Plan to promote neighborhood commercial facilities in low income residential areas.

At the Nadeau Street underpass west of Alameda Street and north of Nadeau Street a partial land take of an industrial use does not represent a significant adverse impact because the affected portion of the property is only 5 percent of the whole. West of Alameda Street and south of Nadeau Street (1) the full taking of heavy industrial uses represents a significant adverse impact and is not consistent with the goal of the County of Los Angeles General Plan to revitalize declining urban development, and (2) the full taking of single-family residential uses, with the resultant exposure of additional multi-family residences, causes significant impacts that are not consistent with the goal of the County of Los Angeles General Plan to maintain and enhance the quality of existing residential neighborhoods. East of Alameda Street and north of Nadeau Street (1) the full taking of a truck depot/storage yard is a significant adverse impact, and (2) the partial taking of parking from an industrial use at the northwest corner of Nadeau Street and Santa Fe Avenue is not a significant adverse impact because the amount of affected parking represents approximately one-fifth of total available parking.

At the Firestone Boulevard underpass west of Alameda Street and north of Firestone Boulevard, (1) the full taking of a fast food restaurant on the northwest corner of Alameda Street and Firestone Boulevard is a significant adverse impact and not consistent with the goal of the County of Los Angeles General Plan to promote neighborhood commercial services, and (2) the partial taking of industrial buildings does not represent a significant adverse impact because the amount of affected property is typically 5 to 10 percent of total building area and can be reconfigured on site. West of Alameda Street and south of Firestone Boulevard, (1) the partial taking of a paper pulp processing yard is not a significant adverse impact because over three quarters of the plant would remain in operation; (2) the partial taking of a multi-family residence west of Juniper Street represents a significant adverse impact and is not consistent with the goals of the County of Los Angeles General Plan to revitalize low income residential areas; (3) the full taking of an auto repair/storage facility is a potentially beneficial effect that is consistent with the goal of the County of Los Angeles General Plan to promote more intensive uses of industrial sites; and (4) the full taking of a minimall and associated parking area on the northeast corner of Ivy Street and Firestone Boulevard is a significant adverse impact that is not consistent with the goal of the City of Los Angeles General Plan to promote neighborhood serving retail activities.

East of Alameda Street and south of Firestone Boulevard, the partial taking of parking associated with a heavy industrial use is not a significant adverse impact because the affected parking represents only 2 to 3 percent of total available parking.

- Mitigation Measures

The project should cooperate with the City of Huntington Park and the County of Los Angeles to ensure that industrial uses subject to full acquisition are relocated within their respective jurisdictions on available industrial land.

The project should cooperate with the City of Huntington Park and the County of Los Angeles to ensure that residential uses subject to full acquisition are relocated within their respective jurisdictions on available residential land. In the event that residential development is exposed to the project as a result of construction, the project should erect sound walls to buffer homes from the permanent effects of the project.

The project should cooperate with the County of Los Angeles to assist neighborhood serving retail commercial uses in relocating within the vicinity of the communities which they serve.

<u>Segment C</u>

- Impacts

At the 92nd Street/Southern Avenue overcrossing west of Alameda Street and south of 92nd Street the project would result in the full taking of a salvage lot and multi-family residences between Juniper and Kalmia streets. East of Alameda Street and south of Southern Avenue, the project would result in the full taking of single-family residences for approximately 1,000 feet along the easterly extension of Southern Avenue, which would leave an additional area of single-family residential residences exposed.

On the west side of Alameda Street from 94th Street to Tweedy Boulevard, the project would result in (1) partial takes involving the removal of 10 to 30 feet of property frontage from salvage lots and junk yard facilities; (2) the full taking of a large-scale industrial building at the northwest corner of 96th and Alameda streets, with diminished access to Alameda Street for the nearby residential and industrial uses; (3) the full taking of a large-scale industrial building at the northwest corner of 96th Place and Alameda Street, with diminished access to Alameda Street for the nearby residential and industrial uses; (4) the full taking of a parking area associated with a large industrial use; (5) a partial take involving the removal of 50 feet from the eastern end of a truck depot yard and (6) a partial take involving the removal of 50 feet of property frontage from a large, heavy industrial use and salvage lot.

At the Tweedy Boulevard overcrossing east of Alameda Street and north of Tweedy Boulevard, the project would result in (1) the full taking of multi-family residences; (2) additional residential exposure to the project; (3) partial takes involving the removal of landscaping and frontage space from an industrial use; (4) the partial taking of multi-family residences; and (5) partial takes involving the removal of 10 feet of building property from heavy industrial uses. East of Alameda Street and south of Tweedy Boulevard the project would cause a partial land take approximately 125 feet deep and 250 feet wide at the vacant site of the former General Motors plant.

West of Alameda Street the project would cause a partial take involving the removal of approximately 40 feet from the entry gate of Jordan High School, including the elimination of sidewalk frontage, parking spaces and landscaping.

At the 124th Street/Weber Avenue overcrossing west of Alameda Street and north of Weber Avenue, the project would result in (1) the full taking of an industrial building at the northwest corner of 124th and Alameda streets; (2) partial takes involving the removal of 30 to 50 feet from the south side of industrial buildings; (3) the full taking of multi-family residences to Mona Boulevard; and (4) exposure of additional multi-family residences. West of Alameda Street and south of 124th Street the project would cause (1) partial takes involving the removal of approximately 10 feet of street frontage from heavy industrial uses; (2) partial takes involving the removal of approximately 10 feet of street frontage from vacant land; (3) full takes of auto storage/repair yards; and (4) full takes of single- and multi-family residences.

East of Alameda Street and north of Weber Avenue, the project would cause (1) partial takes involving the removal of approximately 75 feet from the southern end of scrap yards and storage lots, and (2) full takes of multi-family residences. East of Alameda Street and south of Weber Street the project would result in (1) partial takes involving the removal of three to five feet of sidewalk and street frontage; (2) full takes of single-family residences; and (3) a partial take involving the removal of approximately one tenth of a large-scale industrial building.

At the El Segundo Boulevard overcrossing west of Alameda Street and north of El Segundo Boulevard, the project would result in (1) the full taking of salvage lots and scrap yards and (2) the full taking of multi-family residences. East of Alameda Street and north of El Segundo Boulevard, the project would result in (1) the full taking of a large industrial building; (2) partial takes involving the displacement of approximately one eighth to one fifth of the land area associated with truck and box car storage areas; and (3) the full and partial taking of mobile homes. East of Alameda Street and south of El Segundo Boulevard, the project would cause partial takes involving the removal of 70 to 80 feet from heavy industrial storage areas

On the west side of Alameda Street between Mealy Street and Rosecrans Avenue, the project would cause partial takes involving the removal of 10 to 15 feet of street frontage from salvage lots and scrap metal yards between Mealy Street and Rosecrans Avenue. Between Rosecrans Avenue and Compton Boulevard the project would result in (1) a partial take involving the removal of 25 feet of property frontage from small-scale heavy industrial uses and (2) a partial take involving the displacement of approximately one eighth of a parking area associated with a large commercial use between Alameda Street and Willowbrook Avenue.

At the Compton Boulevard overcrossing west of Alameda Street and north of Compton Boulevard, the project would result in a partial take involving the removal of approximately 30 feet of street and parking frontage from a K-Mart retail store. West of Alameda Street and south of Compton Boulevard, the project would cause a partial take involving the removal of 5 to 10 feet of parking and landscaping from a large shopping center. East of Alameda Street and south of Compton Boulevard, the project would result in the full taking of a fast food restaurant, local neighborhood serving retail stores and a mortuary.

At the Alondra Boulevard overcrossing west of Alameda Street and south of Alondra Boulevard, the project would result in (1) a partial take involving the removal of 30 to 50 feet from a parking area; (2) the full taking of a restaurant, grocery and church; and (3) exposure of additional multi-family residential uses to the project. East of Alameda Street and north of Alondra Boulevard, the project would cause (1) the full and partial taking of city sanitation buildings; (2) a partial take involving the removal of property frontage from scrap metal yard; (3) the full taking of a gas station; (4) the partial taking of a heavy industrial building east of Santa Fe Avenue; and (5) the full taking of multi-family residential uses on the southwest corner of Chester Street and Alondra Boulevard.

At the Greenleaf Boulevard overcrossing west of Alameda Street and north of Greenleaf Boulevard, the project would result in (1) the full taking of heavy industrial uses; (2) the partial taking of multi-family residential uses on the northeast corner of Greenleaf Boulevard and Tamarind Avenue; and (3) additional residential exposure. East of Alameda Street and north of Greenleaf Boulevard, the project would cause partial takes involving the removal of approximately 25 feet from the southern end of heavy industrial buildings.

- Impact Significance

At the 92nd Street/Southern Avenue overcrossing west of Alameda Street and south of 92nd Street, (1) the full taking of salvage lots is not a significant adverse impact and is supported by the goals of the County of Los Angeles General Plan to promote more intensive use of industrial sites and (2) the full taking of multi-family residences between Juniper and Kalmia streets represents a significant adverse impact and is not consistent with the goal of the County of Los Angeles General Plan to revitalize low income residential areas. East of Alameda Street and south of Southern Avenue the full taking of single-family residences, with resultant single-family residential exposure, is a significant adverse impact and is not consistent with the goal of the South Gate General Plan to preserve and maintain existing single-family neighborhoods in Planning Area 1 (Firestone).

On the west side of Alameda Street from 94th Street to Tweedy Boulevard, (1) the partial taking of salvage lots and junk yard facilities is a potentially beneficial effect that is supported by the goal of the County of Los Angeles General Plan to revitalize declining industrial areas; (2) the full taking of a newer large-scale industrial buildings at the northwest corner of 96th and Alameda streets and 96th Place and Alameda Street is a significant adverse impact and is not consistent with the goal of the County of Los Angeles General Plan to preserve industrial uses in sound condition; (3) the full taking of a parking area associated with a large industrial use is a significant adverse impact because no other parking is available in the vicinity of the affected building; (4) the partial taking from the eastern end of a truck depot yard is not a significant adverse impact because the affected portion of property constitutes only 5 percent of the total land area; and (5) the partial taking of a salvage yard north of Tweedy Boulevard is a potentially beneficial effect which is supported by the goal of the County of Los Angeles General Plan to promote the more intensive use of industrial sites in areas requiring revitalization.

At the Tweedy Boulevard overcrossing east of Alameda Street and north of Tweedy Boulevard, (1) the full taking of industrial buildings, with resultant residential exposure, is a significant adverse impact and is not consistent with the goal of the South Gate General Plan to preserve and maintain existing residential neighborhoods; (2) the full and partial taking of multi-family residences is a significant adverse impact that is not consistent with the goals of the South Gate General Plan to preserve residential uses in Planning Area 3 [Westside]; and (3) the partial taking of heavy industrial buildings is not a significant adverse impact because the portions of affected structures represent only 5 to 10 percent of each property and can be reconfigured on site. East of Alameda Street and south of Tweedy Boulevard, the partial land take at the vacant site of the former General Motors plant is not a significant adverse impact.

West of Alameda Street the partial taking of the Jordan High School entry gate is not a significant adverse impact because access would still be preserved from Alameda Street.

At the 124th Street/Weber Avenue overcrossing west of Alameda Street and north of Weber Avenue, (1) the full taking of an industrial building at the northwest corner of 124th and Alameda streets is a significant adverse impact and is not consistent with the goal of the County of Los Angeles General Plan to revitalize declining portions of existing urban areas; (2) the partial taking of industrial buildings is not a significant adverse impact because the affected portions of buildings are typically 20 percent of total building area and structures can be reconfigured on site; (3) the full taking of multi-family residences and exposure of additional residential uses represents a significant adverse impact and is not consistent with the goal of the County of Los Angeles General Plan to revitalize declining portions of existing urban areas. West of Alameda Street and south of 124th Street, (1) the full taking of auto storage/repair yards represents a potentially beneficial effect supported by the goal of the County of Los Angeles General Plan to promote more intensive uses of industrial sites; and (2) the full taking of single- and multi-family residences represent significant adverse impacts that are not consistent with the goal of the County of Los Angeles General Plan to revitalize declining low income residential areas. East of Alameda Street and north of Weber Avenue (1) the partial taking of scrap yards and storage lots represents a potentially beneficial effect supported by the City of Compton Redevelopment Plan to eliminate urban blight; (2) the full taking of multi- and single-family residences represents a potentially beneficial effect that is supported by the goal of the City of Compton General Plan to relocate nonconforming residential uses out of the Belle Vernon area. East of Alameda Street and south of Weber Street; and (3) the partial take of a large-scale industrial building is not a significant adverse impact because only one tenth of the property is affected and the structure can be reconfigured in an adjacent open area to the east of the site.

At the El Segundo Boulevard overcrossing west of Alameda Street and north of El Segundo Boulevard, (1) the full taking of salvage lots and scrap yards represents a potentially beneficial effect supported by the goal of the County of Los Angeles General Plan to promote more intensive uses of industrial sites and (2) the full taking of multi-family residences is a significant adverse impact that is not consistent with the goals of the County of Los Angeles General Plan to maintain and enhance the quality of existing residential neighborhoods. East of Alameda Street and north of El Segundo Boulevard, (1) the full take of a large industrial building is a significant adverse impact that is not consistent with the goal of the Compton General Plan to promote industrial activities in the Belle Vernon area of the city; (2) the partial taking of truck and box car storage areas is not a significant adverse impact because the affected portions of buildings represent only one fifth to one eighth of total land area at each site; and (3) the full and partial taking of mobile homes is a potentially beneficial effect that is consistent with the goal of the Compton General Plan to relocate nonconforming residential uses out of the Belle Vernon area, although displacing mobile home units presents additional difficulties (see section 5.3 for further details). East of Alameda Street and south of El Segundo Boulevard the partial taking of heavy industrial storage areas is not a significant adverse impact because affected portions of property constitute only one third to one fourth of total land area and storage containers can be relocated on remaining land.

Between Rosecrans Avenue and Compton Boulevard the (1) the partial taking of property frontage from small-scale heavy industrial uses at Alameda and Spruce streets and Alameda and Maple streets is not a significant adverse impact because properties can be reconfigured on site; (2) the partial taking of parking area associated with a large commercial use between Alameda Street and Willowbrook Avenue is not a significant adverse impact because the affected parking represents only one eighth of the total available area.

At the Compton Boulevard overcrossing west of Alameda Street and north of Compton Boulevard, the partial taking of street and parking frontage from a K-Mart retail store is not a significant adverse impact because the affected parking area is only 5 percent of the whole. West of Alameda Street and south of Compton Boulevard, the partial taking of parking and landscaping from a large shopping center is not a significant adverse impact because the affected parking is only 2 to 3 percent of the available space. East of Alameda Street and south of Compton Boulevard, the full taking of a fast food restaurant, local neighborhood serving retail stores and a mortuary is a significant adverse impact that is not consistent with the goal of the Compton General Plan to encourage mixed use residential and retail/service commercial developments along Compton Boulevard.

At the Alondra Boulevard overcrossing west of Alameda Street and south of Alondra Boulevard, (1) the full taking of a restaurant, grocery and church is a significant adverse impact and is not consistent with the goal of the Compton Redevelopment Plan to stimulate commercial development along Alondra Boulevard, and (2) exposure of additional multi-family residential uses is a significant adverse impact and is not consistent with the goal of the Compton General Plan to provide parkway buffering between residential areas and the Alameda Corridor. East of Alameda Street and north of Alondra Boulevard, (1) the full and partial taking of city sanitation buildings do not represent significant adverse impacts because the sanitation buildings can be reconfigured on available land; (2) the partial taking of property frontage from scrap metal yards is not a significant adverse impact because the displaced properties associated with the metal shops make up only 25 percent of the total area of each site; (3) the full taking of a gas station is a significant adverse impact and is not consistent with the goal of the Compton Redevelopment Plan to stimulate commercial development along Alondra Boulevard; (4) the partial taking of a heavy industrial building east of Santa Fe Avenue is a significant adverse impact because the affected property constitutes 40 percent of the total building area and cannot be reconfigured on the site; and (5) the full taking of multi-family residential uses on the southwest corner of Chester Street and Alondra Boulevard is a significant adverse impact and is not consistent with the goal of the Compton Redevelopment Plan to promote residential rehabilitation.

At the Greenleaf Boulevard overcrossing west of Alameda Street and north of Greenleaf Boulevard, (1) the full taking of heavy industrial uses is a significant adverse impact that is not consistent with the goal of the Compton General Plan to focus industrial development in the southern portion of the city planning area; (2) the partial taking of multi-family residential uses and additional residential exposure on the northeast corner of Greenleaf Boulevard and Tamarind Avenue is a significant adverse impact that is not consistent with the goal of the Compton

General Plan to stabilize and protect residential areas of the city. East of Alameda Street and north of Greenleaf Boulevard, the partial taking of heavy industrial buildings is not a significant adverse impact because affected portions of buildings are only 5 to 6 percent of structures and can be reconfigured on the site.

- Mitigation Measures

The project should cooperate with the County of Los Angeles and the cities of Compton and South Gate to ensure that displaced residents are relocated elsewhere within their respective jurisdictions.

In the event that residential development is exposed as a result of construction activities in the City of South Gate and Compton, the project should erect sound walls to buffer homes from the permanent effects of additional truck and train traffic along the Alameda Corridor.

The project should cooperate with the City of Compton to relocate neighborhood retail commercial uses in the vicinity of the communities which they serve.

The project should cooperate with the County of Los Angeles and the cities of Compton and South Gate to ensure that industrial uses subject to full acquisition are relocated within their respective jurisdictions on available industrially designated land.

Segment D

- Impacts

No land use impacts are associated with the project from SR 91 to a point north of the junction of Alameda Street and Willowbrook Avenue.

On the west side of Alameda Street north of the junction of Alameda Street and Willowbrook Avenue, the project results in a partial take involving the removal of 2 to 3 feet of landscaping and parking frontage space from a DWP substation adjacent to the west side of Alameda Street. The construction of an access road located at a point north of Laurel Park Road would result in the partial taking of a vacant easement. The creation of a cul-de-sac at Laurel Park Road would cause partial takes by (1) removing landscaping from an industrial use along Rancho Way and (2) removing the formal entrance to an industrial use at the corner of Rancho Way and Laurel Park Road.

On the east side of Alameda Street from a point south of the Dominguez Channel to Sepulveda Boulevard the project would cause partial takes by removing 10 to 15 feet of street frontage space and landscaping from heavy industrial land uses.

At the Sepulveda Boulevard overcrossing west of Alameda Street and north of Sepulveda Boulevard, the project would result in a partial take involving the removal of 25 feet of parking and landscape buffering from heavy industrial uses. East of Alameda Street and north of Sepulveda Boulevard the project would cause (1) the full taking of a small parking lot associated with heavy industrial uses and (2) the full taking of a boat/RV storage facility.

East of Alameda Street and south of Sepulveda Boulevard, the project would cause partial takes by removing 3 to 5 feet of street frontage from heavy industrial uses.

East of Alameda Street from Sepulveda Boulevard to a point approximately 1,250 feet south of Sepulveda Boulevard, the project would cause a partial take by removing 35 feet of land associated with an oil refining facility.

At the Pacific Coast Highway overcrossing west of Alameda Street and north of Pacific Coast Highway, the project would result in the full taking of a salvage lot and scrap yards at the northeast corner of Pacific Coast Highway and Coil Avenue. West of Alameda Street and south of Pacific Coast Highway, the project would cause (1) the full taking of auto repair yards and (2) the full taking of multi-family residences to Blinn Street. East of Alameda Street and south of Pacific Coast Highway, the project would (1) cause a partial taking by removing 100 feet from a parking area associated with an industrial use at the southeast corner of Alameda Street and Pacific Coast Highway; (2) the full taking of an industrial use associated with boat manufacturing activities; and (3) a partial take involving the removal of approximately 100 feet of parking space associated with an oil refining facility.

On the east side of Alameda Street between Opp and I streets, the project would result in partial takes involving the removal of 3 to 5 feet of street frontage from boat repair and salvage yards.

At the Anaheim grade separation west of Henry Ford Avenue and north of Anaheim Street, the project would result in a partial take involving the removal of 2 to 3 feet of parking and street frontage from a gas station. West of Henry Ford Avenue and south of Anaheim Street, the project would cause a partial take by removing approximately 40 feet of property associated with a large auto storage yard. East of Henry Ford Avenue and north of Anaheim Street, the project would cause a partial take by removing 5 to 10 feet of street frontage and parking associated with a heavy industrial use. East of Henry Ford Avenue and south of Anaheim Street, the project would result in a full taking of vacant land and parking associated with a heavy industrial use.

On the west side of Henry Ford Avenue from Anaheim Street to the Cerritos Channel, the project would cause a partial take by removing 30 to 35 feet of property associated with a large auto storage and repair facility. East of Henry Ford Avenue the project would result in a partial take by removing 30 to 35 feet of land and parking from a heavy industrial use.

- Impact Significance

On the west side of Alameda Street north of the junction of Alameda Street and Willowbrook Avenue, the partial taking of landscaping frontage space from a DWP substation adjacent to the west side of Alameda Street is not a significant adverse impact. The partial taking of a formal entrance to an industrial use at the corner of Rancho Way and Laurel Park Road is not a significant adverse impact because access is preserved from Rancho Way.

West of Alameda Street and north of Sepulveda Boulevard the partial parking take from a heavy industrial use is not a significant adverse impact because the affected parking represents 10 percent of the available parking area. East of Alameda Street and north of Sepulveda Boulevard (1) the full taking of a small parking lot associated with heavy industrial uses is a significant adverse impact, and (2) the full taking of a boat/RV storage facility is a significant adverse impact because the boats and RVs cannot be relocated onto any adjoining properties.

East of Alameda Street from Sepulveda Boulevard to a point approximately 1,250 feet south of Sepulveda Boulevard, the partial taking of land associated with an oil refining facility is not a significant adverse impact because no buildings or parking are removed.

At the Pacific Coast Highway overcrossing west of Alameda Street and north of Pacific Coast Highway, the full taking of salvage lots and scrap yards at the northeast corner of Pacific Coast Highway and Coil Avenue represents a potentially beneficial effect that is supported by the goals of the Wilmington-Harbor City District Plan to upgrade industrial uses in the project area. West of Alameda Street and south of Pacific Coast Highway, the (1) the full taking of auto repair yards represents a potentially beneficial effect that is supported by the goals of the Wilmington-Harbor City District Plan to upgrade industrial uses in the project area; (2) the full taking of multi-family residences to Blinn Street is a significant adverse impact and is not consistent with the goal of the Wilmington-Harbor City District Plan to protect residential areas from encroaching industrial uses. East of Alameda Street and south of Pacific Coast Highway, (1) the partial taking of parking area associated with an industrial use at the southeast corner of Alameda Street and Pacific Coast Highway is not a significant adverse impact because the affected parking spaces can be relocated on the south side of the property; (2) the full taking of an industrial use associated with boat manufacturing activities is a significant adverse impact; and (3) the partial taking of parking space associated with an oil refining facility is not a significant adverse impact because affected parking is only 20 percent of the total available parking area.

West of Henry Ford Avenue and south of Anaheim Street, the partial taking of property associated with a large auto storage yard is not a significant adverse impact because the affected property represents only 2 to 3 percent of the total storage land area. East of Henry Ford Avenue and north of Anaheim Street, the partial taking of a parking area associated with a heavy industrial use is not a significant adverse impact because affected parking is only one third of the total parking area. East of Henry Ford Avenue and south of Anaheim Street, the full taking of parking associated with a heavy industrial use is not a significant adverse impact because displaced parking spaces can be relocated immediately south in a large area of open land.

On the west side of Henry Ford Avenue from Anaheim Street to the Cerritos Channel the partial taking of property associated with a large auto storage and repair facility is not a significant adverse impact because the affected area represents only 3 to 5 percent of the total lot area. East of Henry Ford Avenue the partial taking of parking from a heavy industrial use is not a significant adverse impact because the displaced parking spaces represent only 20 percent of total parking.

- Mitigation Measures

The project should cooperate with the cities of Los Angeles and Carson to ensure that industrial uses subject to full acquisition are relocated within their respective jurisdictions on industrially designated land. Port-related industrial land uses affected by the project should be located as close to the Port of Los Angeles as possible to preserve the viability of their operations.

The project should cooperate with the City of Los Angeles to ensure that displaced residential units are relocated elsewhere within city boundaries.

The project should cooperate with the City of Carson in acquiring new parking areas for industrial uses whose parking has been displaced as a result of project-related construction activities.

5.1.5 Impacts and Mitigation - Alternative 2.1A

Alternative 2.1A consists of a depressed trainway configuration providing for two main line consolidated freight rail tracks, together with an at-grade drill track, to provide for local industrial service. Accompanying the depressed trainway would be a six-lane roadway facility configured as a one-way couplet of three lanes in each direction along the largest portion of the facility. Grade separations would be provided by means of at-grade bridges crossing over the trainway. The land use impacts associated with Alternative 2.1A consist generally of partial industrial and parking-related takes along Alameda Street.

Segment A

- Impacts

On the west side of Alameda Street between I-10 and 15th Street, the project would result in partial frontage takes involving the removal of 3 to 5 feet of street frontage from heavy industrial uses. Between 21st and 25th streets the project would cause partial takes by removing 5 to 10 feet of street frontage from salvage yards and auto repair lots.

On the east side of Alameda Street between I-10 and 25th streets, the project would cause partial takes by removing 25 feet of landscaping and parking from large-scale industrial uses.

- Impact Significance

On the west side of Alameda Street between I-10 and 25th Street, the partial frontage takes of street frontage from heavy industrial uses does not represent a significant adverse impact.

On the east side of Alameda Street between I-10 and 25th streets, the partial taking of landscaping and parking from large-scale industrial uses is not a significant adverse impact.

- Mitigation Measures

No mitigation measures are required because no significant adverse impacts have been identified for this segment.

Segment B1

- Impacts

At the intersection of 24th/25th Street and Alameda Street, the project would result in the full take of a salvage yard west of Alameda Street and north of 24th Street. East of Alameda Street and north of 25th Street the project would cause the full taking of heavy industrial uses.

On the west side of Alameda Street from 24th Street to a point north of 26th Street, the project would result in partial takes involving the removal of 5 feet of landscaping from industrial parks. On the west side of Alameda Street the project would cause (1) partial takes involving the removal of 30 to 40 feet from industrial structures between 41st Place and 46th Street; (2) partial takes involving the removal of 5 to 10 feet of land associated with industrial uses between 46th Street and Slauson Avenue; and (4) a partial take involving the removal of parking spaces from a heavy industrial use at the northwest corner of Randolph and Alameda streets.

On the east side of Alameda Street between 25th and Ross streets, the project would result in (1) partial takes involving the removal of 15 to 35 feet of land and parking spaces associated with heavy industrial uses; (2) a partial take consisting of the removal of one sixth of an industrial building between Ross Street and 37th Street; (3) a partial take consisting of the removal of 15 to 20 feet of parking and frontage space associated with industrial uses between 37th and 38th streets; (4) a partial take involving the removal of 75 feet of a large industrial building at the southeast corner of Alameda and 38th streets; (5) partial takes consisting of the removal of 5 feet of parking and street frontage from industrial uses between 38th and 48th Place; and (6) partial takes consisting of the removal of 25 to 50 feet of industrial properties and parking between 57th and Randolph streets.

- Impact Significance

At the intersection of 24th/25th Street and Alameda Street, the full taking of a salvage yard west of Alameda Street and north of 24th Street represents a potentially beneficial effect that is supported by the goal of the Southeast Los Angeles District Plan to consolidate and improve existing industrially zoned areas for industrial purposes. East of Alameda Street and north of 25th Street the full taking of heavy industrial uses represents a significant adverse impact and would not be consistent with the goal of the Central City North Community Plan to preserve land uses devoted to fabrication, warehousing and distribution activities as predominant industrial activities.

On the west side of Alameda Street, (1) the partial taking of industrial structures between 41st Place and 46th Street is a significant adverse impact because typically one fifth of the industrial properties are taken and no onsite space exists on which to reconfigure the structures; (2) the partial taking of property frontage associated with industrial uses between 46th Street and Slauson Avenue is not a significant impact because affected structures can be reconfigured onsite; and (4) the partial taking of parking spaces from a heavy industrial use at the northwest corner of Randolph and Alameda streets is not a significant adverse impact because affected parking is only 2 to 3 percent of the total parking area.

On the east side of Alameda Street between 25th and Ross streets (1) the partial taking of land and parking spaces associated with heavy industrial uses is not a significant adverse impact because affected parking is only 10 percent of total; (2) the partial taking of an industrial building between Ross Street and 37th Street is not a significant adverse impact because the buildings can be reconfigured on the north side of the property; (3) the partial taking of parking and frontage space associated with industrial uses between 37th and 38th streets is not a significant adverse impact; (4) the partial taking of a large industrial building at the southeast corner of Alameda and 38th streets is not a significant adverse impact because the property can be reconfigured on the north side of the property; and (5) partial takes consisting of the removal of

25 to 50 feet of industrial buildings and parking between 57th and Randolph streets is not a significant impact because affected properties can be reconfigured onsite.

- Mitigation Measures

The project should cooperate with the City of Los Angeles to ensure that large-scale industrial uses subject to full acquisition are relocated within city boundaries on available industrially designated land.

Segment B2

- Impacts

On the west side of Alameda Street, the project would result in (1) partial takes consisting of the removal of 5 to 8 feet of street frontage, landscaping and commercial signage associated with a BMW/VW dealership at the northwest corner of Gage Avenue and Alameda Street; (2) partial takes consisting of the displacement of 15 to 25 feet of street frontage and landscaping from large-scale industrial uses and a minimall from a point north of Hawkins Circle to Florence Boulevard; (3) partial takes involving the displacement of 25 to 25 feet of salvage and industrial storage buildings from 77th Street to Nadeau Street; (4) partial takes involving the removal of 5 to 7 feet of street frontage from salvage yards between Nadeau and 81st streets; (5) a partial take involving the removal of 25 feet of street frontage and parking space from salvage yards and junk lots between Manchester and Firestone Boulevard; and (6) a partial take consisting of the removal of 15 to 20 feet from a fast food restaurant building on the northwest corner of Alameda Street and Firestone Boulevard.

On the east side of Alameda Street between Florence Avenue and 76th Street, the project would result in (1) partial takes consisting of the removal of 50 feet of salvage and storage yards and (2) partial takes involving the removal of approximately 40 to 50 feet from heavy industrial buildings.

- Impact Significance

On the west side of Alameda Street, (1) the partial taking of a BMW/VW dealership at the northwest corner of Gage Avenue and Alameda Street is not a significant adverse impact because the commercial sign can be relocated onsite and sufficient space exists to provide additional landscape buffering between the dealership and the project; (2) the partial taking of salvage and industrial storage buildings from 77th and 81st streets and from Manchester Avenue to Firestone Boulevard constitute potentially beneficial effects that would be supported by the goals of the County of Los Angeles General Plan to revitalize declining portions of existing urban development, with particular attention to deteriorated industrial uses; and (3) the partial taking of a fast food restaurant building on the northwest corner of Alameda Street and Firestone Boulevard represents a significant adverse impact and is not consistent with the goal of the County of Los Angeles General Plan to stimulate neighborhood serving commercial activities in low income residential areas.

On the east side of Alameda Street between Florence Avenue and 76th Street, (1) the partial taking of salvage and storage yards constitutes a potentially beneficial impact that is supported by the goal of the County of Los Angeles General Plan to promote more intensive uses of industrial sites and (2) the partial taking of heavy industrial buildings is not a significant adverse impact because the affected portions of buildings can be reconfigured in open areas behind existing structures.

- Mitigation Measures

The project should cooperate with the County of Los Angeles to relocate a commercial restaurant subject to full acquisition within its boundaries.

The project should assist the County of Los Angeles Community Development Commission (CDC) to consolidate the remaining portions of small scale salvage and heavy industrial lots in order to upgrade their use.

Segment C

- Impacts

West of Alameda Street the project would result in (1) a partial take consisting of the removal of 20 feet from the eastern end of a paper pulp processing building at the southwest corner of Firestone Boulevard and Alameda Street; (2) partial takes consisting of the removal of 30 to 35 feet from properties associated with small salvage lots and heavy industrial uses between Firestone Boulevard and 90th Street; (3) a partial take consisting of the removal of 3 to 4 parking spaces associated with a shopping center between Compton Boulevard and Laurel Street. North of the junction of Alameda Street and Willowbrook Avenue, the project would result in the removal of minor frontage space and landscape buffering associated with a DWP substation. From Willowbrook Avenue to Laurel Park Road, the project would result in the partial taking of railroad land right-of-way.

East of Alameda Street the project would cause the partial removal of frontage and landscape buffering of large scale industrial uses located between Auto Drive South and SR-91.

- Impact Significance

West of Alameda Street (1) the partial taking of a paper pulp processing building at the southwest corner of Firestone Boulevard and Alameda Street is not a significant adverse impact because the affected structure can be relocated west of its current location; (2) the partial taking of properties associated with small salvage lots and heavy industrial uses between Firestone Boulevard and 90th Street is not a significant adverse impact because the affected portion of properties represent only 2 to 3 percent of the total land area at each site; and (3) the partial taking of parking spaces associated with a shopping center between Compton Boulevard and Laurel Street is not a significant adverse impact because affected parking is only 2 to 3 percent of the total available parking area.

East of Alameda Street the partial taking of frontage and landscape buffering from large scale industrial uses between Auto Drive South and SR-91 is not a significant adverse impact because building and parking areas remain intact.

- Mitigation Measures

No mitigation measures are required because no significant adverse impacts have been identified in this segment.

Segment D

Impacts associated with Alternative 2.1A are the same as under Alternative 1.0.

5.1.6 Impacts and Mitigation - Alternative 2.1S

Alternative 2.1S consists of a depressed trainway configuration. The alternative would modify the trainway trench by using sloped walls for a portion of the vertical rise. Grade separations would be provided by means of at-grade bridges crossing over the trainway. The land use impacts associated with Alternative 2.1S consist primarily of partial industrial and parking-related takes along Alameda Street. Full industrial takes in various segments are also prevalent.

Segment A

Impacts associated with Alternative 2.1S are identical to Alternative 1.0.

Segment B1

- Impacts

On the west side of Alameda Street the project would result in partial takes consisting of the removal of 40 feet from industrial buildings and parking areas between 41st Place and 46th Street.

On the east side of Alameda Street the project would cause (1) partial takes involving the removal of 70 feet of parking associated with heavy industrial uses between 26th and Ross streets; (2) partial takes consisting of the removal of 50 feet from the west side of industrial buildings of industrial structures and railroad right-of-way between Ross and 38th streets; (3) partial takes involving the removal of 25 to 30 feet from the western end of heavy industrial buildings and parking areas between 38th Street and Vernon Avenue; (4) a partial take involving the removal of 25 feet of parking associated with a heavy industrial use between 46th and 52nd streets; and (5) partial takes consisting of the removal of 70 feet from the western end of heavy industrial buildings between 52nd Street and Slauson Avenue.

- Impact Significance

On the west side of Alameda Street the partial taking of industrial buildings and parking areas between 41st Place and 46th Street is not a significant adverse impact because affected portions of structures are typically only 10 to 20 percent of total building area and can be reconfigured on site.

On the east side of Alameda Street (1) the partial taking of parking associated with heavy industrial uses between 26th and Ross streets is a significant adverse impact because affected parking represents almost half the available parking area; (2) the partial taking of industrial buildings between Ross Street and Vernon Avenue is not a significant adverse impact because affected structures can be reconfigured on site; (3) the partial taking of parking associated with a heavy industrial use between 46th and 52nd streets is not a significant adverse impact because affected parking is only 3 to 5 percent of total available parking; (4) the partial taking of heavy industrial buildings between 52nd Street and Slauson Avenue is a significant adverse impact because affected portions of buildings cannot be reconfigured on site.

- Mitigation Measures

In the event that the removal of parking spaces hinders the operation of industrial activities in the City of Vernon, the project should assist affected industries in providing additional parking facilities near existing structures.

The project should cooperate with the City of Vernon to determine if industrial uses subject to partial takes can be reconfigured on site in such a manner as to remain in operation; if not, the project should cooperate with the City of Vernon in relocating affected industries, preferably within city boundaries.

Segment B2

- Impacts

On the west side of Alameda Street the project would result in (1) a partial take consisting of the removal of 10 to 20 feet of landscape buffering from the Huntington Park Casino; (2) partial takes consisting of the removal of 30 to 50 feet of land and parking associated with large-scale industrial uses between 67th Street and Florence Avenue; and (3) partial takes involving the removal of 50 to 75 feet of salvage yard property and other small-lot industrial uses between Florence Avenue to a point south of Manchester Avenue.

On the east side of Alameda Street the project would result in (1) partial takes consisting of the removal of 40 feet heavy industrial buildings between Randolph Street and Gage Avenue; (2) partial takes consisting of the removal of 30 to 50 feet from heavy industrial buildings between Gage and Saturn Avenues; (3) exposure of single-family residences; and (4) partial takes consisting of the removal of 20 feet of street frontage and parking from small-lot and large scale industrial uses between 83rd Street and Firestone Boulevard.

- Impact Significance

On the west side of Alameda Street (1) the partial taking of land and parking associated with large-scale industrial uses between 67th Street and Florence Avenue is not a significant adverse impact because affected parking is only 10 to 20 percent of available parking; (2) the partial taking of salvage yard property and other small-lot industrial uses from Florence Avenue to a point south of Manchester Avenue represents a potentially beneficial effect that would contribute to the goals of the County of Los Angeles General Plan to revitalize declining portions of existing urban development, with particular attention to deteriorated industrial and low income residential areas.

On the east side of Alameda Street (1) the partial taking of heavy industrial buildings between Randolph Street and Gage Avenue is not a significant adverse impact because affected portions of buildings represent only 5 to 10 percent of structures and can be reconfigured onsite; (2) the partial taking of heavy industrial buildings between Gage and Saturn Avenues is a significant adverse impact because affected structures cannot be reconfigured onsite and is therefore not consistent with the goal of the Santa Fe Redevelopment Project, which seeks to preserve and upgrade industrial uses in the western portion of Huntington Park; (3) exposure of single-family residences is a significant adverse impact and is not consistent with the goals of the Huntington Park General Plan to buffer residential uses from industrial activities; and (4) the partial taking of street frontage and parking from small-lot and large scale industrial uses between 83rd Street and Firestone Boulevard is not a significant adverse impact because affected parking is only 5 to 10 percent of total available parking.

- Mitigation Measures

The project should cooperate with the City of Huntington Park to determine if industrial uses subject to partial takes can be reconfigured on site in such a manner as to remain in operation; if not, the project should cooperate with the City of Huntington Park in relocating affected industries, preferably within city boundaries.

In the event that residential development is exposed to the project as a result of construction activities in the City of Huntington Park, the project should erect sound walls to buffer homes from the permanent effects of additional truck and train traffic along the Alameda Corridor.

Segment C

- Impacts

West of Alameda Street the project would result in (1) partial takes involving the removal of 25 to 30 feet of property frontage associated with junk yards and salvage lots between Tweedy Boulevard and Imperial Highway; (2) a partial take consisting of the removal of approximately 10 feet from the formal entry gate to Jordan High School, including sidewalk and landscaping; (3) a partial take consisting of the removal of 10 to 15 feet of parking and playground space at the Ritter School; (4) a partial take consisting of the removal of 25 feet from the eastern side of the Lynwood Regional Justice Center between Imperial Highway and 124th Street; (5) a partial take consisting of the removal of 25 feet of landscape buffering from large-scale industrial uses between Imperial Highway and 124th Street; (6) partial takes involving the removal of 20 feet of property frontage from salvage lots and junk yards between 124th and 127th streets; (7) partial takes consisting of the removal of 35 to 40 feet from heavy industrial buildings and parking areas between Alondra and Greenleaf Boulevards; and (8) a partial take consisting of the displacement of 20 to 30 feet from large industrial uses and resultant multi-family residential exposure between Tichenor and Johnson streets.

East of Alameda Street the project would cause (1) partial takes consisting of the removal of 40 feet from large heavy industrial buildings and associated parking areas between Firestone Boulevard and Southern Avenue, and (2) partial takes involving the removal of 10 to 15 feet of street and landscape frontage associated with heavy industrial uses between Mealy and Elm streets.

- Impact Significance

West of Alameda Street; (1) the partial taking of the formal entry gate to Jordan High School, including sidewalk and landscaping, is not a significant impact because access to the high school is preserved; (2) the partial taking of parking and playground space at the Ritter School is a significant adverse impact because portions of this community facility would be removed and elementary school children would be exposed to adjacent truck traffic; (3) the partial taking of land at the Lynwood Regional Justice Center between Imperial Highway and 124th Street is not a significant adverse impact because the affected area represents 2 to 3 percent of the total land area; (4) the partial taking of property frontage from salvage lots and junk yards between 124th and 127th streets is not a significant adverse impact because the affected portions of land are one-eighth to one-sixth the area of each site; (5) the partial taking of heavy industrial buildings and parking areas between Alondra and Greenleaf Boulevards is not a significant adverse impact because affected buildings can be reconfigured on site; and (8) the partial taking of large industrial uses and resultant multi-family residential exposure between Tichenor and Johnson streets is a significant adverse impact because affected industrial buildings cannot be reconfigured on site and the residential exposure is not consistent with the goal of the City of Compton General Plan to buffer residential areas from the project.

East of Alameda Street the partial taking of large heavy industrial buildings and associated parking areas between Firestone Boulevard and Southern Avenue is not a significant impact because the affected portions of structures are typically 5 percent of total building area.

- Mitigation Measures

The project should assist the Los Angeles Unified School District to erect a sound wall buffering the Ritter School from the effects of the project and ensure that the physical integrity of the school's play ground is preserved.

The project should cooperate with the City of Compton to determine if industrial uses subject to partial takes can be reconfigured on site in such a manner as to remain in operation; if not, the project should assist Compton in relocating affected industries, preferably within original city boundaries.

The project should erect a sound wall in the City of Compton to buffer newly exposed residential areas from the effects of additional truck and train traffic.

<u>Segment D</u>

Impacts associated with Alternative 2.1S are the same as under Alternative 1.0.

5.1.7 Impacts and Mitigation - Alternative 2.2

- Impacts

Alternative 2.2 involves a depressed trainway configuration. The primary characteristic of this alternative is the fact that the trainway is routed along the SP Wilmington Branch, between 25th Street and Randolph Street, rather than along Alameda Street. The land use impacts associated with Alternative 2.2 are therefore restricted to Segment B1, occurring on the east side of Long Beach Boulevard between 25th and Randolph streets.

The project would cause (1) a partial take consisting of the removal of 25 feet from the western corner of a large-scale heavy industrial building and truck-related parking facilities between 24th Street and Martin Luther King Boulevard, and (2) partial takes consisting of the removal of 50 feet from large heavy industrial buildings between 41st Street and 41st Place.

Between 41st Place and Vernon Avenue the project would result in (1) full takes of single- and multi-family residences, exposing additional multi-family dwelling units to the project; (2) full takes of salvage lots and scrap metal yards; and (3) partial takes consisting of the removal of approximately 30 to 50 feet from heavy industrial buildings.

Between Vernon Boulevard and 48th Place the project would cause (1) partial takes consisting of the removal of 50 feet from salvage lots and scrap metal yards and (2) full takes of single- and multi-family residences; and (3) exposure of additional single-family residential units to the project. Between 48th Place and 50th Street the project would result in partial takes involving the removal of 75 feet from large-scale industrial buildings. From 50th to 55th streets the project would cause partial takes involving the removal of 55 feet from the western end of three multi-family residences associated with the Pueblo Del Rio Housing Project, including parking areas and recreational facilities.

Between 55th Street and 58th Street the project would result in (1) partial takes consisting of the removal of 60 feet from small-lot salvage and junk yards and larger industrial uses, and (2) exposure of multi-family residential areas. Between 58th and Randolph streets the project would cause (1) a partial take involving the removal of 40 feet from the western end of a large-scale industrial building, and (2) a partial take consisting of the removal of 15 to 30 feet of street frontage associated with a large industrial use.

- Impact Significance

Between 24th Street and Martin Luther King Boulevard the (1) the partial taking of a large-scale heavy industrial building is not a significant adverse impact because only 20 percent of the building is affected and can be reconfigured onsite; (2) the partial taking of truck-related parking facilities represents a significant adverse impact because affected parking constitutes over half the available parking area and is therefore not consistent with the goals of the Southeast Los Angeles District Plan to consolidate existing industrially zoned areas for industrial purposes and encourage improvement of the appearance of industrial areas; and (3) the partial taking of large heavy industrial buildings between 41st Street and 41st Place is not a significant adverse impact because affected structures can be reconfigured onsite.

Between 41st Place and Vernon Avenue (1) the full taking of single- and multi-family residences, exposing additional multi-family dwelling units to the project, is a significant adverse impact and is not consistent with the goal of the Southeast Los Angeles District Plan to preserve stable neighborhoods and separate residential from industrial uses; (2) the full taking of salvage lots and scrap metal yards represents a potentially beneficial effect that is supported by the goal of the Southeast Los Angeles District Plan to consolidate and improve existing industrially zoned areas for industrial uses; and (3) the partial taking of heavy industrial buildings is not a significant adverse impact because affected structures can be reconfigured onsite.

Between Vernon Boulevard and 48th Place (1) the partial taking of salvage lots and scrap metal yards is not a significant adverse impact because affected portions of land represent only 20 to 30 percent of total land area at each site; and (2) the full taking of single- and multi-family residences and resultant exposure of additional single-family residential units is a significant adverse impact and is not consistent with the goal of the Southeast Los Angeles District Plan separate residential and heavy industrial uses.

Between 48th Place and 50th Street the partial taking of large-scale industrial buildings is not a significant adverse impact because the affected portions of each property are typically 5 percent of total building area. From 50th to 55th streets the partial taking of three multi-family residences associated with the Pueblo Del Rio Housing Project, including parking areas and recreational facilities, is a significant adverse impact and is not consistent with the goal of the Southeast Los Angeles District Plan to preserve stable neighborhoods and separate residential from industrial uses.

Between 55th and 58th streets (1) the partial taking of small-lot salvage yards and larger industrial uses is a significant adverse impact because affected properties typically represent approximately one half of total building area and cannot be reconfigured onsite; and (2) the resultant exposure of multi-family residential areas is a significant adverse impact and is not consistent with the goal of the Southeast Los Angeles District Plan to preserve stable neighborhoods and separate residential from industrial uses. Between 58th and Randolph streets the partial taking of a large-scale industrial building is a significant impact because the affected portion of the property cannot be reconfigured onsite.

- Mitigation Measures

The project should cooperate with the cities of Los Angeles and Huntington Park to determine if industrial uses subject to partial takes can be reconfigured on site in such a manner as to remain in operation; if not, the project should cooperate with the cities of Los Angeles and Huntington Park to assist affected industries in relocating, preferably within city boundaries.

The project should cooperate with the City of Los Angeles in providing additional parking facilities for industrial uses whose parking areas are subject to significant adverse parking takes.

The project should cooperate with the City of Los Angeles in relocating residential units removed from the Pueblo Del Rio Housing Project and provide housing for displaced residents.

In the event that additional residential units are exposed, the project should erect sound walls in order to buffer these residential areas from the long term effects of the project.

5.2 POPULATION AND HOUSING

The Alameda Corridor project would affect a small percentage of persons and housing units located in portions of the City of Los Angeles, and the cities of Vernon, Huntington Park, South Gate, Lynwood, Compton and Carson and Los Angeles County communities of Walnut Park, Florence, Willowbrook and Rancho Dominguez. Less than one percent of housing units located within the census tracts near the corridor would be displaced as a result of residential acquisitions under each of the build alternatives. A small number of housing units which could be difficult to relocate, however, would be affected: under Alternative 2.2, approximately 5 units of the Pueblo del Rio housing project as well as parking spaces, a basketball court and child care center located on the project site, would be displaced. In addition, under Alternative 1.0, the project could potentially displace approximately three trailer homes located on El Segundo Boulevard.

5.2.1 Regional Context

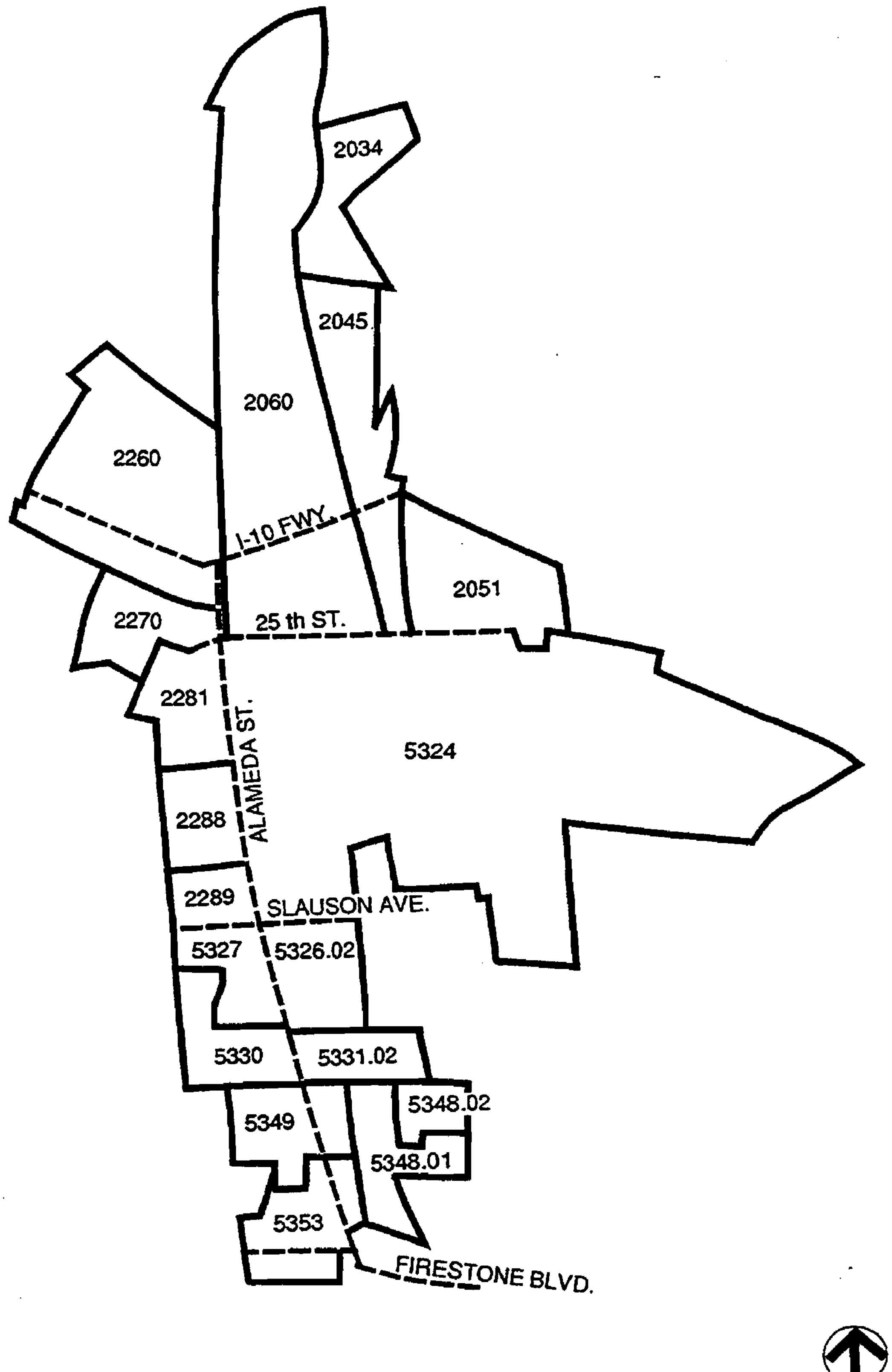
The population and housing study area has been defined to include census tracts within 1,000 feet of the corridor. These census tracts are shown in Figure 5-24.

Data from the 1990 U.S. Census of Population and Housing were aggregated at the segment level to obtain general characteristics of the affected population and housing units. However, because 1990 Census income data was not available at the time of writing, 1980 Census income information was used to estimate median income and the percentage of families living below poverty level (as defined by the U.S. Census Bureau using federal poverty thresholds). In addition, population projections and future housing needs were obtained from the Southern California Association of Governments (SCAG), Regional Housing Needs Assessment, 1988. SCAG projections of existing and future housing needs for the years 1988 and 1989-1994 are provided in this section.

In general, the population near the Alameda Corridor is predominately minority (Hispanic and black) and had lower median family incomes and higher percentages of families living below poverty level in 1980 than the County of Los Angeles overall. Families are classified as below poverty level if their incomes in 1979 were less than federally defined thresholds of poverty, which are based upon family size, age of householder and number of children under 18 years of age in the household. A family of four with an income below $7,412 in 1979, for example, would be considered below poverty level. The reported value of housing units in the corridor were generally half the value of units in the county overall, and a larger proportion of units are single-family, attached and detached, residences. A slightly larger proportion of units in the corridor are renter-occupied, compared to the county, and household sizes are larger than in the county. An overview of population and housing in the corridor segments is described below and summarized in Table 5-2. A summary of population and housing in the cities adjacent to the corridor is provided in Table 5-3 and Table 5-4.

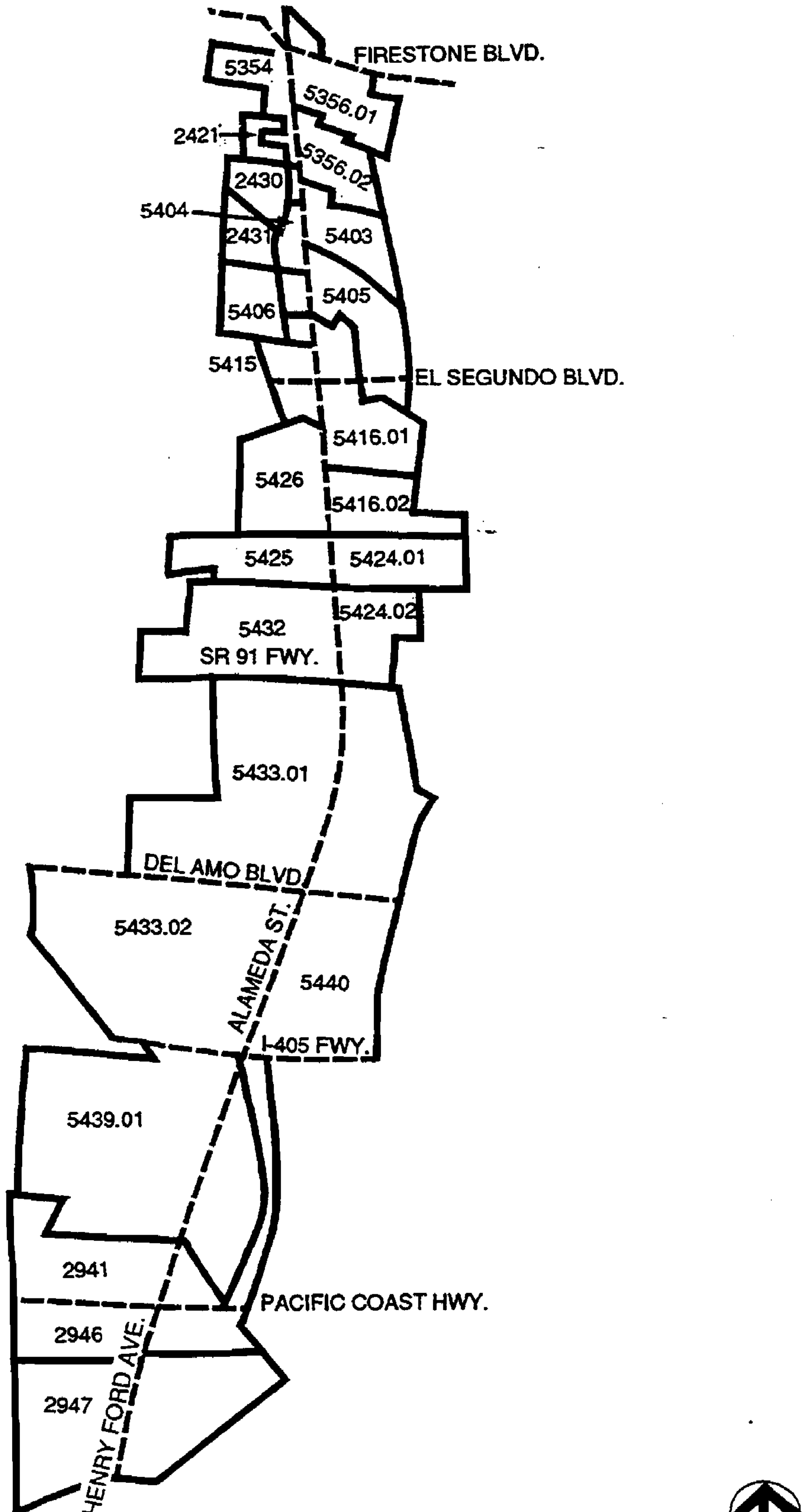
Population

Population in the Alameda Corridor study area totalled 254,673 persons in 1990, a 19 percent increase from 1980, which is similar to the rate of growth for Los Angeles County in that time span. Over 70 percent of the population was non-white: 68 percent Hispanic and 23 percent



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 1 of 2

FIGURE 5-24	Census Tracts Alameda Corridor-Segments A, B1, B2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 2 of 2

FIGURE 5-24	Census Tracts Alameda Corridor-Segments C, D	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

TABLE 5-2
STUDY AREA POPULATION AND HOUSING[1]

POPULATION

SEGMENT	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[2]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE HEADED HOUSEHOLD	PERSONS PER HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
SEGMENT A	39832	25%	35%	15%	4%	3%	44%	77%	30%	5%	21%	4.69	$9,019	33%
SEGMENT B1	13380	36%	17%	29%	5%	0%	48%	68%	43%	5%	29%	4.48	$8,847	39%
SEGMENT B2	46715	15%	28%	4%	1%	0%	65%	92%	37%	5%	18%	4.44	$11,497	25%
SEGMENT C	109832	20%	19%	34%	1%	6%	45%	63%	40%	5%	27%	4.30	$11,344	31%
SEGMENT D	44678	15%	42%	22%	13%	4%	22%	48%	30%	7%	15%	3.64	$19,473	11%
STUDY AREA TOTAL	254637	19%	27%	23%	4%	4%	44%	68%	36%	5%	26%	4.28	$12,036	28%

HOUSING

SEGMENT	#1990 UNITS	% CHANGE FROM 1980	%SINGLE-FAMILY	%MULTI-FAMILY	%OTHER[3]	%VACANT	%RENTER-OCCUPIED	MEDIAN VALUE	MEDIAN RENT
SEGMENT A	8277	26%	24%	71%	5%	5%	94%	$165,700	$416
SEGMENT B1	2988	1%	57%	40%	3%	5%	78%	$127,025	$345
SEGMENT B2	11002	-7%	62%	35%	3%	3%	69%	$118,575	$451
SEGMENT C	26349	4%	64%	34%	2%	4%	60%	$110,583	$422
SEGMENT D	13119	10%	67%	19%	14%	4%	36%	$167,243	$601
STUDY AREA TOTAL	61735	5%	59%	36%	5%	4%	65%	$137,825	$447

Source: Myra L. Frank & Associates, Inc., 1992.

[1] All information was taken from the 1990 U.S. Census with the exception of "Median Income" and "% Below Poverty Level," which were taken from the 1980 U.S. Census.

[2] The 1990 U.S. Census of Population and Housing does not consider "Hispanic origin" a racial category, hence "white" and "Hispanic origin," or "black" and "Hispanic origin," are not mutually exclusive terms.

[3] Includes mobile homes, houseboats or other types of housing units

TABLE 5-3
LOCAL JURISDICTIONS POPULATION[4]

JURISDICTION	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[5]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE-HEADED HOUSEHOLD	PERSONS PER HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
LOS ANGELES COUNTY	8863164	19%	57%	11%	11%	1%	21%	38%	26%	10%	13%	2.91	$21,125	13%
CARSON	83995	3%	35%	26%	25%	1%	14%	28%	27%	8%	14%	3.51	$23,793	6%
COMPTON	90454	11%	11%	55%	2%	0%	32%	44%	37%	6%	27%	4.02	$13,456	24%
HUNTINGTON PARK	56065	21%	31%	1%	2%	1%	65%	92%	35%	6%	4%	4.01	$11,345	20%
LOS ANGELES	3485398	17%	53%	14%	10%	1%	23%	40%	25%	10%	14%	2.80	$15,735	13%
LYNWOOD	61945	-21%	24%	24%	2%	0%	50%	70%	38%	5%	20%	4.29	$15,099	18%
SOUTH GATE	86284	29%	66%	2%	2%	0%	55%	83%	35%	7%	15%	3.84	$14,609	12%
VERNON	350	3%	43%	3%	3%	0%	51%	34%	28%	7%	2%	3.91	$15,000	16%

Source: Myra L. Frank & Associates, Inc. 1992

[4] All information was taken from the 1990 U.S. Census with the exception of "Median Income" and "% Below Poverty Level," which were taken from the 1980 U.S. Census.

[5] The 1990 U.S. Census of Population and Housing does not consider "Hispanic origin" a racial category, hence "white" and "Hispanic origin," or "black" and "Hispanic origin," are not mutually exclusive terms.

TABLE 5-4
LOCAL JURISDICTIONS HOUSING[6]

JURISDICTION	#1990 UNITS	% CHANGE FROM 1980	%SINGLE -FAMILY	%MULTI-FAMILY	%OTHER[7]	%VACANT	%RENTER-OCCUPIED	MEDIAN VALUE	MEDIAN RENT
LOS ANGELES COUNTY	3163343	11%	56%	41%	3%	6%	52%	$226,400	$570
CARSON	24441	5%	78%	10%	12%	3%	21%	$188,100	548
COMPTON	23239	4%	75%	22%	3%	4%	43%	$108,000	$477
HUNTINGTON PARK	14515	-7%	46%	52%	2%	4%	71%	$163,700	$482
LOS ANGELES	1299963	9%	47%	52%	2%	6%	61%	$244,500	$544
LYNWOOD	14525	0%	65%	33%	2%	3%	52%	$136,000	$502
SOUTH GATE	22946	-3%	63%	34%	3%	2%	51%	$162,500	$508
VERNON	91	-6%	32%	68%	0%	3%	94%	$212,500	$367

Source: Myra L. Frank & Associates, Inc. 1992

black.[8] Most of the growth in the corridor over the last decade was due to an increase in the Hispanic population, which grew 70 percent. The population in the corridor was slightly younger than the county population, with over 30 percent of the corridor population under 18 years and only 5 percent of the population over 65 years. Los Angeles County, by comparison, had 26 percent of the its population below 18 years of age and 10 percent over 65 years.

On average, median family incomes were lower and the percentage of families living below the poverty level in 1980 were higher than the county averages. The median family income for the study area in 1980 was $12,000, which was a little more than half the median family income for the county, $21,125. The percentage of families living below poverty level in the corridor was 28 percent in 1980 while the county figure was 13 percent.

According to SCAG population projections, Los Angeles County's population is expected to grow by 15 percent over the next 18 years, reaching 10.2 million by the year 2010. In contrast, cities within the corridor study area, with the exception of Carson, are projected to have lower or even negative rates of population growth. The populations of the cities of Huntington Park, Lynwood, South Gate and Vernon are expected to decrease by 2,845, 5440, 3,827 and 66 persons, respectively, by the year 2010 with negative growth rates ranging from 5 to 40 percent as

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6 All information taken from the 1990 U.S. Census.

7 Includes mobile homes, houseboats or other types of housing units

8 It should be noted that "Hispanic origin" is not a racial category, hence "black" and "Hispanic origin" are not mutually exclusive terms. An individual may be white and Hispanic, or black and Hispanic. For this discussion, Hispanic is defined as all persons, regardless of race, who are of Hispanic origin.

compared with 1990 populations. The City of Carson is expected to incur the largest growth increase of 17 percent, followed by Los Angeles, 10 percent, and Compton, 5 percent.

Housing

In 1990, housing in the study area totalled 61,735 units, a 5 percent increase from 1980. Over 36 percent of housing units were multi-family (two or more units in a structure) and 59 percent of all units were single-family (attached and detached) units. The remaining housing units included trailer park units, houseboats or other types of housing units. The percent of single-family units was slightly higher for the corridor (60 percent) than for the county (56 percent). The average vacancy rate for the corridor (4 percent) was less than the county's rate (6 percent). Over 65 percent of all occupied units were occupied by renters, rather than owners, which was slightly higher than the county percentage (52 percent).

The range of median values for a typical housing unit was $81,300 to $225,000. The average of these for the entire corridor was $126,700 in 1990, which was a little more than half the median value for the county, $226,400. The median housing value for the corridor increased by 100 percent from 1980 to 2990, while the median value for the county increased by 160 percent (without adjusting for inflation). On average, the median contract rent for the corridor, $440 per month, was slightly less than the median contract rent for the county ($570). On average, 4 to 5 persons resided per household in the corridor, while 2 to 3 resided per household in the county.

Similar to population growth, household growth in the corridor is expected to increase at a lower rate than in the county as a whole. SCAG's 1988 Regional Housing Needs Assessment estimated that Los Angeles County would experience an increase of 205,864 households from 1989-1994. Assuming that one-fifth of that increase had occurred by 1990, the expected household growth from 1990 to 1994 would be 6 percent of the total number of households existing in 1990. The cities of Los Angeles, Carson and Compton would experience slightly lower increases in household growth by 1994 (between 5 to 6 percent). The cities of Lynwood, South Gate, Huntington Park and Vernon were projected to experience growth rates of one percent or less by 1994.

SCAG also estimated that Los Angeles County would experience a housing need of an additional 291,983 units between 1988 and 1994, based on SCAG household growth forecasts, vacancy rate goals and expected demolitions.[9] The number of housing units needed between 1988 and 1994, according to SCAG, for each of the cities in the corridor would be as follows: Carson, 1,982 units; Compton, 2,374 units; Huntington Park, 1,222 units; Lynwood, 453 units; South Gate, 899 units; and Vernon, 0 units. The additional housing need for the entire area of unincorporated Los Angeles County would be 33,866 units and 129,100 units for the City of Los Angeles. The corridor study area, however, includes only a small portion of both unincorporated Los Angeles County and the City of Los Angeles. Assuming that one-fifth of the housing stock need had been met by the end of each year since 1988, the housing need in Los Angeles County from 1990 to 1994 would be 7.4 percent of its 1990 total housing stock. For the cities along the corridor, the future housing need as a percentage of their 1990 units would be as

[9] SCAG. Table 14: Revised RHNA Future Needs Factors. 1988 Revised Regional Housing Needs Assessment. p. IV-11.

follows: Carson, 7 percent; Compton, 8 percent; Huntington Park, 7 percent; Los Angeles, 8 percent; Lynwood, 3 percent; South Gate, 3 percent; and Vernon, 0 percent.

5.2.2 Local Context

Population and housing characteristics vary little among the segments, with the exception of Segment D, which had a higher 1980 median family income, lower percentage of 1990 minority populations, and lower percentage of families living below poverty level than the other segments. The following section provides descriptions of population and housing within census tracts adjacent to or within 1,000 feet of the corridor for each segment. Population and housing data of census tracts straddling two segments were assigned to the predominant segment. Tables 5-8 through 5-9 provide details of population characteristics for each segment. Tables 5-10 through 5-14 describe housing characteristics for each segment.

Population Characteristics by Segment

- Segment A

Segment A is located within the southeast and north central communities of the City of Los Angeles, and it includes census tracts 2034, 2051, 2045, 2260, 2060, and 2270. In 1990, the total population in this segment was 39,832 persons, a 25 percent increase from 1980. The total increase for the city of Los Angeles in that time span was 17 percent.

The 1990 population in this area was largely Hispanic: 77 percent of the segment population, which was a higher proportion than the city as a whole (40 percent). From 1980 to 1990, the black population in the area decreased while the Hispanic population increased by 40 percent. The segment population also had a higher percent of youths (30 percent) than the city as a whole but a smaller proportion of elderly (5 percent in the segment as compared with 10 percent for the city. A larger share of households were headed by women in the corridor area (24 percent) than in Los Angeles (14 percent). Household incomes also tended to be lower here than in the city overall. Median incomes for the segment in 1980 ranged from $7,300 to $11,500; the average of these values was $9,019, about 60 percent of the 1990 median income of the entire City of Los Angeles. In addition, 33 percent of households in the segment in 1980 were living below federally defined poverty thresholds, compared to 13 percent for the City of Los Angeles.

- Segment B1

Segment B1 traverses portions of cities of Los Angeles and Vernon and include census tracts 2281, 2288, 2289 and 5324. In 1990, total population of the segment was 13,380 persons, a 36 percent increase since 1980 and the fastest growing area of the corridor. The population in this area is predominately non-white, with higher percentages of Hispanic (68 percent) and black (29 percent) populations than either the cities of Vernon or Los Angeles, which were 34 percent Hispanic, 3 percent black (Vernon) and 40 percent Hispanic and 14 percent black (Los Angeles). Most of the segment's growth was attributable to a 172 percent increase in the Hispanic population, which burgeoned to 9,140 in 1990. The population also has a higher percent of youths (43 percent) than either city. A larger share of households are headed by women in the corridor area (29 percent) than in Los Angeles (14 percent) or Vernon (2 percent). Household

TABLE 5-5
SEGMENT A POPULATION[10]

CENSUS TRACT	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[11]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE-HEADED HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
LOS ANGELES													
2034	3841	-1%	52%	7%	2%	1%	38%	90%	46%	4%	9%	$7,344	47%
2051	6616	18%	61%	1%	1%	1%	36%	97%	39%	4%	26%	$11,585	27%
2045	6200	10%	54%	4%	12%	1%	29%	81%	35%	12%	26%	$8,896	38%
2260	4161	276%	22%	17%	5%	1%	56%	81%	26%	5%	12%	$8,835	31%
2060	9252	6%	22%	34%	6%	0%	38%	42%	9%	1%	20%	$7,312	29%
2270	7762	38%	15%	18%	0%	0%	67%	83%	39%	4%	22%	$10,143	28%
SEGMENT TOTAL	39832	25%	35%	15%	4%	3%	44%	77%	30%	5%	21%	$9,019	33%

Source: Myra L. Frank & Associates, Inc. 1992

10 All information taken from the 1990 U.S. Census with the exception of "Median Income" and "Percent Below Poverty Level," which were taken from the 1980 U.S. Census.

11 The 1990 U.S. Census of Population and Housing does not consider "Hispanic origin" a racial category, hence "white" and "Hispanic origin," or "black" and "Hispanic origin," are not mutually exclusive terms.

TABLE 5-6
SEGMENT B1 POPULATION[12]

CENSUS TRACT	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[13]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE-HEADED HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
LOS ANGELES:													
2281	4911	43%	17%	21%	1%	0%	62%	80%	42%	5%	21%	$7,510	39%
2288	4914	36%	17%	36%	4%	0%	42%	63%	43%	5%	32%	$7,494	42%
2289	3205	30%	15%	35%	14%	0%	36%	56%	45%	4%	38%	$5,365	60%
SUBTOTAL	13030	37%	17%	30%	5%	0%	48%	68%	43%	5%	29%	$6,790	47%
VERNON:													
5324	350	3%	35%	1%	1%	0%	63%	92%	37%	3%	5%	$15,000	16%
SEGMENT TOTAL	13380	36%	17%	29%	5%	0%	48%	68%	43%	5%	29%	$10,546	51%

Source: Myra L. Frank & Associates, Inc. 1992

12 All information taken from the 1990 U.S. Census with the exception of "Median Income" and "Percent Below Poverty Level," which were taken from the 1980 U.S. Census.

13 The 1990 U.S. Census of Population and Housing does not consider "Hispanic origin" a racial category, hence "white" and "Hispanic origin," or "black" and "Hispanic origin," are not mutually exclusive terms.

TABLE 5-7
SEGMENT B2 POPULATION[14]

CENSUS TRACT	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[15]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE-HEADED HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
HUNTINGTON PARK:													
5326.02	6187	1%	33%	2%	3%	1%	63%	92%	36%	4%	19%	$10,983	27%
5331.02	7053	17%	28%	0%	1%	0%	70%	94%	33%	7%	17%	$8,750	23%
SUBTOTAL	13240	9%	28%	1%	6%	1%	66%	93%	35%	5%	17%	$9,867	25%
LA COUNTY:													
5327	2830	6%	41%	7%	0%	0%	51%	94%	40%	4%	18%	$10,274	32%
5330	7297	16%	27%	6%	1%	0%	66%	94%	40%	4%	20%	$11,871	25%
5348.01	8231	24%	30%	0%	1%	1%	68%	94%	34%	6%	17%	$13,606	15%
5348.02[16]	2760	Not applic.	34%	0%	2%	0%	64%	91%	32%	6%	14%	$13,606	15%
5349	6560	15%	30%	4%	1%	0%	65%	95%	39%	5%	17%	$11,752	26%
5353	5797	16%	17%	16%	0%	1%	67%	85%	39%	5%	23%	$11,132	33%
SUBTOTAL	33474	17%	28%	5%	1%	1%	65%	92%	38%	5%	18%	$12,040	25%
SEGMENT TOTAL	46715	15%	29%	4%	1%	0%	65%	92%	37%	5%	18%	$11,497	25%

Source: Myra L. Frank & Associates, Inc. 1992

[14] All information taken from the 1990 U.S. Census with the exception of "Median Income" and "Percent Below Poverty Level," which were taken from the 1980 U.S. Census.

[15] The 1990 U.S. Census of Population and Housing does not consider "Hispanic origin" a racial category, hence "white" and "Hispanic origin," or "black" and "Hispanic origin," are not mutually exclusive terms.

[16] 1990 U.S. Census split census tract 5348 into two new tracts, 5348.01 and 5348.02. Population changes in the census tract since 1980 are shown in conjunction with tract 5348.01.

TABLE 5-8
SEGMENT C POPULATION[17]

CENSUS TRACT	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[1]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE-HEADED HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
L.A. COUNTY:													
5354	2842	27%	10%	38%	0%	0%	51%	63%	42%	6%	32%	$8,652	30%
5404	1636	41%	14%	35%	1%	1%	49%	65%	42%	5%	33%	$8,665	35%
5406	3192	9%	10%	58%	1%	0%	32%	42%	36%	10%	28%	$7,312	36%
5415	5510	14%	21%	17%	1%	0%	62%	83%	42%	6%	24%	$12,673	29%
LOS ANGELES:													
2421	2760	-12%	2%	83%	0%	1%	15%	17%	55%	1%	73%	$5,438	68%
2430	5280	39%	12%	29%	0%	0%	58%	62%	42%	5%	25%	$11,806	33%
2431	4565	20%	7%	64%	0%	0%	29%	37%	44%	6%	50%	$6,609	55%
SUBTOTAL	25787	18%	12%	43%	0%	2%	44%	55%	43%	6%	37%	$8,376	41%
SOUTH GATE:													
5356.01	12528	33%	44%	1%	1%	0%	53%	92%	37%	5%	16%	$12,997	18%
5356.02	7083	27%	52%	2%	0%	0%	46%	94%	38%	4%	15%	$12,223	19%
SUBTOTAL	19611	30%	47%	1%	1%	1%	51%	93%	38%	4%	15%	$12,610	19%
LYNWOOD:													
5403	5442	27%	29%	8%	1%	0%	61%	86%	39%	4%	16%	$14,756	22%
5405	11050	19%	21%	24%	2%	1%	52%	74%	40%	3%	26%	$13,457	27%
SUBTOTAL	16492	21%	24%	19%	2%	1%	55%	78%	40%	3%	22%	$14,106	25%

[17] All information taken from the 1990 U.S. Census with the exception of "Median Income" and "Percent Below Poverty Level," which were taken from the 1980 U.S. Census.

TABLE 5-8 (cont'd)
SEGMENT C POPULATION

CENSUS TRACT	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[1]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE-HEADED HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
COMPTON:													
5416.01	9206	34%	16%	35%	1%	1%	48%	67%	41%	4%	26%	$11,966	35%
5416.02	7059	10%	11%	45%	1%	0%	43%	54%	40%	4%	29%	$11,898	25%
5426	7999	12%	13%	33%	1%	1%	53%	68%	40%	4%	27%	$12,278	28%
5425	7910	33%	7%	59%	7%	0%	27%	34%	41%	5%	29%	$9,386	34%
5424.01	4757	6%	8%	66%	1%	0%	25%	31%	35%	6%	26%	$14,133	26%
5424.02	3086	4%	10%	67%	2%	0%	22%	30%	34%	5%	24%	$17,708	11%
5432	7925	9%	8%	53%	1%	0%	37%	46%	39%	5%	28%	$12,233	26%
SUBTOTAL	47942	17%	11%	48%	2%	2%	39%	51%	39%	4%	27%	$12,800	26%
SEGMENT TOTAL	109832	20%	19%	34%	1%	6%	45%	63%	40%	5%	27%	$11,344	31%

Source: Myra L. Frank & Associates, Inc. 1992

TABLE 5-9
SEGMENT D POPULATION[18]

CENSUS TRACT	1990 POPULATION	% CHANGE FROM 1980	%WHITE	%BLACK	%ASIAN, PACIFIC ISLANDER	%NATIVE AMERICAN	%OTHER	%HISPANIC ORIGIN[19]	%UNDER 18 YEARS	%OVER 65 YEARS	%FEMALE-HEADED HOUSEHOLD	MEDIAN INCOME	%BELOW POVERTY LEVEL
LA COUNTY:													
5433.01	9166	19%	24%	70%	3%	0%	3%	6%	21%	9%	15%	$26,479	2%
CARSON:													
5433.03	6641	1%	27%	24%	36%	1%	13%	23%	26%	8%	16%	$23,568	4%
5440	6622	10%	50%	6%	16%	1%	27%	42%	30%	9%	13%	$20,818	6%
5439.01	4753	27%	38%	17%	26%	1%	19%	49%	36%	5%	21%	$19,109	15%
SUBTOTAL	18016	10%	38%	16%	26%	1%	20%	37%	30%	7%	16%	$21,165	9%
LOS ANGELES:													
2941	6519	19%	55%	8%	9%	1%	28%	72%	34%	6%	16%	$18,614	13%
2946	7932	15%	55%	2%	3%	1%	40%	89%	35%	7%	14%	$15,393	12%
2947	3245	20%	61%	4%	2%	1%	32%	77%	32%	6%	11%	$12,333	24%
SUBTOTAL	17696	18%	56%	5%	5%	1%	34%	81%	34%	6%	16%	$15,447	16%
SEGMENT TOTAL	44878	15%	42%	22%	13%	4%	22%	48%	30%	7%	15%	$19,473	11%

Source: Myra L. Frank & Associates, Inc. 1992

[18] All information taken from the 1990 U.S. Census with the exception of "Median Income" and "Percent Below Poverty Level," which were taken from the 1980 U.S. Census.

[19] The 1990 U.S. Census of Population and Housing does not consider "Hispanic origin" a racial category, hence "white" and "Hispanic origin," or "black" and "Hispanic origin," are not mutually exclusive terms.

TABLE 5-10
SEGMENT A HOUSING CHARACTERISTICS[20]

CENSUS TRACT	#1990 UNITS	% CHANGE FROM 1980	%SINGLE-FAMILY	%MULTI-FAMILY	%OTHER[21]	%VACANT	%RENTER-OCCUPIED	MEDIAN VALUE	MEDIAN RENT	PERSONS PER HOUSEHOLD
LOS ANGELES:										
2034	892	1%	11%	87%	6%	1%	98%	$125,000	$239	4.32
2051	1813	-3%	16%	81%	3%	2%	94%	$127,300	$410	4.82
2045	1606	11%	21%	77%	3%	4%	93%	$118,500	$324	3.66
2260	1215	331%	28%	68%	4%	9%	90%	$125,700	$322	3.31
2060	1044	111%	2%	78%	21%	8%	99%	$225,000	$378	2.59
2270	1707	6%	53%	46%	1%	5%	76%	$107,000	$409	4.76
SEGMENT TOTAL	8277	26%	24%	71%	5%	5%	94%	$165,700	$416	4.69

Source: Myra L Frank & Associates, Inc. 1992

TABLE 5-11
SEGMENT B1 HOUSING[22]

CENSUS TRACT	#1990 UNITS	% CHANGE FROM 1980	%SINGLE-FAMILY	%MULTI-FAMILY	%OTHER[23]	%VACANT	%RENTER-OCCUPIED	MEDIAN VALUE	MEDIAN RENT	PERSONS PER HOUSEHOLD
LOS ANGELES:										
2281	1032	4%	66%	33%	2%	4%	96%	69%	$102,200	$409
2288	1140	-2%	59%	37%	3%	7%	94%	73%	$101,900	$371
2289	725	3%	46%	51%	4%	3%	97%	82%	$91,500	$234
SUBTOTAL	2897	1%	58%	39%	3%	5%	95%	78%	$98,533	$338
VERNON:										
5324	91	-6%	32%	68%	0%	3%	97%	94%	$212,500	$367
SEGMENT TOTAL	2988	1%	57%	40%	3%	5%	95%	78%	$127,025	$345

Source: Myra L Frank & Associates, Inc. 1992

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[20] All information taken from the 1990 U.S. Census.

[21] Includes mobile homes, houseboats or other types of housing units

[22] All information taken from the 1990 U.S. Census.

[23] Includes mobile homes, houseboats or other types of housing units

TABLE 5-12
SEGMENT B2 HOUSING[24]

CENSUS TRACT	#1990 UNITS	% CHANGE FROM 1980	%SINGLE-FAMILY	%MULTI-FAMILY	%OTHER[25]	%VACANT	%RENTER-OCCUPIED	MEDIAN VALUE	MEDIAN RENT	PERSONS PER HOUSEHOLD
HUNTINGTON PARK:										
5326.02	1471	-15%	42%	57%	1%	5%	77%	$158,000	$494	4.40
5331.02	2014	-14%	23%	75%	2%	4%	91%	$146,800	$454	3.63
SUBTOTAL	3485	-14%	31%	67%	2%	4%	88%	$81,300	$474	4.44
L.A. COUNTY:										
5327	634	-6%	73%	20%	7%	5%	71%	$112,500	$410	4.72
5330	1508	-1%	78%	20%	2%	2%	66%	$118,800	$426	4.92
5348.01	1955	-32%	70%	29%	2%	2%	54%	$159,400	$469	4.30
5348.02[26]	681	N/A	77%	21%	2%	4%	48%	$175,200	$483	4.21
5349	1457	0%	79%	17%	5%	5%	65%	$114,700	$458	4.74
5353	1282	1%	82%	13%	5%	2%	55%	$105,400	$411	4.62
SUBTOTAL	7517	-3%	76%	21%	3%	3%	61%	$131,000	$443	4.59
SEGMENT TOTAL	11002	-7%	62%	35%	3%	3%	70%	$118,575	$451	4.44

Source: Myra L. Frank & Associates, Inc. 1992

24 All information taken from the 1990 U.S. Census.

25 Includes mobile homes, houseboats or other types of housing units

26 Census tract 5348.02 was created in the 1990 U.S. Census.

TABLE 5-13
SEGMENT C HOUSING[27]

CENSUS TRACT	#1990 UNITS	% CHANGE FROM 1980	%SINGLE-FAMILY	%MULTI-FAMILY	%OTHER[2]	%VACANT	%RENTER-OCCUPIED	MEDIAN VALUE	MEDIAN RENT	PERSONS PER HOUSEHOLD
L.A. COUNTY:										
5354	677	15%	84%	14%	3%	4%	59%	$93,800	$424	4.38
5404	352	15%	85%	13%	2%	5%	51%	$93,800	$372	4.87
5406	971	7%	70%	28%	2%	10%	64%	$105,000	$364	3.59
5415	1168	11%	78%	19%	3%	5%	58%	$89,200	$408	4.94
LOS ANGELES:										
2421	691	0%	5%	94%	2%	1%	100%	$87,500	$181	4.04
2430	1105	16%	92%	6%	2%	4%	47%	$93,600	$422	4.95
2431	1148	10%	48%	50%	2%	3%	75%	$91,900	$199	3.96
SUBTOTAL	6112	10%	66%	32%	2%	4%	68%	$93,543	$339	4.39
SOUTH GATE:										
5356.01	2930	-2%	52%	46%	1%	2%	65%	$153,900	$497	4.33
5356.02	1577	-3%	63%	35%	2%	2%	54%	$148,400	$483	4.55
SUBTOTAL	4507	-2%	56%	43%	2%	2%	62%	$151,150	$490	4.44
LYNWOOD:										
5403	1196	-3%	72%	25%	3%	3%	45%	$122,500	$515	4.65
5405	2415	-1%	56%	43%	1%	3%	64%	$126,900	$499	4.64
SUBTOTAL	3611	-2%	61%	37%	5%	3%	59%	$124,700	$507	4.65
COMPTON:										
5416.01	2091	6%	59%	34%	7%	3%	64%	$107,200	$473	4.51
5416.02	1771	-5%	65%	33%	2%	5%	60%	$105,300	$472	4.17
5426	1833	-1%	66%	33%	1%	3%	59%	$98,300	$431	4.51
5425	2245	32%	56%	43%	1%	5%	61%	$127,000	$419	3.65
5424.01	1316	-3%	79%	19%	2%	5%	35%	$117,400	$459	3.81
5424.02	844	8%	84%	13%	4%	3%	28%	$118,200	$461	3.75
5432	2019	5%	77%	21%	2%	4%	49%	$110,600	$509	4.10
SUBTOTAL	12119	6%	67%	30%	4%	4%	56%	$112,000	$461	4.07
SEGMENT TOTAL	26349	4%	64%	34%	2%	4%	60%	$110,583	$422	4.30

Source: Myra L. Frank & Associates, Inc. 1992

27 All information taken from the 1990 U.S. Census.

TABLE 5-14
SEGMENT D HOUSING CHARACTERISTICS[28]

CENSUS TRACT	#1990 UNITS	% CHANGE FROM 1980	%SINGLE-FAMILY	%MULTI-FAMILY	%OTHER[29]	%VACANT	%RENTER-OCCUPIED	MEDIAN VALUE	MEDIAN RENT	PERSONS PER HOUSEHOLD
L.A. COUNTY:										
5433.01	3017	20%	66%	0%	34%	1%	5%	$195,100	$867	3.01
CARSON:										
5433.03	1994	5%	63%	20%	16%	4%	28%	$211,400	$673	3.46
5440	2077	2%	88%	10%	2%	3%	30%	$168,200	$563	3.29
5439.01	1074	11%	86%	8%	6%	4%	26%	$117,400	$695	4.59
SUBTOTAL	5145	5%	78%	13%	9%	4%	30%	$165,667	$644	3.78
LOS ANGELES:										
2941	1749	18%	70%	28%	1%	3%	46%	$161,800	$513	3.85
2946	2087	7%	60%	36%	4%	4%	61%	$159,300	$453	3.96
2947	1121	2%	26%	46%	28%	18%	69%	$157,500	$443	3.32
SUBTOTAL	4957	10%	56%	35%	8%	7%	62%	$159,533	$470	3.71
SEGMENT TOTAL	13119	10%	67%	19%	14%	4%	36%	$167,243	601	3.64

Source: Myra L. Frank & Associates, Inc. 1992

[28] All information taken from the 1990 U.S. Census.

[29] Includes mobile homes, houseboats or other types of housing units

incomes also tend to be lower here than in the cities overall. Median incomes for the area in 1980 ranged from $5,300 to $15,000; the average of these values was $8,847, which is almost half of the median income for the City of Los Angeles ($15,700) and Vernon ($15,000). In addition, 39 percent of all households in the segment in 1980 were living below federally defined poverty thresholds, compared to 13 percent for Los Angeles and 16 percent for Vernon.

- Segment B2

Segment B2 is located in the City of Huntington Park and the Florence and Walnut Park communities of Los Angeles County. The area encompasses two census tracts in Huntington Park (5356.02 and 5331.02) and six in the county (5327, 5330, 5348.01, 5348.02, 5349 and 5353). The segment population in 1990 was 46,715 persons, an increase of 15 percent since 1980. This growth rate was less than the City of Huntington Park's growth increase (21 percent) and the Los Angeles County growth increase (19 percent) from 1980 to 1990.

The demographic characteristics of the segment are similar to the population of Huntington Park. The segment was 92 percent Hispanic, with 37 percent of its population under 18 years. Families living below poverty level made up 25 percent of all families in 1980, and the median family income in 1980 on average ranged from $8,700 to $13,000. The average for these was $49,700. Compared to the county, however, the segment had higher percentages of minority population, youth and female-headed households, and families living below the poverty line. In addition, the average median income for the area in 1980 was about one-third of the county's median income ($21,125). These figures are comparable to those in Huntington Park, however, where the 1980 median income was $11,300, 20 percent of families lived below poverty level, 92 percent of the 1990 population was Hispanic, and 35 percent of the 1990 population was under 18 years of age.

- Segment C

Segment C traverses the cities of South Gate, Lynwood, Los Angeles and Compton and the communities of Willowbrook and Walnut Park of Los Angeles County. Because of the large size of the segment, it has been divided by jurisdiction. Los Angeles County and the City of Los Angeles are grouped together and include census tracts 5354, 5404, 5406, 5415, 2421, 2430, and 2431. The City of South Gate includes tracts 5356.01 and 5356.02; Lynwood includes tracts 5403 and 5405; and Compton includes tracts 5416.01, 5416.02, 5426, 5425, 5424.01, 5424.02 and 5432.

The total 1990 population for the segment was 109,832 persons of which 34 percent were black and 63 percent Hispanic, which are larger percentages than the countywide proportions of Hispanic (38 percent) and black (11 percent) residents.

<u>South Gate</u>

In 1990, 19,611 persons lived in the portion of the segment within the city of South Gate, approximately 30 percent more than in 1980. The city itself experienced a 29 percent growth increase since 1980. The South Gate portion of the segment is predominately Hispanic (93 percent) and white (47 percent). The 1990 U.S. Census categorizes "Hispanic" as an ethnic category and "white" as a racial category; hence, "Hispanic" and "white" are not mutually exclusive terms, and an individual could be both Hispanic and white. Much of the population expansion in the South Gate portion of the segment was attributable to a 56 percent increase in the Hispanic population from 1980 to 1990. The age distribution in the South Gate portion of the segment was similar to the city, with 38 percent of the population below 19 years and 4 percent over 65 years of age. The proportion of women-headed households in the South Gate portion of the segment (15 percent) was the same for the city as well. The 1980 median income for the area ($12,610), however, was slightly lower and the percentage of families below the poverty level (19 percent) slightly higher than the city's figures ($14,600 and 12 percent).

Compton

The portion of the segment within the city of Compton had a 1990 population of 47,942 persons. The growth from 1980 to 1990 (17 percent) was higher than the growth for the city as a whole during that same time period (11 percent). Most of this growth was due to a doubling of the Hispanic population, which comprised 51 percent of the Compton portion of the segment in 1990. The black population constituted 48 percent of the population although it decreased 16 percent from 1980 to 1990. The age distribution and percent of female-headed households in the corridor area were similar to the city's distribution, with 39 percent of all persons under the age of 19 years and 27 percent of all households headed by women. The 1980 median income for the area ranged from $9,300 to $17,700. The average of these values, $12,800, was slightly lower than the city's median ($13,400) and its proportion of families living below poverty level (26 percent) was slightly higher than the city's percentage (24 percent).

Lynwood

In 1990, the Lynwood portion of the segment had a population of 16,492. From 1980 to 1990, the Lynwood part of the segment experienced a population increase of 21 percent while the city's total population fell by the same magnitude. In that time frame, the Hispanic population, which comprised 70 percent of all persons, nearly doubled while its black population, 19 percent of the 1990 total, fell by 26 percent and its white population, 24 percent of the 1990 total, fell by 24 percent. The city as a whole experienced similar demographic shifts. The percent of youths, elderly, and women-headed households are similar to the city's composition (40 percent youths, 3 percent elderly and 22 percent female-headed households). Like the other subsegment areas, the Lynwood portion of the segment in 1980 had a lower median income ($14,000) and a higher percent of families below poverty (26 percent) than the city ($15,000 and 18 percent).

Los Angeles County and the City of Los Angeles

The jurisdictions of Los Angeles County and City of Los Angeles were grouped together because they share similar racial, ethnic and income characteristics, as well as being geographically linked on the west side of Alameda Street. The total 1990 population for the Los Angeles County and City portions of the segment was 25,787, an increase of 18 percent from 1980. Approximately 43 percent of population was black and 55 percent Hispanic in 1990. From 1980 to 1990, the Hispanic population increased 94 percent while the black population decreased 22 percent. The area had a higher proportion of youths (43 percent) compared to the City of Los Angeles (25 percent) although only slightly higher than the proportion of youths elsewhere in the corridor. The area also had a much higher percentage of female-headed households (37 percent) compared to the city (14 percent) as well as other portions of Segment C. The median income in 1980 was also markedly lower in this portion of the segment, ranging from $5,400 to $112,600, in the City of Los Angeles ($15,735) or other areas within the segment. As a result, over 41 percent of all families in 1980 lived below the poverty level, which is the highest percent of all portions of Segment C and all other segments.

- Segment D

Segment D traverses the cities of Los Angeles, Carson and the Rancho Dominguez community of Los Angeles County. The area encompasses one census tract in Rancho Dominguez (5433.01) three in Carson (5433.03, 5440, 5439.01) and three in the City of Los Angeles (2941, 2946, and 2947). The 1990 total population for the segment was 44,878, a 15 percent increase since 1980. The City of Carson had an increase of only 3 percent in that time span. The minority population was the lowest in proportion and most diversified of all the segments: 22 percent black, 48 percent Hispanic and 13 percent Asian or Pacific Islander. The white population was 42 percent of the total segment population. Growth in the area from 1980 to 1990 is attributable to increases in all race and ethnic groups except blacks; the Hispanic, Asian and Pacific Islander and white populations increased 36, 46 and 20 percent, respectively, while the black population fell 7 percent. In the City of Carson, the black and white populations fell 36 and 15 percent, respectively, while the Asian and Hispanic populations increased by 69 and 24 percent, respectively. The segment had similar percentages of female-headed households (15 percent) to Carson (14 percent) and age distributions (27 percent youths and 8 percent elderly). The 1980 median incomes for the segment ranged from $12,300 to $27,500; the average of these was $19,400, which is lower than the median income for Carson ($23,700) but higher than all other segments. In addition, slightly more families in 1980 lived below the poverty line (11 percent) in the segment than in the city of Carson (6 percent); however, this is still the lowest percent of all the segments.

<u>Housing Characteristics by Segment</u>

- Segment A

In 1990, 8,277 housing units existed within Segment A, an increase of 26 percent from 1980. Over those same years, the City of Los Angeles increased its housing stock by only 9 percent. Most of the housing units in this segment are located beyond 1,000 feet of the corridor. A few enclaves within 1,000 feet are located in the following areas: west of Alameda Street between 21st and 23rd Streets and east of Alameda Street between the I-101 freeway and East First Street.

Median housing values in this segment ranged from $107,000 to $225,000. The average of these was $165,700 which was half the median value for housing in the City of Los Angeles in 1990 ($244,500). Housing values in the corridor area, however, appreciated more between 1980 and 1990 (200 percent) than those in the city (150 percent). The median contract rent for this segment ranged from $240 to $410 per month. The average of these was $416, approximately $120 less than the median contract rent for the City of Los Angeles.

Nearly one-quarter of the housing stock in 1990 were attached and detached single-family units, which is a smaller proportion compared to Los Angeles (47 percent). Over half of all units were multi-family residences in structures with five or more units. Approximately 5 percent of all existing units were vacant, and 94 were percent renter-occupied. By comparison, in the City of Los Angeles, only 61 percent of occupied units were rented. Households in the segment were also larger than in the city: between 4 and 5 persons resided per household in the segment compared to two to three in Los Angeles.

- Segment B1

According to 1990 Census data, 2,988 housing units exist within Segment B1: 2,897 were located in the City of Los Angeles and 91 in the city of Vernon. Between 1980 and 1990, only 22 units had been added to the segment's housing stock (less than a 1 percent increase). In that time frame, the City of Vernon lost 6 percent of its total housing stock while the City of Los Angeles increased its stock by 9 percent. Most of the housing in this segment is located on both sides of Long Beach Avenue, extending westward from 32nd Street to 57th Street. The housing stock in the segment consist of predominately single-family units and a few multi-family units.

Median values of housing units in this area ranged from $91,000 to $102,200 in the City of Los Angeles portion and $212,000 in the Vernon portion of the segment. The average of these values is $127,000, which is lower than the median value of housing in Vernon ($212,000) and about half the median value of Los Angeles ($244,500). Yet, housing values appreciated more in the segment (over 200 percent) from 1980 to 1990 while values in the cities appreciated by 150 percent. The average median contract rent for this segment ranged from $230 to $400 per month, with an average of $345 per month, which is less than the median rent for City of Los Angeles but similar to Vernon.

About one-half the housing stock in the segment was comprised of attached and detached single-family units in 1990, which is a higher proportion of single-family units than in either Los Angeles (47 percent) or Vernon (68 percent). Almost one-fifth of multi-family units were located within structures with five or more units. Approximately 5 percent of all existing units were vacant and 78 percent of all occupied units were rented. In Los Angeles, only 61 percent of occupied units were rented; almost all units in Vernon were rented. Households in the segment were also larger than in the cities as a whole: between 4 and 5 persons resided per household in the segment compared to 2 to 3 in Los Angeles and 3 to 4 in Vernon.

The largest multi-family structure in the segment is the Pueblo del Rio housing project, located between 52nd and 55th Streets, from Long Beach Avenue to McGarry Street on the east, and between 53rd and 55th Streets, from Long Beach Avenue to Fortuna Street on the west. The project, owned and managed by the City of Los Angeles Housing Authority, contains 1,320 units total.

- Segment B2

Segment B2 contained 11,002 housing units in 1990: 3,485 units in Huntington Park and 7,517 units in Los Angeles County. Between 1980 and 1990, the segment lost 828 units (570 in Huntington Park and 258 units in the county), resulting in a 7 percent decrease, which is the same percent loss experienced by Huntington Park in that time span. Most of the housing in this segment was located in the following areas: south of Randolph Street and north of 63rd Street, extending west from Wilmington Avenue; two blocks north of Randolph to Florence

Avenue, extending west from Albany Street; between 66th and 71st Streets, extending west from Wilmington Avenue; between Florence Avenue and 78th Street, extending west from Lou Dillon Street; between Florence Avenue and Firestone Boulevard, extending east from Santa Fe Avenue; and between Nadeau Street and Firestone Boulevard, extending west from Croesus Avenue and Hickory Street.

Median housing values in 1990 ranged from $81,000 to $146,000 in the Huntington Park portion and $105,00 to $175,000 in the county portion of the segment. The average of these values was $118,575, which is about three-fourths of the median value of Huntington Park $($163,700) and half that of the county ($226,400). Appreciation of housing values from 1980 to 1990 in the corridor, however, is only slightly lower (147 percent) than Huntington Park as a whole (159 percent). On average, the median contract rent for the segment was $451 per month, which is only $30 less than the City of Huntington Park.

Over 60 percent of the housing stock found in the segment was comprised of single-family residences in 1990, compared to 46 percent in Huntington Park or 56 percent in the county. Approximately one quarter of multi-family units were within structures of five or more units. The vacancy rate for the segment was 3 percent and 70 percent of all occupied units are rented. Both these fractions are representative of Huntington Park. Households in the segment are larger than in the city or county: between 4 and 5 persons reside per household in the segment compared to 3 to 4 in Huntington Park and 2 to 3 in the county, overall.

- Segment C

Segment C contains 26,349 units, an increase of 4 percent since 1980. Housing characteristics for four subareas within the segment -- South Gate, Lynwood, Compton, and the city and county communities of Los Angeles -- are discussed below.

<u>South Gate</u>

The portion of the segment within the City of South Gate contains 4,507 units. Between 1980 and 1990, the area lost 111 units, resulting in a 2 percent decrease. The entire City of South Gate lost 3 percent of its housing stock in that time span. Two predominantly residential areas in this region are located between Firestone Avenue and Tweedy Boulevard, extending east from Calden and Alameda Streets and between 92nd Street and 99th Place extending westward from Alameda Street.

Median values in the segment ranged from $148,400 to $153,900 in 1990; the average of these is $151,150, which is approximately $10,000 less than the median value for the city. Appreciation of housing values from 1980 to 1990 in the segment appreciated by the same percent (150 percent). On average, the median contract rent for the corridor area was $490 per month, which is only slightly less than the city's median rent ($508 per month).

More than half of the housing stock in 1990 was comprised of single-family residences, compared to 63 percent for the city. Approximately one quarter of multi-family units were within structures of five or more units. The vacancy rate for the corridor area was 1 percent of existing units, and 62 percent of all units were occupied by renters. In the City of South Gate, the vacancy rate was 2 percent and only 51 percent of units were occupied by renters. Households in the segment were larger than in the city or county: between 4 and 5 persons reside per household in the segment compared to 3 to 4 in the city.

Lynwood

Approximately 3,611 units exit in the City of Lynwood portion of the segment. Between 1980 and 1990, the segment lost 61 units, a decrease of 2 percent. Most of the residences in this area are located east of Alameda Street, between Martin Luther King, Jr. Boulevard and Santa Ana Boulevard and between Beechwood Avenue to Butler Avenue, east of Bellinger Street.

Median values for housing in 1990 ranged from $112,500 to $126,900. The average of these values was $124,700, which is approximately $12,000 less than the median value for the city. On average, the median housing value in the segment appreciated from 1980 to 1990 by a slightly larger percent (140 percent) than the city's median value. The segment's average median contract rent was $507 per month in 1990, which was similar to the city's median rent.

Over two-thirds of the housing stock was comprised of single-family residences, which is the same proportion as for the city. Approximately one quarter of multi-family units were within structures of five or more units. The vacancy rate for the segment was the same as the city (3 percent). Approximately 59 percent of units were occupied by renters, which was slightly higher than the city overall (52 percent). Between 4 to 5 persons occupied a single household in both the South Gate portion of the segment and the city as a whole.

Compton

The City of Compton portion of the segment contained the most housing units in 1990 of all the jurisdictions located in the segment: 12,119 units. Between 1980 and 1990, this portion of the segment increased its housing stock by 6 percent, while the entire city increased its residential units by 4 percent.

Residences in this area are located primarily south of E. Oaks Street to Rosecrans Avenue, extending eastward from Rose Street; about a half block from Rosecrans Avenue south to Compton Boulevard, extending eastward from Rose Street; north and south of Laurel Street, extending eastward from Alameda Street; between Cypress Street to one block south of Alondra Boulevard, extending eastward from Santa Fe Avenue; between E. Spruce Street and Magnolia Street, extending westward from Tamarind Avenue; between Laurel Street and Myrrh Street on the west side of Alameda Street; and between Alondra Boulevard and Greenleaf Boulevard, east of Willowbrook and approximately three blocks south of Alondra Boulevard. The Compton portion of the segment also houses the Deluxe Trailer Lot, located on the north side of El Segundo Boulevard, between Alameda Street and Santa Fe Avenue, where approximately 50 trailer homes reside.

Median values for housing in 1990 ranged from $93,300 to $118,200. The average of these values was $112,000, which was slightly less than the median value for the city ($108,000). Appreciation of housing values from 1980 to 1990 in this portion of the segment equalled 141 percent, which was greater than the city overall (135 percent). On average, the median contract rent for the corridor area was $461 per month, only $16 less than the city's median rent.

Single-family residences comprised 67 percent of the housing stock, which is higher than other areas in Segment C but lower than Compton's citywide figure (75 percent). The percent of multi-family units is split evenly between those in structures with two to four units and structures with five or more units. The vacancy rate for this portion of the segment and the city was 4 percent, and 56 percent of units were renter-occupied, which is more than the city's proportion (43 percent). Approximately four persons resided per household in the corridor as well as in the city.

Los Angeles County and the City of Los Angeles

Approximately 6,112 units existed in the Los Angeles City and County portions of the segment in 1990, which are located to the west of Alameda Street, in the City of Los Angeles and the Willowbrook, Florence and Walnut Park communities of Los Angeles County. Between 1980 and 1990, the area experienced a 10 percent increase in housing units, the same percent increase experienced by the City of Los Angeles in that time span.

Most residences in this portion of the segment are located between Juniper Street and Long Beach Avenue, a few blocks north and south of 88th Street; between Kalmer and Grape Streets, south of 92nd and north of 98th Streets; north and south of Santa Ana Boulevard, along the east side of Mona Boulevard; north of 118th Street, between Willowbrook and Mona Boulevards; and south of 124th Street to Cressy Street, between Willowbrook and Alameda Street.

Median housing values ranges from $89,000 to $105,000 in 1990. The average value was $93,543, which was approximately one-third of the median value of housing in the city and county. On average, the median housing value in this portion of the segment appreciated from 1980 to 1990 at a higher rate (248 percent) than the city's values (154 percent). The Los Angeles City and County portion of the segment's average median contract rent was $339 per month, two-thirds of the city's median contract rent.

Over two-thirds of the housing stock was comprised of single-family residences, which was higher than the city's or county's proportion of single-family units (47 and 56 percent, respectively). Approximately one quarter of multi-family units were within structures of five or more units. The vacancy rate for the portion of the segment was 4 percent, slightly lower than the city's fraction (6 percent). Approximately 68 percent of units were occupied by renters, only slightly higher than the city overall (61 percent). Between 4 to 5 persons occupied a single household in this portion of the segment, versus two to three persons in the city and county.

- Segment D

Segment D in 1990 contained 13,119 housing units: 5,145 units in Carson, 4,957 units in the City of Los Angeles, and 3,017 unit in Los Angeles County. Between 1980 and 1990, the segment experienced an increase of 10 percent, twice the percent increase experienced by the City of Carson. Each of the jurisdictions added 300 to 500 units to the segment housing stock in those ten years. Most of the housing units in this area are located between Dominguez Street and the I-405 freeway, eastward from Alameda Street and between Q Street and Opp Street, extending westward from Alameda Street.

The range of median housing values in 1990 was $117,000 to $211,400 for the Carson portion, $157,300 to $161,800 for the City of Los Angeles portion, and $195,100 for the county portion of the segment. The average of these values was $167,200, which was lower than Carson's median value ($188,100). Housing values in the corridor appreciated by 142 percent from 1980 to 1990, compared to 130 and 154 percent for the cities of Carson and Los Angeles, respectively. On average, the median contract rent for the corridor area was $601 per month -- the highest of all segment areas -- which is comparable to the Carson's median rent.

About 67 percent of the 1990 housing stock was comprised of single-family residences, compared to 78 percent in the city of Carson. Approximately 13 percent of multi-family units existed within structures of five or more units and over 14 percent of all units were mobile homes or non-conventional housing. The vacancy rate for the segment was 4 percent, and a larger percent of units were occupied by renters (36 percent) than in Carson (21 percent). In both the segment and the City of Carson, three to four persons resided per household.

5.2.3 Construction Impacts

Insignificant levels of localized noise, vibration, traffic, safety risks, light and glare would occur during the construction period along the corridor. In addition, construction along the corridor could impair residents' access to and from their homes and neighborhood. Further detail of localized impacts upon residential areas are discussed in Sections 4.4 (Noise), 4.5 (Vibration), 5.1 (Land Use), 5.4 (Traffic), 5.6 (Safety and Security), and 5.7 (Aesthetics). Construction would also result in the displacement of persons and housing units, which is discussed in detail in Section 5.3 (Acquisition and Displacement).

5.2.4 Operational Impacts

Effects in Local Population

Each of the project alternatives would result in displacement of persons, which is discussed in detail in Section 5.3. Although there are variations among the study area segments, the corridor has a generally consistent set of defining characteristics. The corridor is essentially minority in its composition, containing a high proportion of Hispanics and a lesser, but significant, proportion of blacks. Household income levels throughout the corridor are generally low. The corridor contains a higher-than-typical proportion of women-headed households and the age of the corridor population is generally young.

With the exception of Segment B1, where more people would be displaced under Alternative 2.2 and Segment B2, where more people would be displaced under Alternative 1.0, the project alternatives would generally have a similar effect. All of the project alternatives would have effects that would be similar insofar as corridor demographics are concerned.

Effects of Housing Removal on Local Housing Stock

Right-of-way acquisition would displace residential units located along the corridor, effectively decreasing the number of available units in the corridor area. Under each alternative, in each segment, less than 1 percent of the housing stock in the study area would be displaced as a result of the project. Although removal of units from the local housing stock is considered an adverse effect within the context of the project study area, the number of units removed is sufficiently small, insofar that the local housing stock is concerned, that the effect is not considered significant. The percentage of displaced units to existing units per segment under each alternative was calculated and listed in Table 5-15.

Of the cities that border the corridor, near term future housing need -- the additional housing units necessary to meet projected population growth -- is greater for the cities of Los Angeles, Carson, Compton and Huntington Park, where housing need is projected to be 7-8 percent greater than the housing units present in 1990, according to SCAG. Projected future housing need for 1990-1994 in the corridor cities of Lynwood and South Gate are expected to be 3 percent of the 1990 housing stock. Only in Vernon, where household growth is expected to increase by less than one percent, is the 1990-1994 future housing need projected to be zero. Therefore, in all cities except Vernon, the project alternatives would retard advancement of SCAG's projected housing needs. However, the number of units being removed by the project in any of the cities is sufficiently small that the effect in housing stock development, although adverse, is not considered significant, as illustrated in Table 5-15.

Removal of Special Housing

Approximately five units of the Pueblo del Rio housing project would be displaced, in Segment B1, under Alternative 2.2. This displacement would not occur under any of the other alternatives. The project, operated by the Los Angeles Housing Authority, is located between 51st Street and 55th Street along the east side of Long Beach Avenue and 53rd Street and 55th Street along the west side of Long Beach Avenue. Under Alternative 2.2, approximately five units located in three buildings facing Long Beach Avenue, south of 51st Street would be acquired, along with parking lots, a basketball court and a child care center along the east side of Long Beach Avenue. In terms of the number of units removed from the complex, this would not be a significant loss (5 of 560 units, or .4 percent of all Pueblo del Rio units). However, public housing is limited in its availability and therefore this taking poses additional relocation problems that the takings of market-rate housing would not incur. This taking is therefore regarded as an adverse effect of potentially significant proportions.

In addition, under Alternative 1.0, approximately 4,000 square feet of area would be acquired from the Deluxe Trailer Lot located at 327 E. El Segundo Boulevard, on the north side of El Segundo, east of Alameda Street and west of Santa Fe Avenue. The acquisition would take the southwest corner of the property. Currently there are three mobile homes standing in this area of the park which potentially could be displaced. It appears that it would be possible, however, to relocate the trailer homes to other sections of the property to avoid displacement. Hence, this is not considered a significant adverse effect.

Barriers to Existing Neighborhoods

The project under Alternatives 1.0 and 2.2 has the potential to additionally divide existing neighborhoods along the corridor. Under Alternative 1.0, overpasses located at Florence Avenue, Southern Avenue and El Segundo Boulevard could further separate existing neighborhoods. An overpass along Florence Avenue could further separate the residential neighborhood located north and south of Florence Avenue, east of Albany Street and Roseberry Avenue. Although commercial uses border Florence Avenue, separating the residential areas,

TABLE 5-15
ALAMEDA TRANSPORTATION PROJECT
PERCENT OF RESIDENTIAL UNITS REMOVED FROM LOCAL HOUSING STOCK

	LOCAL HOUSING STOCK[30] (#UNITS IN SEGMENT)	ALTERNATIVE 1.0		ALTERNATIVE 2.1A		ALTERNATIVE 2.1S		ALTERNATIVE 2.2[31]	
		#UNITS REMOVED	%REMOVED OF LOCAL HOUSING STOCK	#UNITS REMOVED	%REMOVED OF LOCAL HOUSING STOCK	#UNITS REMOVED	%REMOVED OF LOCAL HOUSING STOCK	#UNITS REMOVED	%REMOVED OF LOCAL HOUSING STOCK
SEGMENT A	8277	0	0%	0	0%	0	0%	NOT APPLICABLE	
SEGMENT B1	2988	4	.1%	0	0%	0	0%	31	1%
SEGMENT B2	11002	108	.9%	1	0%	3	0%	NOT APPLICABLE	
SEGMENT C	26349	204	.7%	1	0%	3	0%	NOT APPLICABLE	
SEGMENT D	13119	11	0%	11	0%	11	0%	NOT APPLICABLE	
CORRIDOR TOTAL	61735	327	.5%	13	0%	17	0%	NOT APPLICABLE	

Source: Myra L. Frank & Associates, Inc. 1992

30 The local housing stock was defined as those housing units in census tracts adjacent to, or within 1,000 feet of, the corridor.

31 Alternative 2.2 occurs in Segment B1 only.

an overpass could serve as a barrier separating the residential neighborhood. An overpass along Southern Avenue, east of Alameda Street, could also provide a greater barrier between the residences which extend east of Calden Street from Firestone Boulevard to Nebraska Avenue. A greenway currently separates the north and south sides of Southern Avenue, but an overpass would essentially create a wall further separating the area. West of Alameda Street, along El Segundo Boulevard, an overpass would separate a residential area located from 124th Street to Oris Street. With one exception, Alameda Street currently serves as a barrier between residential areas east and west of the corridor, and the additional, at-grade rail traffic generated by the project should impose greater separation of neighborhoods or barriers among neighborhoods. North and south of Compton Boulevard, however, residents on the east side of Alameda Street would be potentially cut off from west side shopping malls (located on the north and south sides of Compton Boulevard), which are the only large shopping areas in the immediate vicinity, the public library and Compton High School.

Under Alternative 2.2, the project could additionally divide the east and west sections of the Pueblo del Rio project and impair residents' access to local retail across Long Beach Avenue. Currently, the SPTC tracks and Metro Blue Line run along Long Beach Avenue. Long-term development of a consolidated transportation corridor could result in the replacement of residential properties adjacent to the corridor with industrial or commercial uses. The potential replacement and compatibility of such changes are discussed in Section 5.1 (Land Use). This effect is regarded as potentially adverse and potentially significant.

5.2.5 Mitigation Measures

The Alameda Corridor project would result in construction impacts affecting population and housing, in the areas of noise, vibration, traffic, safety and light and glare. These topics are discussed in other sections of this document and the reader is referred to those sections for a discussion of appropriate mitigation measures.

Insofar as operation effects are considered, most of the project-related impacts are associated with property acquisition, resulting in the removal of housing units and having an adverse effect on the local population in the corridor. Standard relocation measures, discussed at length in Section 5.3 (Acquisition and Displacement), would be followed for displaced residents. The relocation measures and procedures outlined in that section follow the Uniform Relocation Procedures and Real Property Acquisition Act, and they generally provide for monetary compensation and assistance and other forms of relocation assistance. In addition to the application of standard relocation assistance, each affected local jurisdiction should be coordinated with to determine if there may be needs associated with special groups that should also be provided. The demographics of affected population groups should be taken into account as the property acquisition and relocation assistance programs are being developed and implemented.

With regard to the housing stock in the corridor study area, the proposed project alternatives would impede the development of housing units in accordance with SCAG projections but this impedance is not regarded as significant. However, since the project would remove housing units, it is appropriate that available mitigation be sought. It may be one result of the project that excess land may be available, after property acquisition and project construction occurs. To the extent practicable, excess land that would be appropriate for residential use should be utilized.

In doing so, the composition of units removed (single-family versus multi-family) should be taken into account. Local jurisdictions should be consulted regarding this process and local government housing programs should be included as participants in the housing replacement process.

With regard to the potential loss of public housing units at the Pueblo del Rio project, selection of an alternative other than Alternative 2.2 would avoid this taking. If Alternative 2.2 is selected as the preferred alternative, efforts in final design should attempt to avoid or minimize the extent of the effects in this project. In the event that a residential taking cannot be avoided, consultation with the City of Los Angeles Housing Authority should be conducted to identify and implement appropriate relocation measures.

With regard to the effects at the Deluxe Trailer Lot on El Segundo Boulevard, it would appear that if it is necessary to acquire units, it would be possible to relocate those units elsewhere on the property. The project should pursue this option. If relocation on the site is not possible, the affected parties should be assisted in finding a suitable alternative location for their units, and the project should implement that relocation.

With regard to the potential expansion of existing barriers affecting neighborhoods around proposed overpasses, selection of an alternative other than Alternative 1.0 would avoid this potential problem. With regard to further dividing the Pueblo del Rio project, selection of an alternative other than Alternative 2.2 would avoid this potential problem. If Alternative 1.0 or 2.2 is selected for implementation, efforts during final design should be undertaken to reduce the barrier affect as much as possible.

5.3 ACQUISITION AND DISPLACEMENT

5.3.1 Setting

Substantial property acquisition and displacement of residences and businesses would occur as a result of roadway and railroad track improvements under all of the build alternatives. Acquisitions would occur on both sides of the Alameda Corridor, beginning at the I-10 freeway and extending southward to the project's end at Cerritos Channel. Primary land uses along the corridor include warehouses, manufacturers, refineries, scrap metal yards, wholesalers, aluminum and paper recyclers, small retailers, parking lots and vacant lots. In addition, small-lot single-and multi-family residences, warehouses, auto repair shops, fast food restaurants, and grocery stores line the streets designated for grade separations under Alternative 1.0. The following provides general descriptions of properties along the proposed rights-of-way in each segment of the corridor. See section 5.2 for a description of the population and housing characteristics of the corridor.

<u>Segment A</u>

The roadway portion of Segment A extends from the I-10 freeway to 25th Street and includes the City of Los Angeles. The railroad portion of the segment extends to Pasadena Junction in the north and East L.A. Yard in the east. Large-lot warehouses, heavy industrial facilities, office buildings and parking lots mark much of this area.

Segment B1

Segment B1 includes the City of Vernon, the City of Los Angeles and the northern section of the City of Huntington Park. The area runs from 25th Street to Randolph Street. Heavy industrial facilities, warehouses, vacant lots, parking lots and scrap metal yards are the predominate land uses along the corridor. Along Long Beach Avenue are single- and multi-family homes, including Pueblo del Rio, a 560-unit public housing project located between 51st and 55th streets. Small warehouses, manufacturers and auto-body shops are also located along Long Beach Avenue.

Segment B2

Segment B2 includes the City of Huntington Park, the northern section of the City of South Gate, and the Los Angeles County communities of Florence and Walnut Park. The segment's boundaries are Randolph Street to the north and Firestone Boulevard to the south. Large warehouses and manufacturers, small auto repair shops, garages and local retail characterize the area along Alameda Street. Single- and multi-family dwellings line Florence Avenue, Gage Avenue and Nadeau Street. In addition, small retail stores are located at the Florence Avenue and Nadeau Street intersections of Alameda Street.

Segment C

Segment C encompasses the cities of South Gate, Lynwood, Los Angeles, Compton and the Los Angeles County community of Willowbrook. The area extends from Firestone Boulevard to the Artesia (SR-91) freeway. Large numbers of multi-family and single-family residences are located along Southern Avenue, 92nd Street, 124th Street and El Segundo Boulevard; fewer residences exist along Alondra Boulevard, Greenleaf Boulevard and Tweedy Boulevard. Land uses along the corridor in Segment C include large-lot office buildings, parking lots, heavy industrial facilities and wholesalers. Near Firestone Boulevard, large recycling yards and scrap yards are located beside the right-of-way.

Segment D

Segment D includes the cities of Carson, the Wilmington community of the City of Los Angeles, the southern section of the City of Compton, and the Rancho Dominguez community of Los Angeles County. The segment encompasses the area south of the SR-91 to the project's end at the Badger Avenue Bridge at the north side of the Cerritos Channel along Henry Ford Avenue. In the northern section of the segment, large warehouses, manufacturing facilities and vacant lots characterize the land uses along the corridor. Further south the area is marked by heavy industrial uses, a large number of vacant lots, warehouses and oil derricks located at the corridor's end on Henry Ford Avenue. A hazardous waste dump is located adjacent to the Dominguez Channel on Southerland Avenue.

5.3.2 Summary of Acquisitions

The following description of estimated acquisition and displacement are based on conceptual design information. As the project proceeds beyond the evaluation of alternatives to subsequent stages of design, more accurate right-of-way information will become available. The following discussions are believed to characterize the "worst case" property acquisition aspects of the proposed project alternatives.

Full acquisitions would require relocation of people and businesses to other locations; partial acquisitions generally would not require relocation but could disrupt businesses and residences during construction. Table 5-16 illustrates the number of acquisitions under each alternative per segment.

In summary, the major conclusions to be drawn for residential, non-residential and partial acquisitions along the corridor are:

1. Alternative 1.0 would have a substantially greater adverse effect on residential displacement than any other alternative.

2. Alternatives 2.1A, 2.1S and 2.2 all would acquire relatively minor amounts of residential properties.

3. Compared to the other alternatives, Alternative 2.2 would have a substantially greater adverse effect on residential displacement in Segment B1.

4. Alternative 1.0 would have a more adverse effect on non-residential displacements than any other alternative.

5. Alternative 2.1A would impose the least adverse effect on non-residential displacements compared to the other alternatives, including Alternative 2.2 in Segment B1.

6. All alternatives would have a more adverse effect upon industrial property displacements than other land uses along the corridor.

7. Alternative 1.0 would have the most adverse effect of all the alternatives regarding partial acquisitions.

Figures 5-25 through 5-27 illustrate areas subject to full and partial acquisitions. The widths of the bands in these figures are not intended to show the extent of takings that would be required.

Description of the Rights-of-Way

Under all the build alternatives, the current right-of-way would be widened to accommodate additional road or railroad track. The extent and type of property acquisition depends upon each alternative's right-of-way expansion. The following is a brief description of each alternative's right-of-way configuration and its corresponding width. Segments A and D essentially contain the same rights-of-way improvements for all the alternatives and thus are discussed under Alternative 1.0 only.

TABLE 5-16
FULL ACQUISITIONS OF RESIDENTIAL AND NON-RESIDENTIAL PROPERTIES[1]

DISPLACEMENTS	ALTERNATIVE 1.0	ALTERNATIVE 2.1A	ALTERNATIVE 2.1S	ALTERNATIVE 2.2[2]
RESIDENTIAL UNITS AND PERSONS DISPLACED				
TOTAL RESIDENTIAL UNITS	327	13	17	45
TOTAL RESIDENTS DISPLACED	1373	48	65	191
NON-RESIDENTIAL PROPERTIES AND EMPLOYEES DISPLACED				
TOTAL NON-RESIDENTIAL PROPERTIES	341	139	208	158
TOTAL EMPLOYEES DISPLACED	3525	1755	2558	1241

Notes:
[1]Includes properties used for office, retail/wholesale, industrial, parking and vacant lots.
[2]The displacement associated with Alternative 2.2 only occurs in Segment B1.

Source: Myra L. Frank and Associates, Inc., 1992.

Alternative 1

In Segment A, north of 25th Street, the width of the right-of-way would vary from 76 to 90 feet and would include six travel lanes, at a minimum, with a center left turn lane.

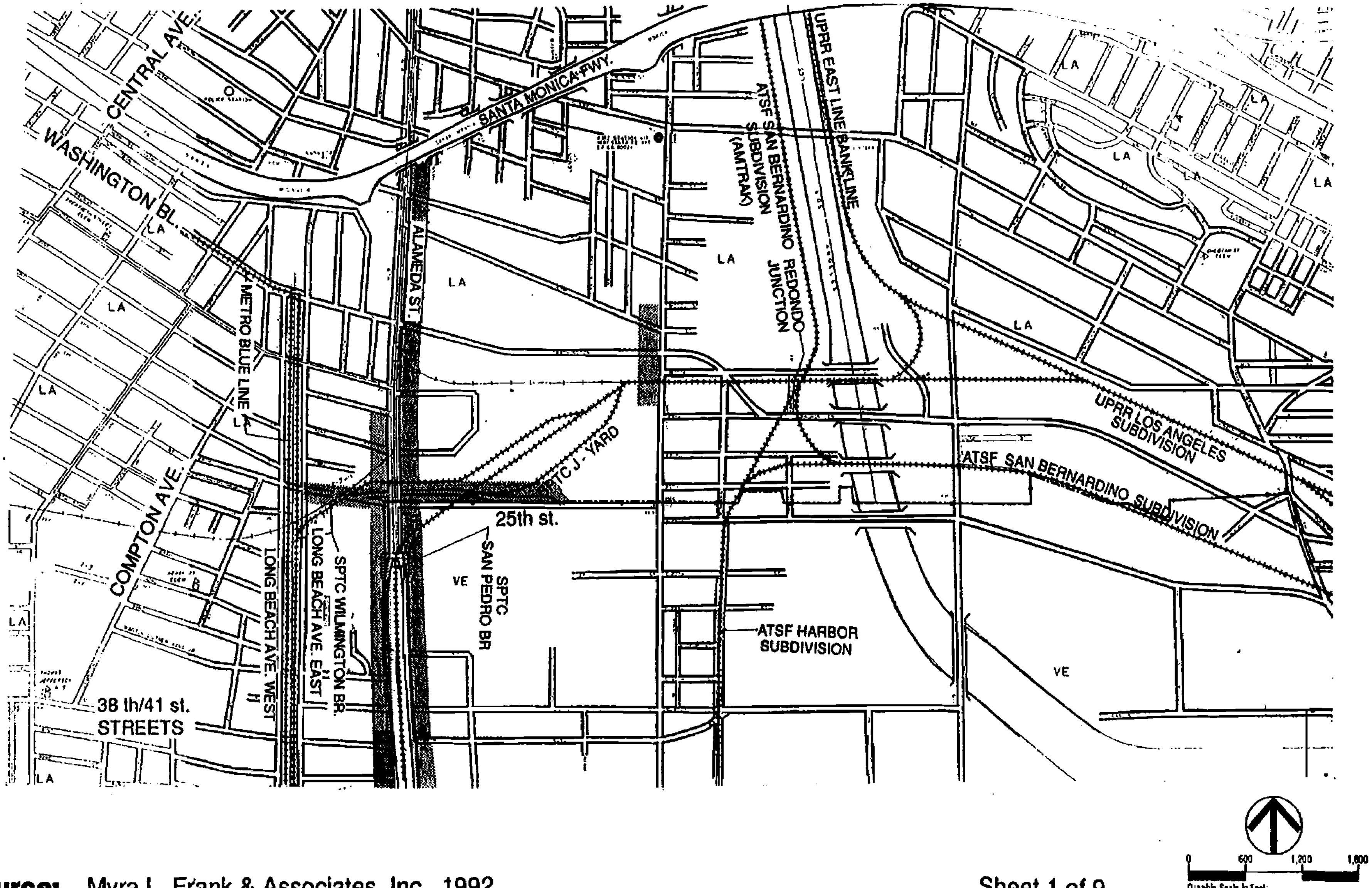
In Segment B1 and the northern section of B2, typically the right-of-way width would be 160 feet, at a minimum, including a one-way roadway couplet (total 100 feet) and two main line railroad tracks and a drill track (total 60 feet).

In the southern section of Segment B2 and most of Segments C and D, a six-lane, two-way roadway would be built. The roadway plus trainway again would be a minimum 160 feet in width.

East-west grade separations would be provided on structures 70 feet in width, with two outside travel lanes, two inside travel lanes, a center median and two outside walks. These would occur throughout the corridor.

Alternative 2.1A

In Segments B1, B2 and the northern section of C, the corridor is configured as a depressed trainway of two main line tracks in the center of Alameda Street (approximately 30 feet in depth) with three lanes of at-grade, one-way traffic on either side. A drill track would also be located at-grade for a total of 171 feet in width.



Source: Myra L. Frank & Associates, Inc., 1992

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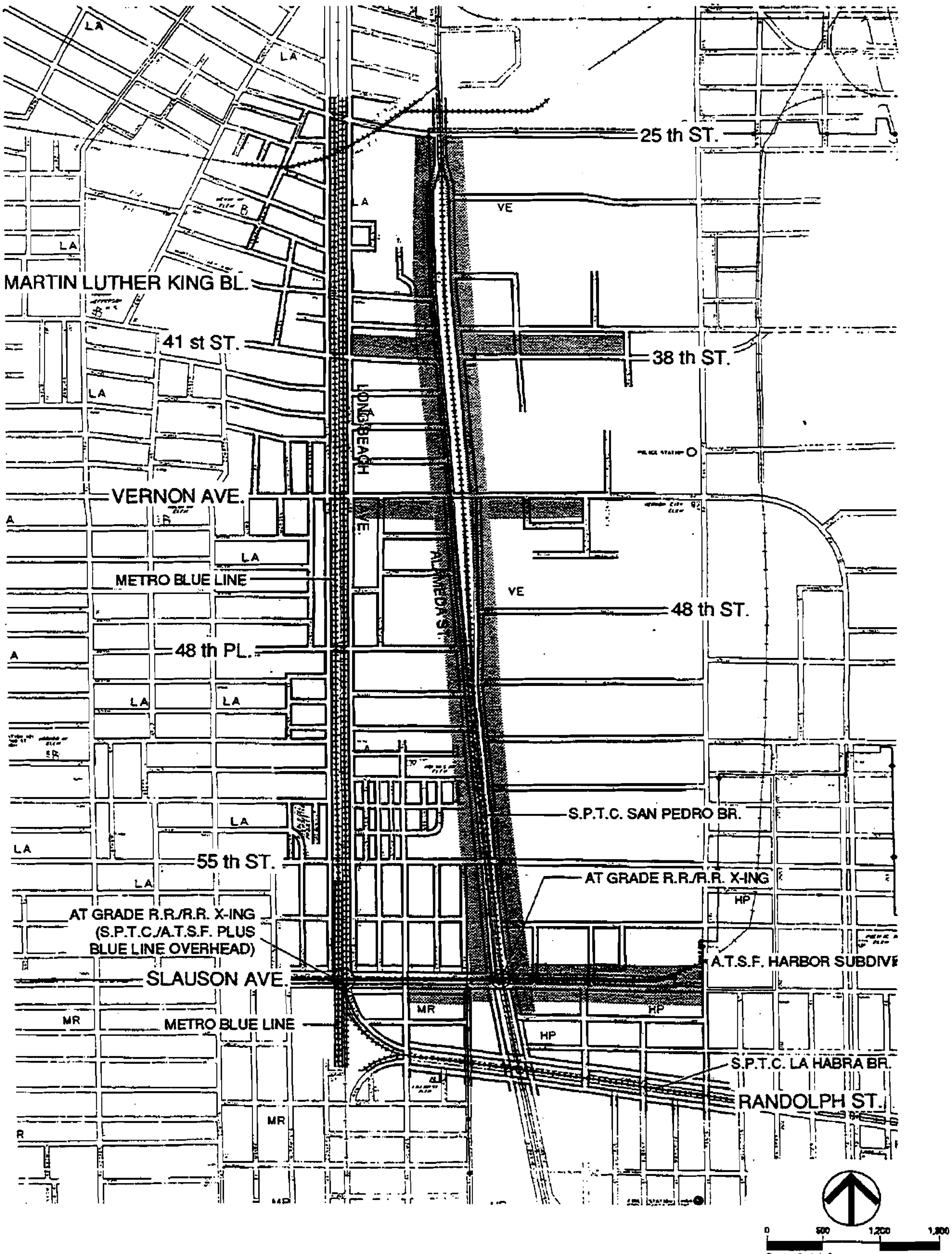
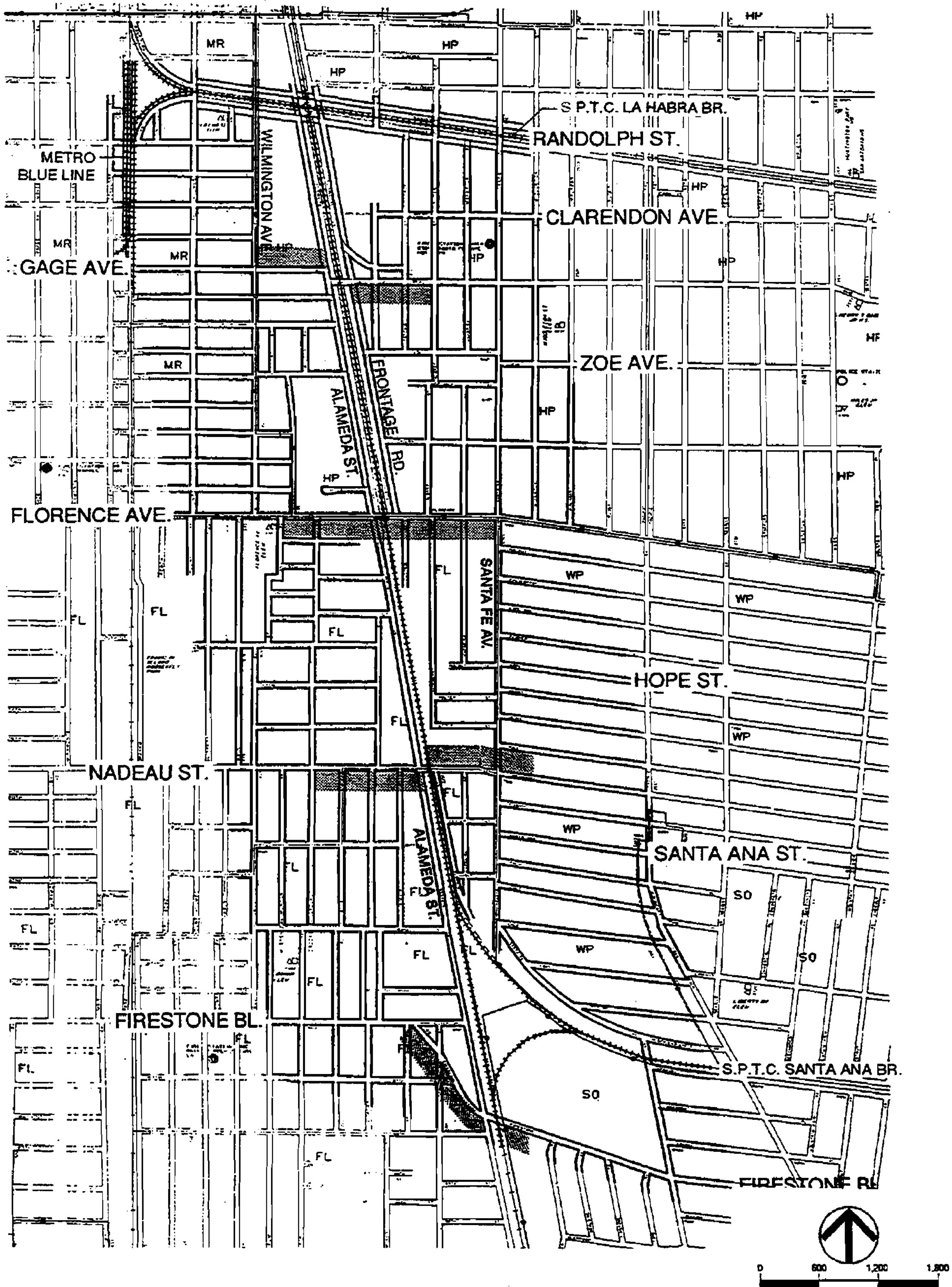
FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment A	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



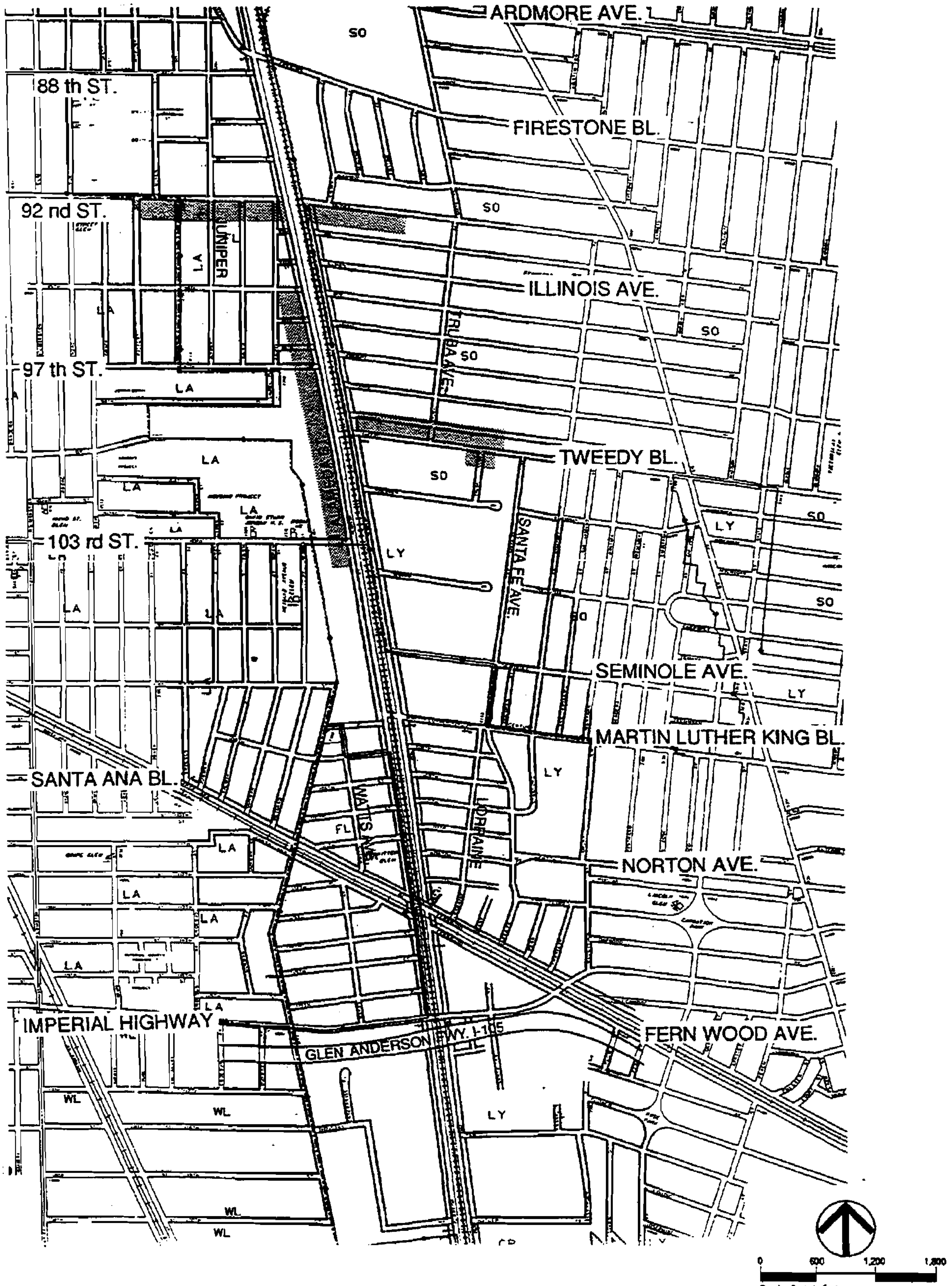
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 2 of 9

FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



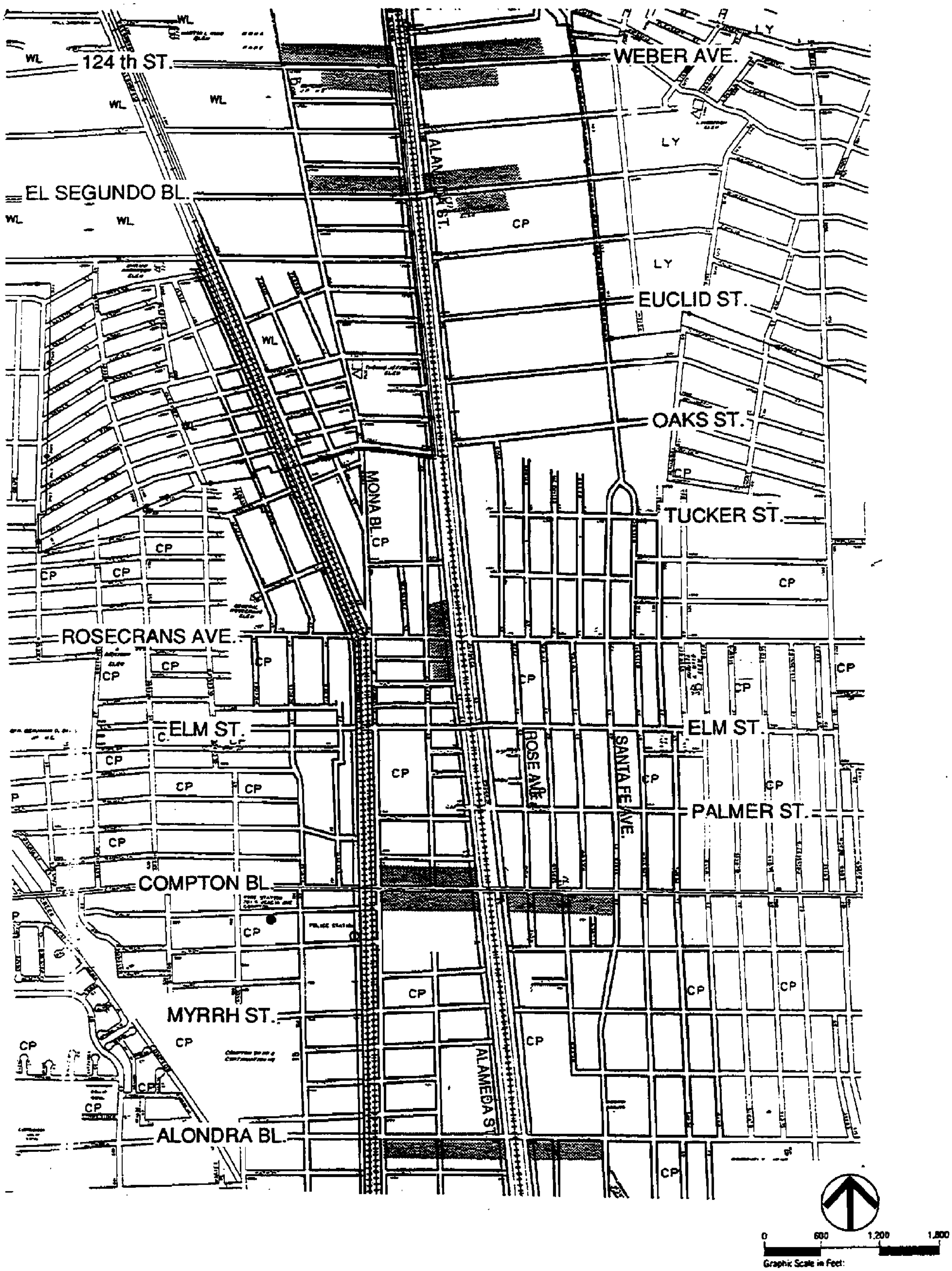
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 3 of 9

FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment B2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



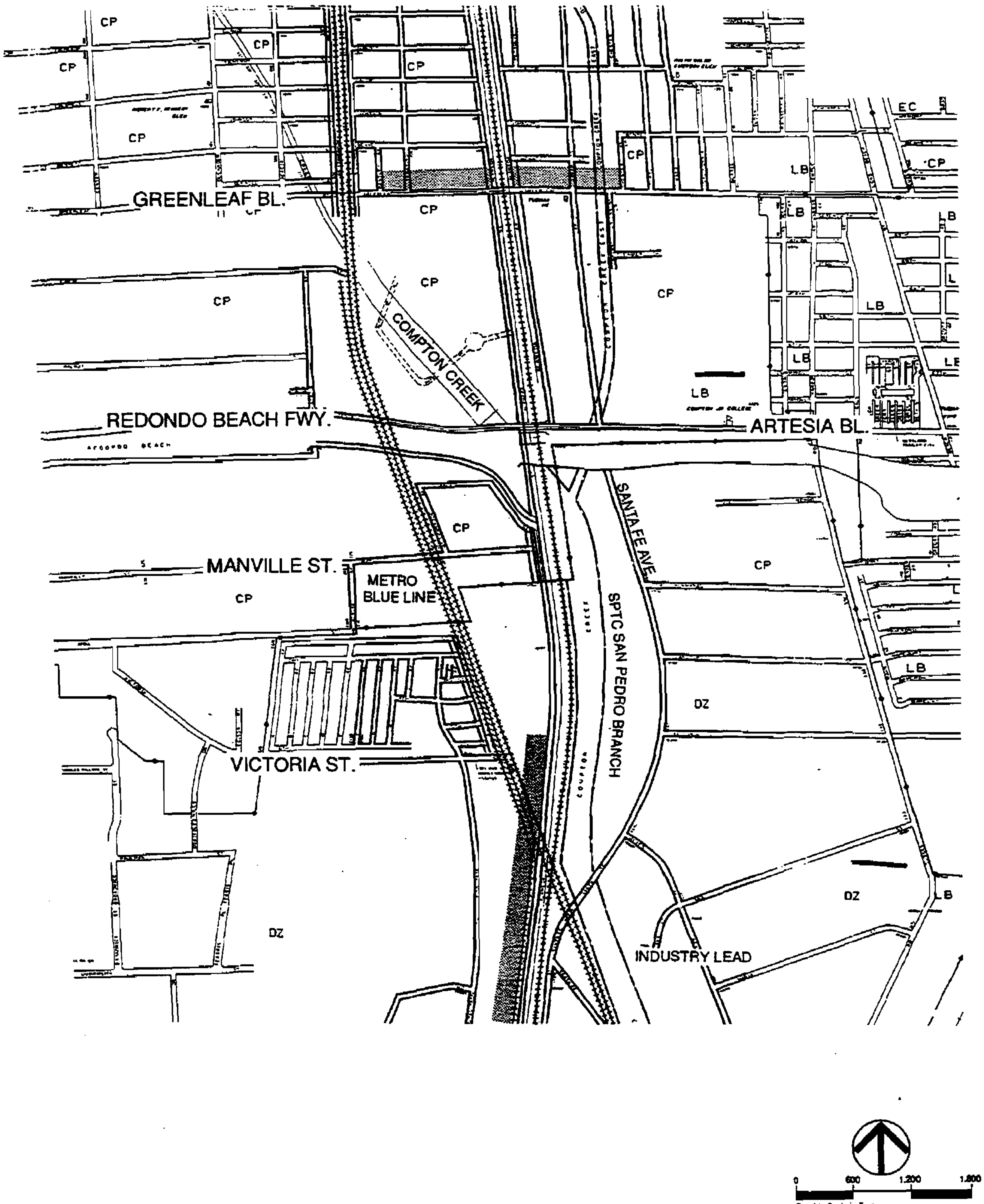
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 4 of 9

FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment C1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



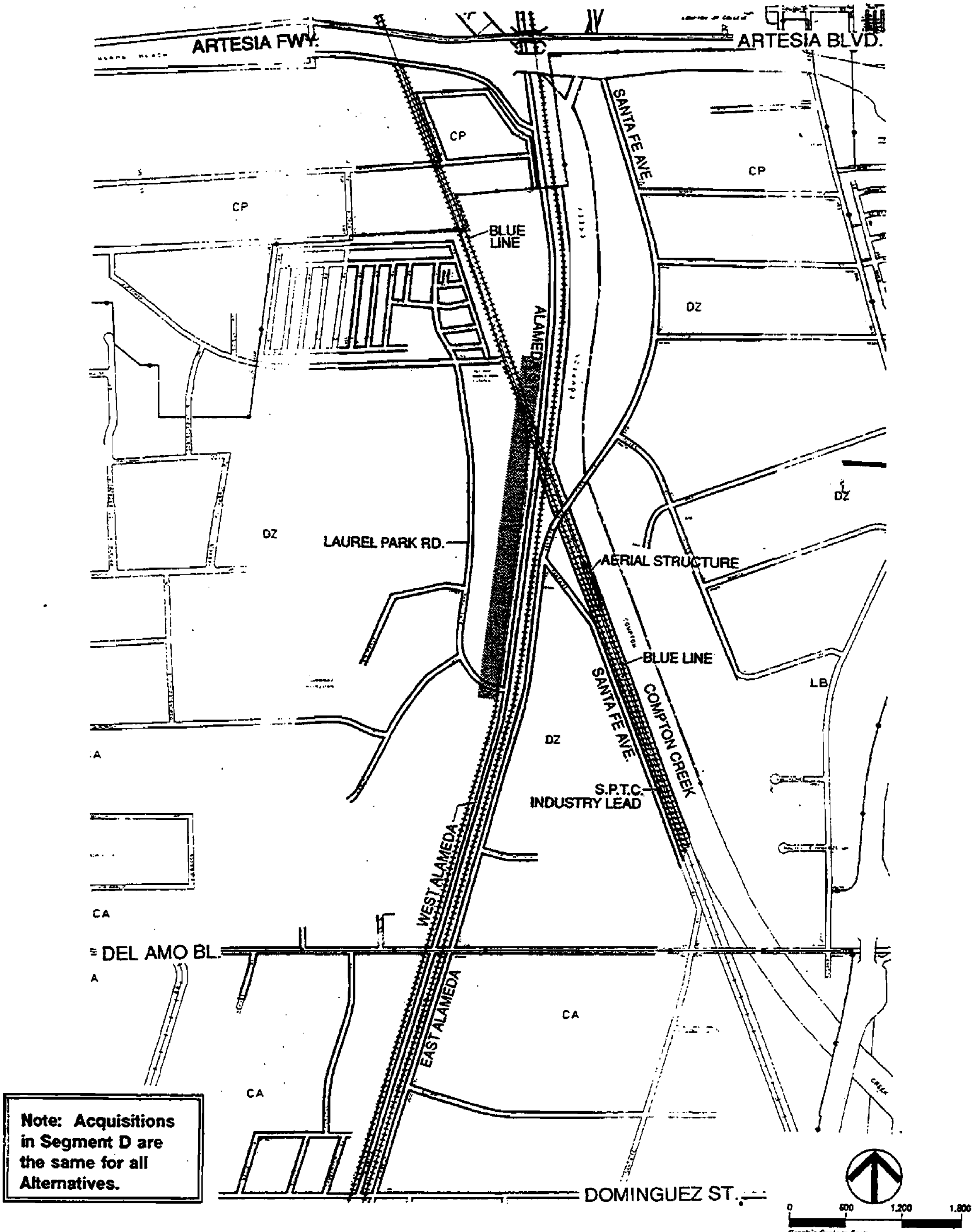
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 5 of 9

FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment C2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



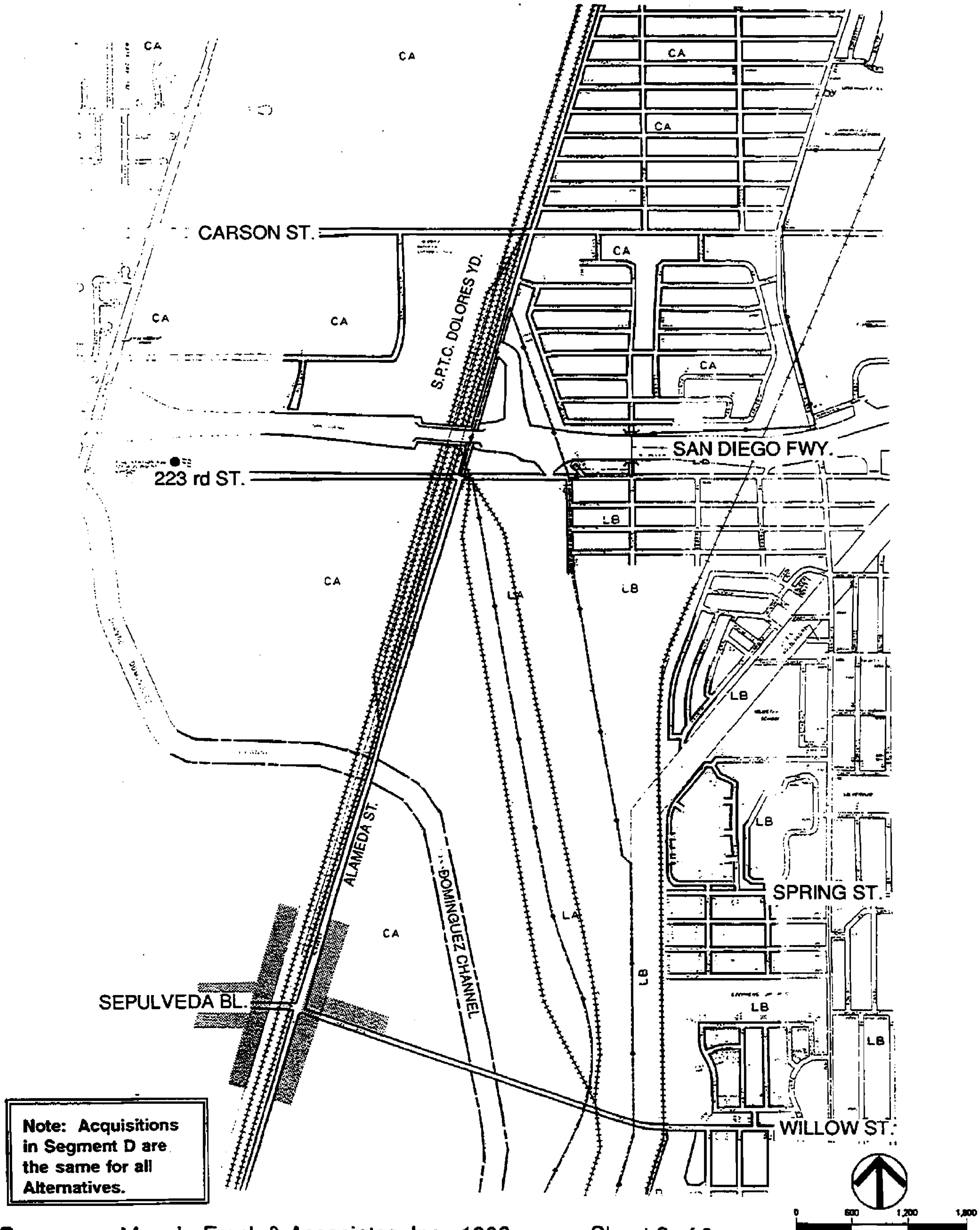
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 6 of 9

FIGURE		
FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment C3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



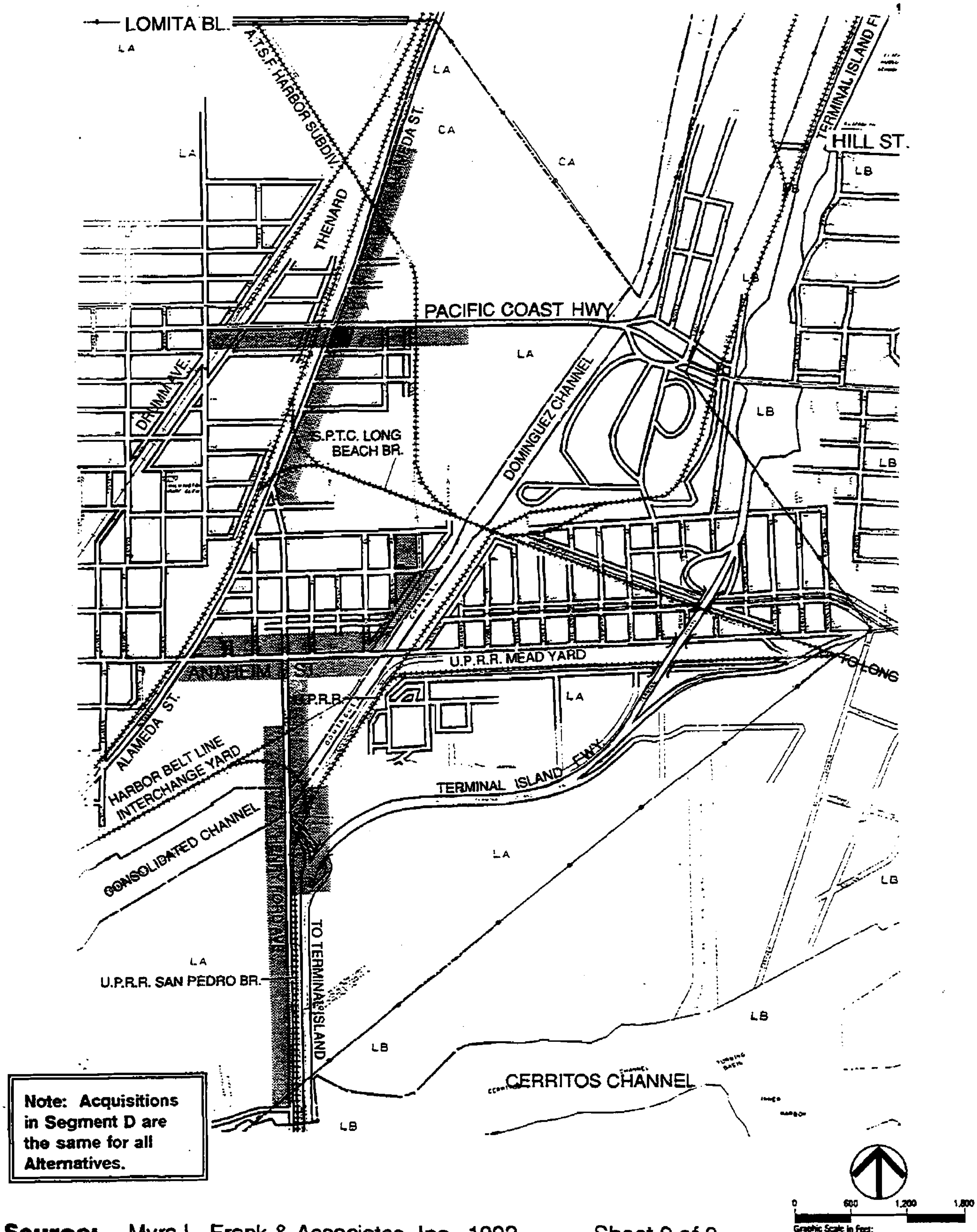
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 7 of 9

FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment D1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



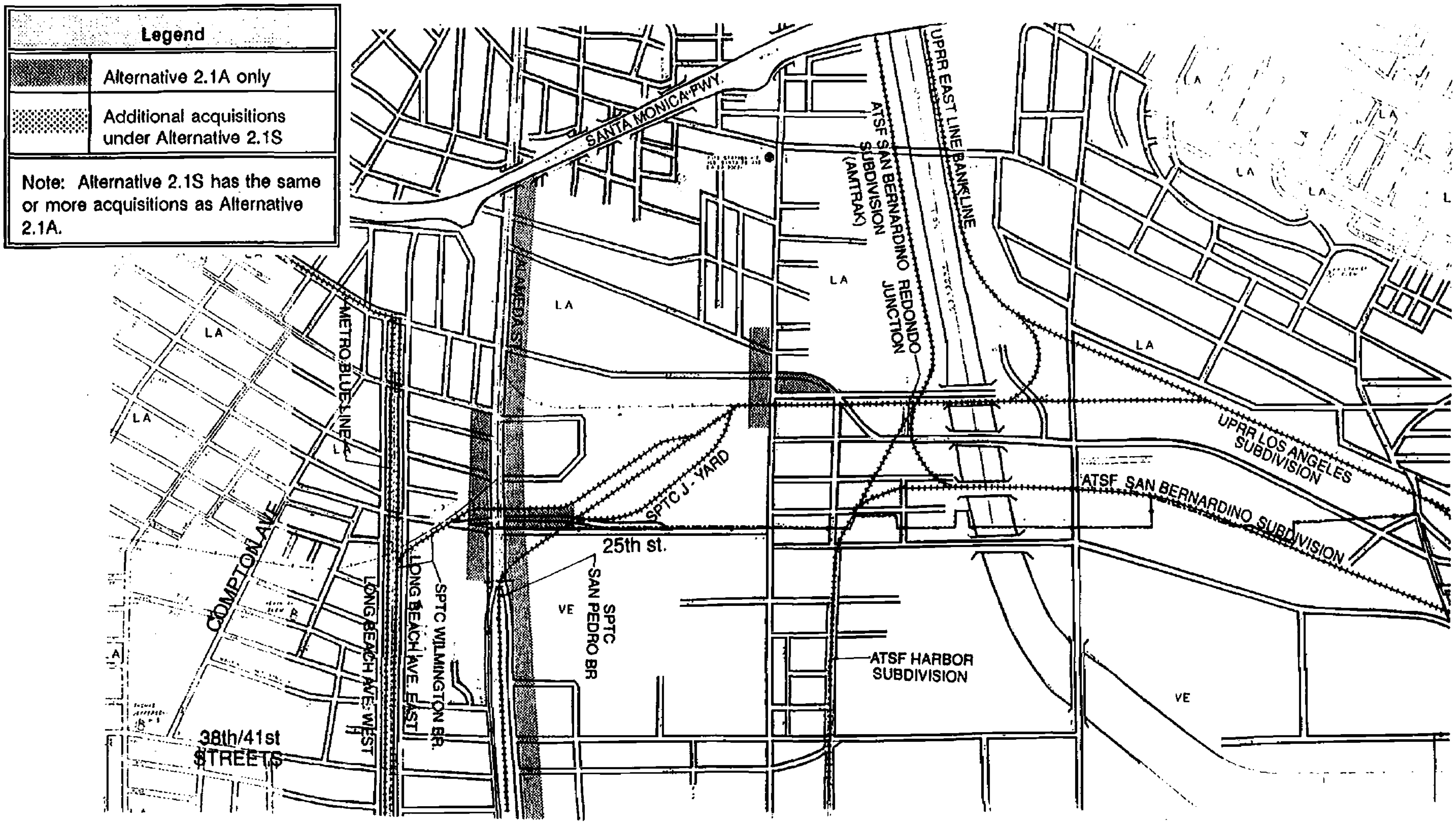
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 8 of 9

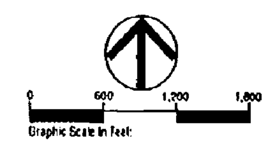
FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment D2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 9 of 9

FIGURE 5-25	Alternative 1.0 - Areas of Acquisition Alameda Corridor-Segment D3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY





Source: Myra L. Frank & Associates, Inc., 1992

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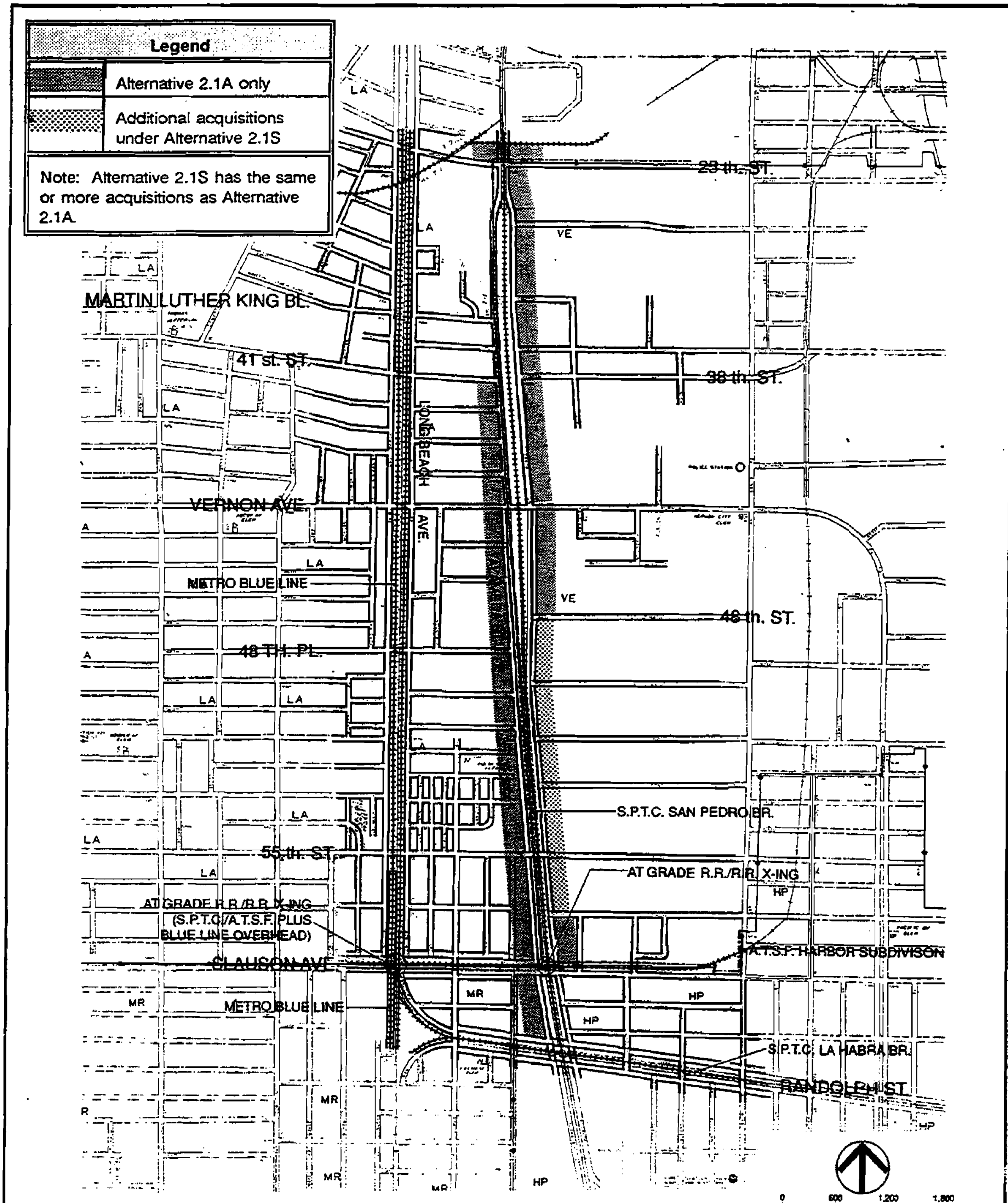
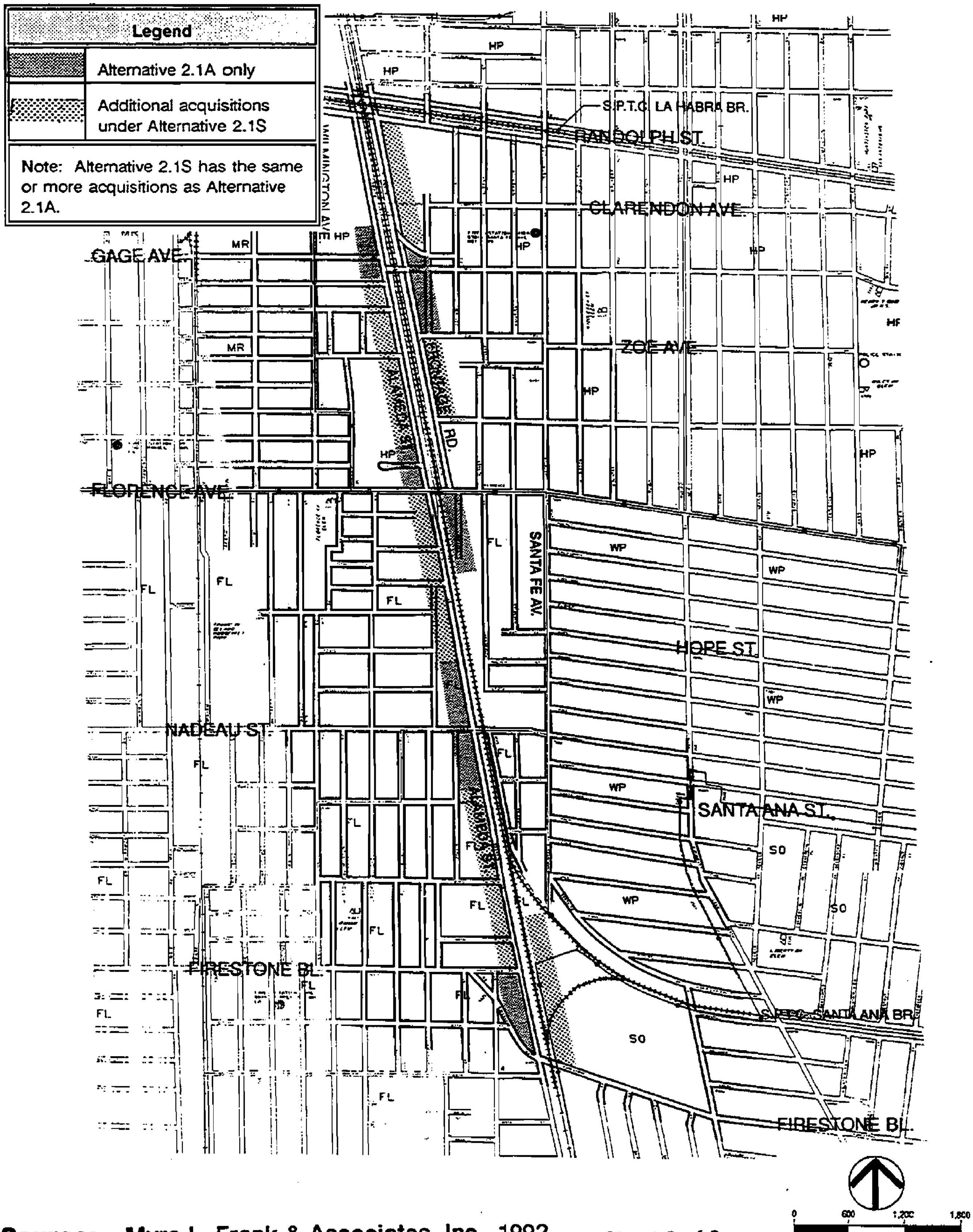
FIGURE 5-26	**Alternative 2.1A/S-Areas of Acquisition** **Alameda Corridor-Segment A**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



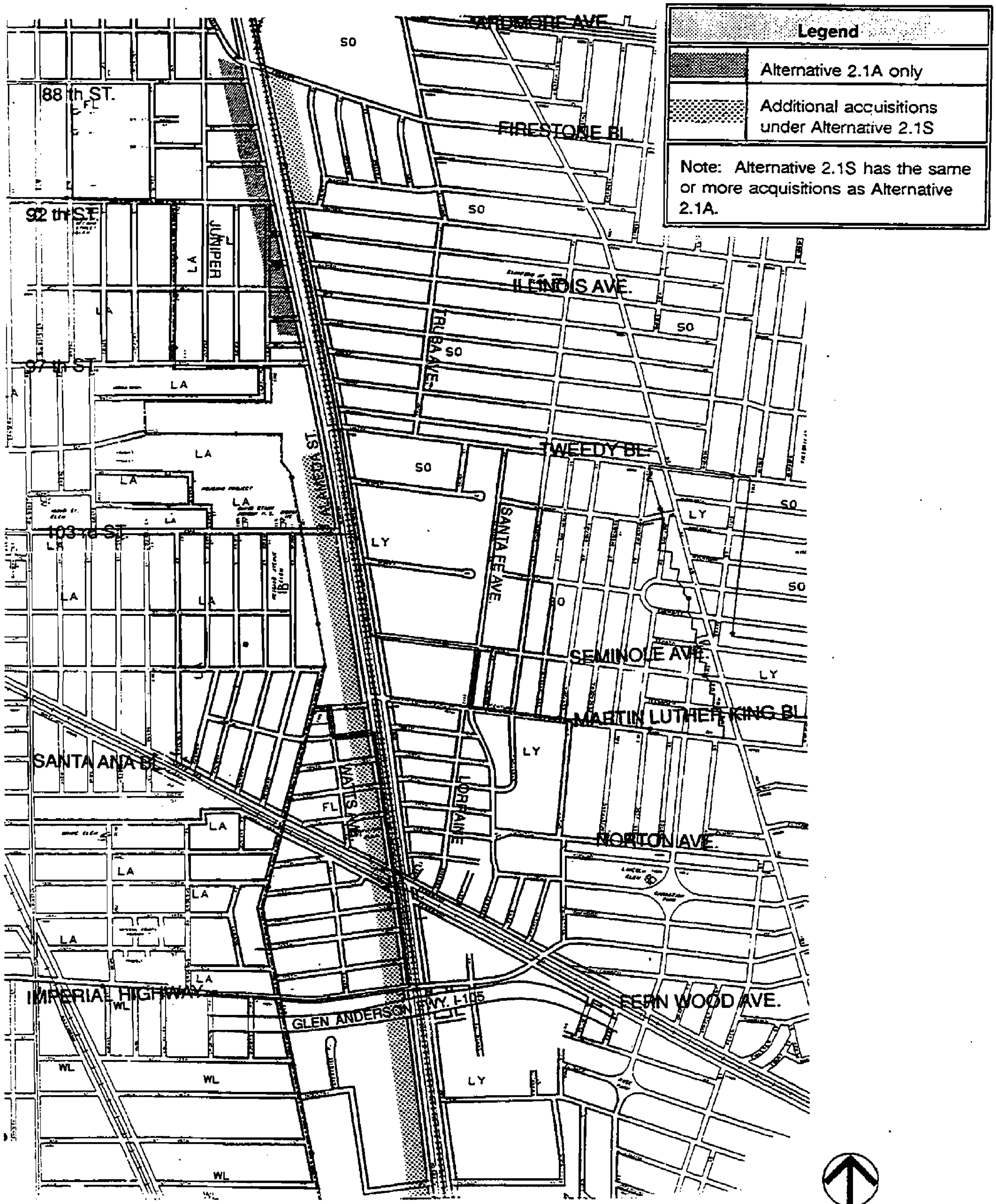
Source: Myra L. Frank & Associates, Inc., 1992 Sheet 2 of 6

FIGURE 5-26	Alternative 2.1A/S-Areas of Acquisition Alameda Corridor-Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 3 of 6

FIGURE 5-26	Alternative 2.1A/S-Areas of Acquisition Alameda Corridor-Segment B2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

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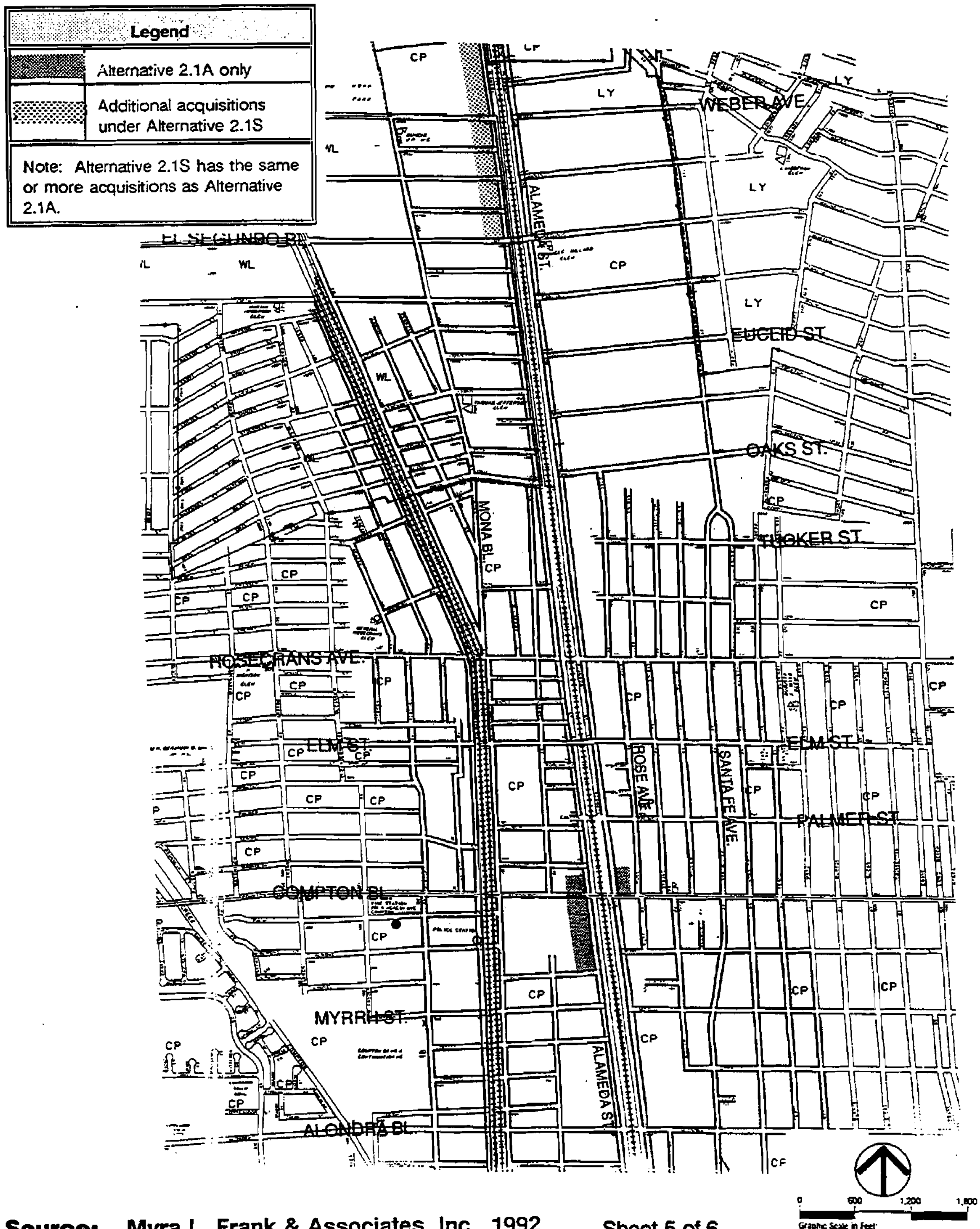
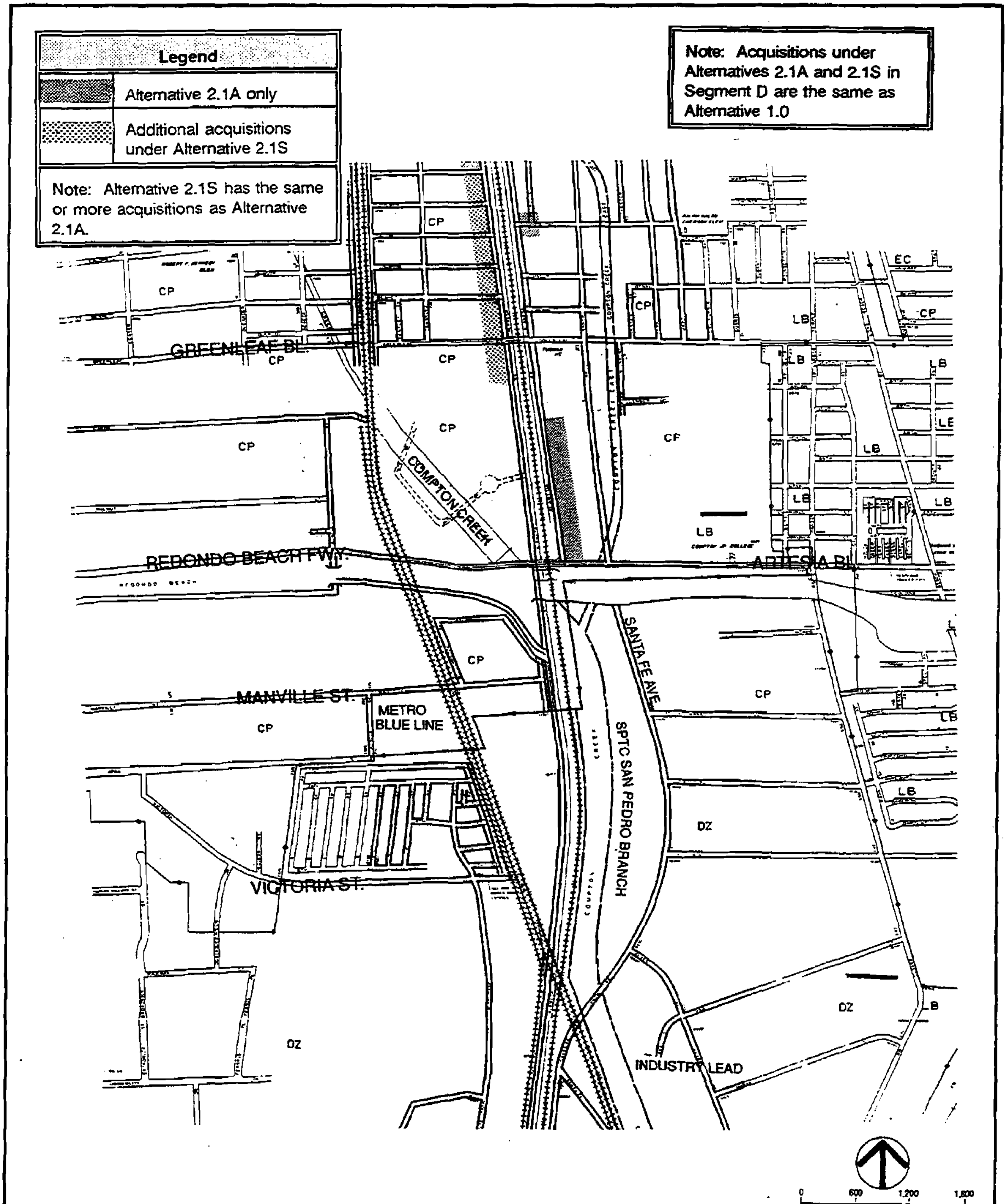
FIGURE 5-26	Alternative 2.1A/S-Areas of Acquisition Alameda Corridor-Segment C1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 5 of 6

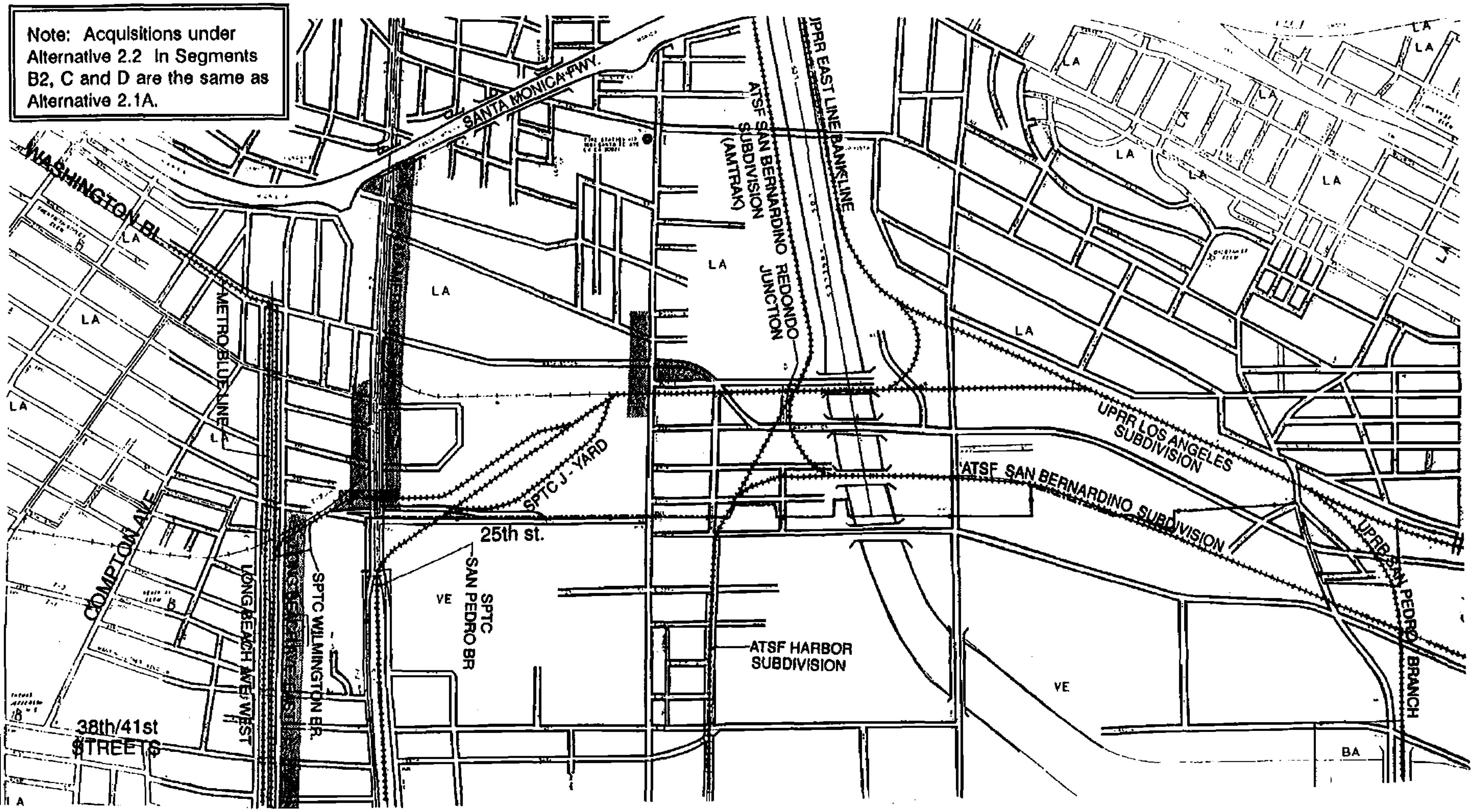
FIGURE 5-26	Alternative 2.1A/S-Areas of Acquisition Alameda Corridor-Segment C2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 6 of 6

FIGURE 5-26	Alternative 2.1A/S-Areas of Acquisition Alameda Corridor-Segment C3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Note: Acquisitions under Alternative 2.2 in Segments B2, C and D are the same as Alternative 2.1A.

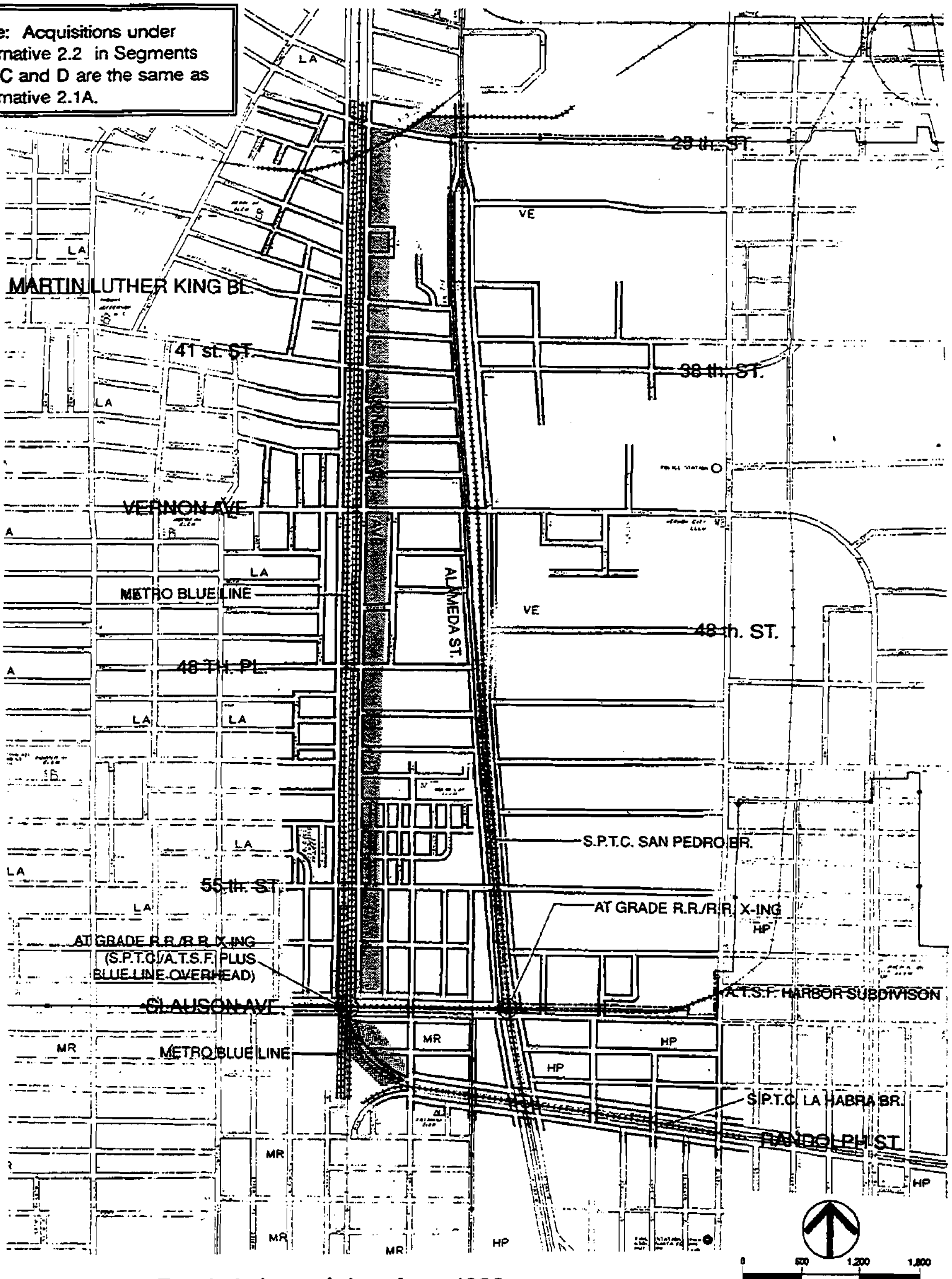


Source: Myra L. Frank & Associates, Inc., 1992

Sheet 1 of 2

FIGURE 5-27	**Alternative 2.2 - Areas of Acquisition Alameda Corridor-Segment A**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Note: Acquisitions under Alternative 2.2 in Segments B2, C and D are the same as Alternative 2.1A.



Source: Myra L. Frank & Associates, Inc., 1992

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FIGURE 5-27	Alternative 2.2 - Areas of Acquisition Alameda Corridor-Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

In areas of Segment C, the same configuration would be used except that a frontage road between 24 and 28 feet in width would be constructed. The total right-of-way for this configuration would be 209 to 213 feet.

Alternative 2.1S

In Segments B1, B2 and C, the configuration would be essentially the same as under Alternative 2.1A: a depressed trainway with at-grade roadways and drill track. However, Alternative 2.1S would also use a combination of sloped and vertical retaining walls. The sloped walls with an at-grade, one-way couplet and drill track would require 217 feet, 6 inches of right-of-way. A six-lane two-way roadway on the west side of the trainway, in lieu of the one-way couplet, with a frontage road on the east side would require 259 feet, 6 inches of right-of-way. Because Segments B1, B2 and C would contain a combination of retaining and sloped walls, the right-of-way would be more extensive in some areas.

Alternative 2.2

Alternative 2.2, which only exists in Segment B2, contains a depressed trainway for two main line tracks along Long Beach Avenue near two existing at-grade Southern Pacific (SP) tracks, one of which would remain, and the Metro Blue Line. To the west of the Blue Line tracks would be the southbound roadway of Long Beach Avenue. On the east side, two northbound at-grade lanes, 38 feet wide, would be constructed. The total width of the right-of-way for the reconstructed, northbound Long Beach Avenue and depressed trainway (to the SP track) would be 105 feet.

5.3.3 Residential Displacement

Several sources were used to estimate the extent and location of residential displacement under each alternative: (1) engineering drawings prepared by DMJM/Moffatt & Nichol illustrating the proposed rights-of-way (1 inch to 200 feet scale); (2) aerial photographs of the corridor (1 inch to 50 feet scale); (3) field surveys conducted in March 1992; and (4) reports assessing full or partial acquisitions for each alternative prepared for right-of-way cost estimating. In addition, several sources were employed to create a data base which provided general characteristics of each acquired parcel. These sources included parcel maps and property characteristics from the Los Angeles County Tax Assessor and a 1991 TRW Corporation data base.

The data presented include improved and unimproved parcels and their designated land uses. To adjust the Los Angeles County Assessor information to reflect the current use, field surveys were conducted and corrections made.

The number of persons displaced as a result of residential acquisitions was estimated using 1990 U.S. Census population and housing data. Persons per household for all census tracts adjacent to the corridor were aggregated and averaged at the segment level. The per household factor for each segment was then applied to the number of acquired housing units in each segment to estimate the number of persons displaced.

Residential Displacement by Segment

Alternative 1.0 would displace the greatest number of residences: 109 single-family and 218 multi-family units and an estimated 1,373 persons. All other alternatives would acquire substantially fewer dwelling units: Alternatives 2.1A, 2.1S and 2.2 would acquire 6, 10 and 16 single-family units and 7, 7 and 16 multi-family units, respectively. The numbers of persons displaced as a result of Alternatives 2.1A, 2.1S and 2.2 would be 48, 65 and 143, respectively. All acquisitions under Alternative 1.0 would occur along streets designated for flyovers or underpasses, with one exception at the Henry Ford Avenue and Alameda Street intersection. Alternative 2.2, which is confined to Segment B1, would displace 32 units along the east side of Long Beach Avenue, which is more than any other alternative in Segment B1. Residential displacement under Alternatives 2.1A and 2.1S would occur primarily along Alameda Street. Further description of residential acquisitions by segment is provided below and illustrated in Table 5-17.

- Segment A

No residential units would be required in segment A under any alternative.

- Segment B1

Alternative 2.2 would require the largest number of single-family and multi-family displacements, 32, along the east side of Long Beach Avenue (City of Los Angeles), displacing approximately 143 persons. Displacement of seven single-family and one multi-family unit structures would occur between 55th and 57th streets; one single-family structure would be acquired between 57th Street and Slauson Avenue; three multi-family and four single-family structures would be acquired between Vernon Avenue and 47th Street; and four multi-family structures would be acquired between 41st Street and Vernon Avenue. The right-of-way would also require acquisition of approximately five units located north of 52nd Street in the Pueblo del Rio housing project, a 560-unit public housing development located along Long Beach Avenue between 51st and 55th streets. (For further discussion of the Pueblo del Rio acquisition, see Section 5.3.5.)

Alternative 1.0 would acquire one single-family unit west of Alameda and three multi-family units east of Alameda, along the south side of Vernon Avenue. As a result, an estimated 18 persons would be displaced.

Alternative 2.1A and 2.1S would not acquire residential units in this segment.

- Segment B2

Alternative 1.0 would displace the largest number of single- and multi-family units in this segment: 40 single-family and 68 multi-family units. In total, Alternative 1.0 would displace an estimated 487 persons. All residential displacement would occur along the south side of Gage Avenue, east of Alameda Street (City of Huntington Park); south side of Florence Avenue, west of Alameda Street (Los Angeles County and the City of Huntington Park); south side of Nadeau Street, west of Alameda Street (Los Angeles County); and the north side of Nadeau, east of Santa Fe Avenue (Los Angeles County). In addition, Alternative 1.0 would also require acquisition of vacant land north of 41st Street along the west side of Alameda Street.

TABLE 5-17
RESIDENTIAL DISPLACEMENT (UNITS)

SEGMENT	ALTERNATIVE 1.0	ALTERNATIVE 2.1A	ALTERNATIVE 2.1S	ALTERNATIVE 2.2
SINGLE-FAMILY UNITS				
SEGMENT A	0	0	0	*
SEGMENT B1	1	0	0	16
SEGMENT B2	40	1	3	*
SEGMENT C	64	1	3	*
SEGMENT D	4	4	4	*
TOTAL UNITS	109	6	10	22
TOTAL PERSONS DISPLACED	460	20	40	100
MULTI-FAMILY UNITS				
SEGMENT A	0	0	0	*
SEGMENT B1	3	0	0	16
SEGMENT B2	68	0	0	*
SEGMENT C	140	0	0	*
SEGMENT D	7	7	7	*
TOTAL UNITS	218	7	7	23
TOTAL PERSONS DISPLACED	900	30	30	100
TOTAL RESIDENTIAL UNITS DISPLACED	327	13	17	45
TOTAL PERSONS DISPLACED	1360	50	70	200

Notes:
[1]Applies to Segment B1 only.
[2]Estimated using averages of 1990 Census persons per household for each segment.

Source: Myra L. Frank & Associates, Inc., 1992.

Few residential displacements would be required by the other alternatives. Alternative 2.1A would displace one single-family unit at the southeast corner of Alameda and Florence Avenue, resulting in approximately five persons displaced. Alternative 2.1S would displace the same unit as in 2.1A and two additional single-family units on the east side of Alameda Street, south of Gage Avenue (north of Zoe Avenue), displacing approximately 14 persons.

- Segment C

Alternative 1.0 would require the largest number of residential displacements: 64 single-family and 140 multi-family units. Displacement would occur on the south side of Southern Avenue, both east and west of Alameda (City of South Gate); north side of Tweedy Boulevard, east of Alameda (City of South Gate); south and north sides of 124th Street, between Mona Boulevard and Alameda (City of Compton); north and south sides of Weber Street, east of Alameda (City of Compton); and north side of El Segundo Boulevard, west of Alameda, east of Mona Boulevard (City of Compton). A few acquisitions would also occur on the south side of Firestone Boulevard at Juniper Street (Los Angeles County); south side of Alondra Boulevard, east of Alameda to Chester Street and west of Alameda to Tamarind Avenue (City of Compton); and north side of Greenleaf Boulevard, west of Alameda Street (City of Compton). Alternative 1.0 would displace an estimated 828 persons.

In addition, a trailer park located along the north side of El Segundo Boulevard, to the west of Santa Fe Avenue, would be partially acquired. Approximately three trailer homes located on the southeast corner of the trailer park lot would be displaced.

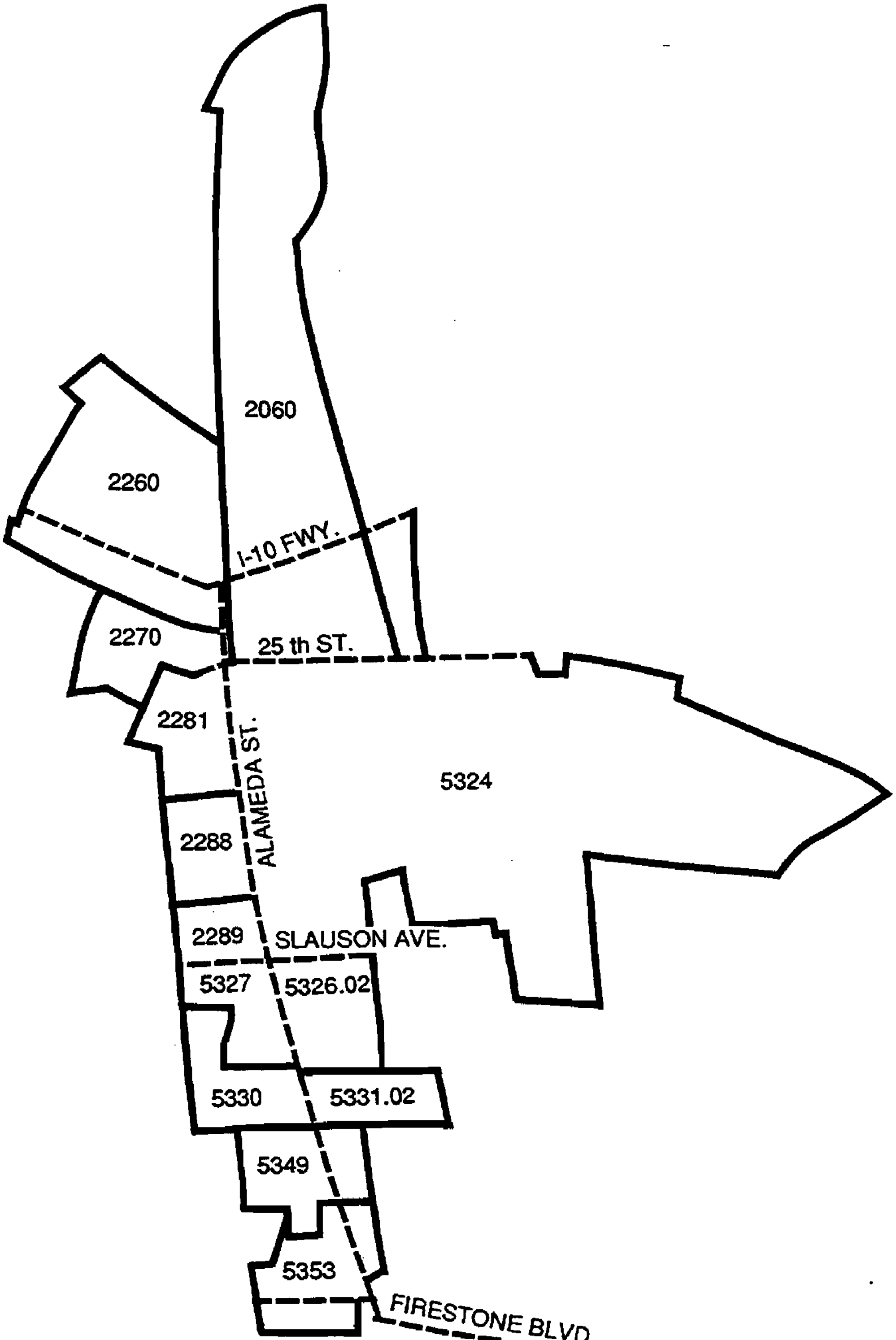
Few residential displacements would occur under the other alternatives. Alternative 2.1A would displace one single-family residence located along the west side of Alameda Street, between Reeves and Raymond Streets (south of Alondra Boulevard), resulting in the displacement of four persons. Alternative 2.1S would displace this same unit and two additional single-family parcels located along the west side of Alameda, north of Raymond and north of Johnson Street. Alternative 2.1S would displace approximately 12 persons.

- Segment D

Few residential units exist in this area. Four single-family and 7 multi-family units would be acquired. All but one of these units is located either on the south side of Pacific Coast Highway, between Alameda and Coil Avenue or east of Alameda (City of Los Angeles, Wilmington). One residential parcel located east of Henry Ford Avenue, south of Young Street and north of Denni Street, would also be acquired. Approximately 40 persons in total would be displaced as a result of residential acquisitions.

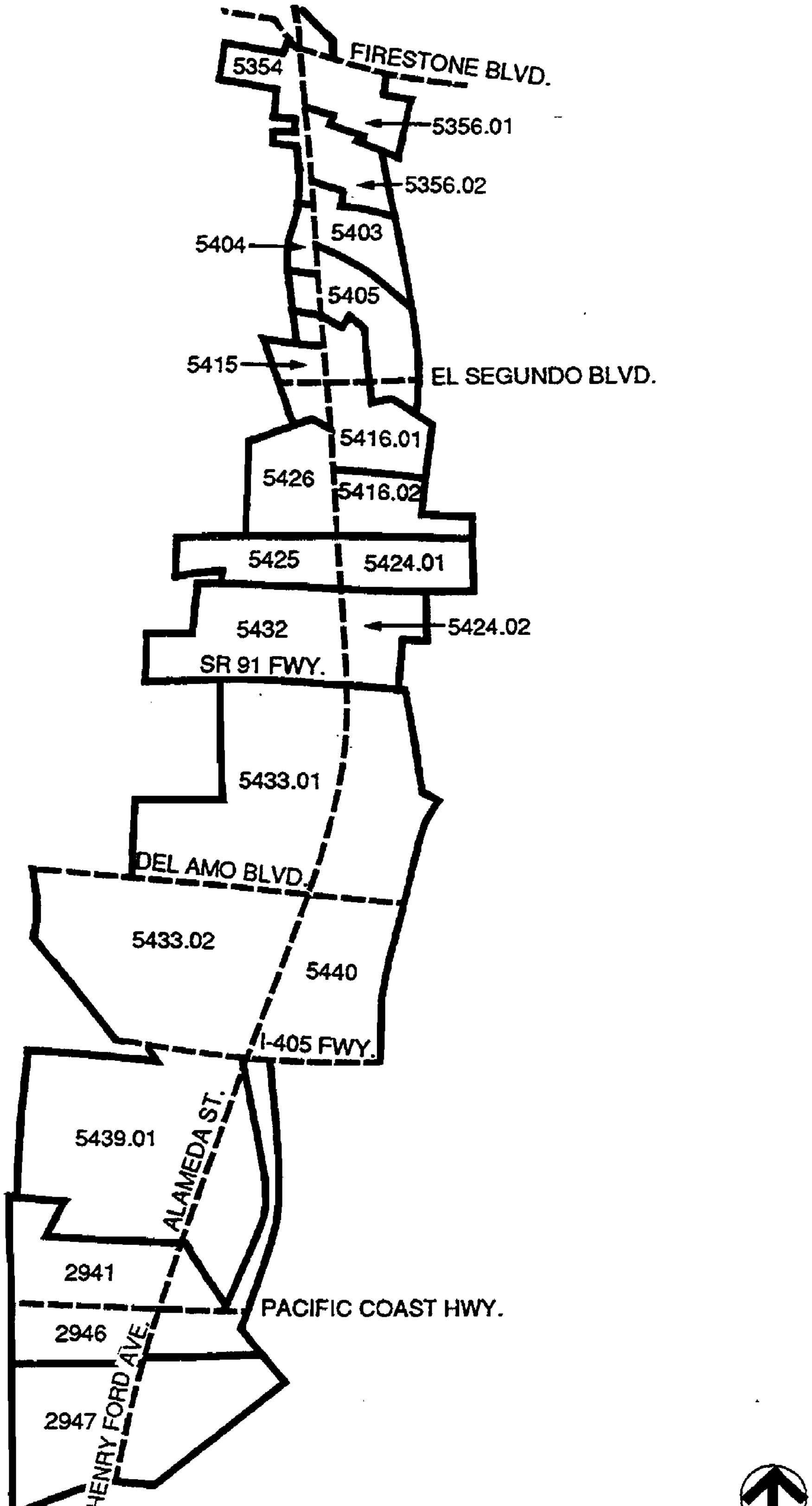
<u>Characteristics of the Displaced Population</u>

Population characteristics of the displaced population have been identified using 1990 Census population and housing data for 34 census tracts (see Figure 5-28). Information was aggregated and then averaged at the segment level to create population profiles for each segment. Because 1990 Census income data are not yet available, 1980 Census income data were used to assess median household income and the percentage of families below poverty level, as defined by the U.S.Census Bureau using federally defined thresholds (based on family



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 1 of 2

FIGURE 5-28	Census Tracts Alameda Corridor-Segments A, B1, B2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992 Sheet 2 of 2

FIGURE 5-28	Census Tracts Alameda Corridor-Segments C, D	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

size, age of householder, and number of related children under 18 years). For example, in 1980 a three-person family with an income below $5,787 was considered below poverty level.

Residential displacement would occur in all segments with the exception of Segment A. Hence, the following discussion of overall population characteristics excludes populations in Segment A. Although population characteristics vary across segments, and within segments, general conclusions about the displaced population can be drawn:

1. Persons of Hispanic origin and/or black populations constitute between 70 to 96 percent of the area population along the corridor, with the exception of Segment D, where the minority population ranges from 40 to 70 percent. The 1990 census does not include persons of Hispanic origin in the racial categories, which include White, Asian/Pacific Islander, Black, Native American and other. Hence, "black" and "hispanic" are not mutually exclusive categories.

2. The average household size for families along the corridor is 4 to 5 persons, with the exception of Segment D, which is 3 to 4 persons.

3. The median income for most families along the corridor was between $10,000 and $15,000 in 1980.

4. On average, 20 to 30 percent of all families were living below the federally defined poverty level in 1980, with the exception of Segment D, where 11 percent of families lived below the poverty level.

5. Between 40 and 50 percent of all occupied housing units are occupied by renters.

6. On average, fewer than five percent of the population along the corridor is over 65 years of age.

In general, the displaced population along the corridor would have higher percentages of minority populations, more persons per household, lower median incomes, higher percentages of families below the poverty level and higher percentage of renters than the surrounding cities of Carson, Compton, Huntington Park, Los Angeles, Lynwood, South Gate and Vernon.

(Although the corridor contains communities of Los Angeles County, county characteristics were excluded as a basis of comparison). Population characteristics have been described at the segment level and compared to cities' percentages. These descriptions are provided in the following section and illustrated in Table 5-18.

Segment B1

Alternative 2.2 and 1.0 would displace 143 and 17 persons, respectively. Like the overall corridor population, the displaced population in Segment B1 would likely have a higher percentage of black and Hispanic populations, more persons per household, lower median incomes, a larger percentage of renters, and a higher percentage of families living below poverty level than the cities of Los Angeles or Vernon. The percentages of Hispanic (68 percent) and black (29 percent) populations along the corridor exceed those of Los Angeles and Vernon (40 percent Hispanic,

TABLE 5-18
STUDY AREA[1] POPULATION CHARACTERISTICS

SEGMENT JURISDICTION CENSUS TRACT	RACIAL CATEGORIES (PERCENT OF TOTAL POPULATION)				PERCENT OF PERSONS OF HISPANIC ORIGIN	PERCENT OF PERSONS 65+ YEARS OF AGE	PERCENT OF FEMALE HEADED HOUSEHOLDS WITH CHILDREN	PERCENT RENTER	PERSONS PER HOUSEHOLD	MEDIAN HOUSEHOLD INCOME[2]	PERCENT FAMILIES BELOW POVERTY LEVEL[3]
	WHITE	BLACK	ASIAN, PACIFIC ISLANDER	OTHER							
SEGMENT A											
LOS ANGELES:											
2268	22%	17%	5%	56%	81%	5%	9%	90%	3.31	8835	31%
2060	22%	34%	6%	38%	42%	1%	16%	99%	2.59	7312	29%
2270	15%	18%	0%	67%	83%	4%	17%	76%	4.76	10143	28%
SEGMENT AVERAGE	19%	25%	4%	52%	65%	3%	14%	93%	3.55	8763	29.3
SEGMENT B1											
LOS ANGELES:											
2281	17%	21%	1%	62%	80%	5%	16%	69%	4.87	7510	39%
2288	17%	36%	4%	42%	63%	5%	26%	73%	4.59	7494	42%
2289	15%	35%	14%	36%	56%	4%	38%	82%	4.53	5365	60%
VERNON:											
5324	35%	1%	1%	63%	92%	3%	5%	94%	3.91	15000	16%
SEGMENT AVERAGE	17%	29%	5%	49%	68%	5%	25%	78%	4.48	8847	39%
SEGMENT B2											
HUNTINGTON PARK:											
5326.02	33%	2%	3%	63%	92%	4%	15%	77%	4.40	10983	27%
5331.02	28%	0%	1%	70%	94%	6%	13%	91%	3.63	8760	23%
LOS ANGELES COUNTY:											
5327	41%	7%	0%	51%	94%	4%	13%	71%	4.72	10274	32%
5330	27%	6%	1%	66%	94%	4%	15%	66%	4.92	11871	25%
5349	30%	4%	1%	65%	95%	5%	13%	65%	4.74	11752	26%
5353	17%	16%	0%	67%	85%	5%	17%	55%	4.62	11132	33%
SEGMENT AVERAGE	28%	6%	1%	65%	92%	5%	14%	76%	4.51	10794	28%
SEGMENT C											
LOS ANGELES COUNTY:											
5354	10%	38%	0%	51%	63%	6%	25%	59%	4.38	8652	30%
5404	14%	35%	1%	49%	65%	3%	7%	51%	4.87	8685	35%
5415	21%	17%	1%	62%	83%	5%	18%	58%	4.94	12673	29%
SOUTH GATE:							0%	0%			
5356.01	44%	1%	1%	54%	92%	5%	12%	65%	4.33	12997	18%
5356.02	52%	2%	0%	46%	94%	4%	7%	54%	4.55	12223	19%
LYNWOOD:											
5403	29%	8%	1%	61%	86%	4%	12%	45%	4.65	14756	22%
5405	21%	24%	2%	53%	74%	3%	20%	64%	4.64	13457	27%

TABLE 5-18 (Cont'd)
POPULATION CHARACTERISTICS OF CENSUS TRACTS BORDERING THE ALAMEDA CORRIDOR

SEGMENT JURISDICTION CENSUS TRACT	RACIAL CATEGORIES (PERCENT OF TOTAL POPULATION)				PERCENT OF PERSONS OF HISPANIC ORIGIN	PERCENT OF PERSONS 65+ YEARS OF AGE	PERCENT OF FEMALE HEADED HOUSEHOLDS WITH CHILDREN	PERCENT RENTER	PERSONS PER HOUSEHOLD	MEDIAN HOUSEHOLD INCOME[2]	PERCENT FAMILIES BELOW POVERTY LEVEL[3]
	WHITE	BLACK	ASIAN, PACIFIC ISLANDER	OTHER							
COMPTON:											
5416.01	16%	35%	1%	49%	67%	4%	22%	64%	4.51	11966	35%
5416.02	11%	45%	1%	43%	54%	4%	24%	60%	4.17	11898	25%
5426	13%	33%	1%	54%	68%	4%	21%	59%	4.51	12276	28%
5425	7%	59%	7%	27%	34%	5%	24%	61%	3.65	9366	34%
5424.01	8%	66%	1%	25%	31%	5%	20%	35%	3.81	14133	26%
5424.02	10%	67%	2%	22%	30%	5%	16%	28%	3.75	17708	11%
5432	8%	53%	1%	38%	46%	5%	22%	49%	4.10	12233	26%
SEGMENT AVERAGE	21%	31%	2%	46%	67%	4%	19%	58%	4.08	11635	24%
SEGMENT D											
LOS ANGELES COUNTY:											
5433.01	24%	70%	3%	3%	6%	5%	7%	5%	3.01	26479	2%
CARSON:											
5433.03	27%	24%	36%	14%	23%	8%	9%	28%	3.46	23568	4%
5440	50%	6%	16%	28%	42%	9%	7%	30%	3.29	20818	8%
5439.01	38%	17%	26%	20%	49%	5%	15%	26%	4.59	19109	15%
LOS ANGELES:											
2941	55%	8%	9%	28%	72%	6%	11%	46%	3.85	18614	13%
2946	55%	2%	3%	41%	89%	7%	9%	61%	3.96	15393	12%
2947	61%	4%	2%	33%	77%	5%	9%	69%	3.32	12333	24%
SEGMENT AVERAGE	42%	22%	13%	23%	48%	7%	9%	36%	3.64	19473	11%

Source: Myra L. Frank & Associates Inc., 1992

[1] Defined as census tracts adjacent to corridor.
[2] 1980 Census (1990 income data not available).
[3] 1980 Census (1990 income data not available).

14 percent black in Los Angeles, and 78 percent Hispanic, 3 percent black in Vernon). In addition, the cities of Los Angeles and Vernon have lower numbers of persons per household (2.8 and 2.98) compared to the segment average (4.48). The segment population also had a lower median income ($8,847) than either Los Angeles or Vernon ($15,700 and $15,000) and more families living below the poverty level (39 percent in the segment, 13 and 16 percent in Los Angeles and Vernon). In addition, 25 percent of households in the segment are female-headed with children and four percent of all persons are elderly (over the age of 65).

Segment B2

Alternative 1.0 would displace 487 persons in this area, while Alternative 2.1A and 2.1S would displace 5 and 14 persons, respectively. In this area, the population characteristics more closely resemble those of the City of Huntington Park. Persons of Hispanic origin in this study area constitute 92 percent of the total population, which is approximately the same as the city's percentage. Likewise, in both the city and the corridor area, 71 percent of all housing units are occupied by renters. The median income for the population along the corridor ($10,800), however, was slightly lower than the median income for the city ($11,300). In addition, the corridor population had a larger percent of families living below poverty level (28 percent) in 1980 compared to Huntington Park overall (20 percent). Only slightly more people reside per household along the corridor (4.51) than in the city (4.01). In addition, slightly fewer elderly people live in the segment compared to Huntington Park overall, and 14 percent of all households are headed by women with children.

Segment C

Alternative 1.0 would displace 828 persons; Alternative 2.1 would displace 4 and Alternative 2.1S, 12 persons. Because this segment encompasses a large area, including three cities and a community of Los Angeles County, it is necessary to describe distinct areas of the corridor, rather than just the segment average.

- City of South Gate

In the City of South Gate, the population along the corridor is over 90 percent Hispanic, which is greater than the overall Hispanic population in South Gate (83 percent). There are more persons per households along the corridor (4.44) than in the city (3.84). The 1980 median income for the corridor area was lower ($12,610) than for South Gate overall ($14,609), and the percentage of families living below the poverty level in 1980 was higher (18 percent) than the city overall (12 percent). Less than 5 percent of the population is elderly near the corridor, compared with 7 percent for South Gate. In addition, more households are occupied by renters near the corridor (62 percent) than in the city (51 percent). Approximately 10 percent of all households are headed by women with children.

- City of Lynwood

In the City of Lynwood, a larger percent of the Hispanic population (78 percent) lives in the area near the corridor than in the city as a whole (70 percent). Slightly more people reside per household along the corridor (4.65) than in the city (4.29) and a greater percentage of households are renter-occupied in the corridor area (60 percent) than in the city (52 percent).

The median household income in 1980 was lower along the corridor than in the city ($14,100 compared to $15,000); and a greater share of families lived below poverty level along the corridor (24 percent) than in the city (18 percent). Households headed by women with children constitute 18 percent of all households in the corridor.

- City of Compton

In the City of Compton, slightly fewer blacks (48 percent) and slightly more Hispanics (50 percent) live near the corridor as in the City of Compton (55 percent black, 44 percent Hispanic). The same is true of persons per household (4.02). Median household income along the corridor in 1980 ($12,800), however, was lower than in the city ($13,456), and the percentage of families below the poverty level (26 percent) was slightly higher than the city's percentage (24 percent). A higher percentage of rented housing units exist in the corridor (56 percent) than in the city (43 percent). Approximately 22 percent of households in the corridor area are headed by women with children.

- Willowbrook Community (Los Angeles County)

In the Willowbrook community of Los Angeles County, the black and Hispanic populations along the corridor are similar to those of the nearby City of Lynwood (70 percent Hispanic, 30 percent black). Slightly more persons per household (4.73) and more dwelling units are occupied by renters (60 percent) along the corridor than in the City of Lynwood. Nearly 28 percent of all households in the corridor are headed by women with children. The median household income for the area along the corridor was lower on average ($10,000) than the city's, and a larger percentage of families lived below the poverty level (31 percent) in 1980 than any city along the corridor.

Segment D

Approximately 40 persons would be displaced in this area, all within the City of Los Angeles. The percentage of the Hispanic population along the corridor in the City of Los Angeles (79 percent) is greater than the percentage for the City of Los Angeles overall (40 percent). In addition, the median household income for the area along the corridor was similar to the city's overall ($15,400 along the corridor, $15,700 in the city), but the percentage of families living below the poverty level was slightly higher along the corridor (16 percent) than in the city (13 percent). The percentage of units which were renter-occupied along the corridor was similar to that of the city (59 percent), but the number of persons per household (3.71) exceeds that of the city (2.8).

5.3.3 Non-Residential Displacement

Land uses along the corridor have been characterized by the following categories: office, retail/wholesale, industrial, parking and vacant lots. The same sources used to estimate residential acquisitions were employed to calculate non-residential full and partial acquisitions for each alternative. In addition, the number of employees displaced as a result of full acquisitions was estimated using employee generation factors taken from The Fiscal Impact Handbook, (Burchell & Listokin 1978). (See footnote in Table 5-19 for a list of factors). Size of

TABLE 5-19
FULL ACQUISITIONS OF NON-RESIDENTIAL PROPERTIES (PARCELS)

	ALTERNATIVE 1.0			ALTERNATIVE 2.1A			ALTERNATIVE 2.1B			ALTERNATIVE 2.2		
	#PARCELS	SQ.FT.[1]	#EMPLOYEES DISPLACED[2]	#PARCELS	SQ.FT.	#EMPLOYEES DISPLACED	#PARCELS	SQ.FT.	#EMPLOYEES DISPLACED	#PARCELS	SQ.FT.	#EMPLOYEES DISPLACED
SEGMENT A												
OFFICE	2	4,320	17	SAME AS ALTERNATIVE 1.0			SAME AS ALTERNATIVE 1.0			NOT APPLICABLE		
RETAIL	4	5,352	11									
INDUSTRIAL	22	279,657	533									
PARKING	4	34,712										
VACANT	4	2,226										
TOTAL	36	326,267	561									
SEGMENT B1												
OFFICE	3	19,693	79	2	5,408	22	2	5,408	22	0	0	0
RETAIL	2	26,893	54	1	3,412	7	2	4,870	10	3	4,413	9
INDUSTRIAL	33	946,453	1,803	10	621,609	1,184	20	736,775	1,403	21	366,838	699
PARKING	11	476,548		3	321,472		4	329,888		3	44,866	
VACANT	3	22,677		2	12,425		3	10,668		10	31,752	
TOTAL	52	1,492,264	1,936	18	960,914	1,213	31	1,087,609	1,435	37	447,869	708
SEGMENT B2												
OFFICE	4	4,519	18	0	0	0	0	0	0	NOT APPLICABLE		
RETAIL	26	58,101	116	2	2,500	5	9	24,578	49			
INDUSTRIAL	14	61,770	118	2	44,524	85	27	234,789	447			
PARKING	3	5,146		1	136,342		2	149,288				
VACANT	19	104,668		0	0		3	27,468				
TOTAL	66	234,204	252	5	183,366	90	41	436,123	496			

TABLE 5-19 (Cont'd)
FULL ACQUISITIONS OF NON-RESIDENTIAL PROPERTIES (PARCELS)

	ALTERNATIVE 1.0			ALTERNATIVE 2.1A			ALTERNATIVE 2.1S			ALTERNATIVE 2.2		
	#PARCELS	SQ.FT.[1]	#EMPLOYEES DISPLACED[2]	#PARCELS	SQ.FT.	#EMPLOYEES DISPLACED	#PARCELS	SQ.FT.	#EMPLOYEES DISPLACED	#PARCELS	SQ.FT.	#EMPLOYEES DISPLACED
SEGMENT C												
OFFICE	8	15,589	62	1	1,326	5	1	1,326	5	NOT APPLICABLE		
RETAIL	20	57,084	114	5	15,909	32	7	26,177	52			
INDUSTRIAL	42	213,646	407	4	40,191	77	20	126,362	241			
PARKING	6	60,595		1	7,680		1	7,680				
VACANT	18	128,915		0	0		1	7,989				
TOTAL	94	475,829	583	11	65,106	114	30	169,534	298			
SEGMENT D												
OFFICE	1	2,300	9	SAME AS ALTERNATIVE 1.0			SAME AS ALTERNATIVE 1.0			NOT APPLICABLE		
RETAIL	9	12,492	22									
INDUSTRIAL	34	69,514	132									
PARKING	2	13,200										
VACANT	47	18,497										
TOTAL	93	116,003	164									
TOTAL NON-RESIDENTIAL PROPERTIES	341	2,843,902	3,525	139	1,418,207	1,755	208	1,896,365	2,558	168	1,152,197	1,241

Notes:

[1] All non-commercial parcels are measured by structure square feet, with the exception of parking and vacant lots, which are measured by lot square feet.

[2] Total employment displacement excludes parking and vacant lot employees. Employee displacement was calculated using the following factors: office--1:250 S.F.; retail--1:500 s.f.; industrial--1:525 s.f. (average of 1:3000 s.f. for industrial plants and 1:750 s.f. for warehouses). Source: The Fiscal Impact Handbook (Burchell and Listokin 1978).

Source: Myra L. Frank & Associates, Inc., 1992.

the acquisitions were estimated by calculating structure square feet for office, retail/wholesale and industrial properties and lot square feet for parking and vacant properties.

Industrial use is the principal type of property which would be displaced under all alternatives. Retail and wholesale businesses are the second predominant commercial uses to be displaced, followed by parking and office structures. Alternative 1.0 would displace the largest number of non-residential properties: 328 parcels of a total 2,484,212 square feet and 3,194 displaced employees. Alternative 2.1S would displace the second largest number of properties: 221 non-residential parcels and 2,086,746 square feet. The resulting employee displacement would be 2,712 persons. Alternative 2.1A would produce 154 acquisitions of 1,604,183 square feet and displace 1,894 employees. Alternative 2.2 would acquire 33 parcels of 384,591 square feet, displacing 587 employees. The following describes the location and extent of non-residential displacement under each alternative by segment. Table 5-19 also summarizes the acquisitions, total square feet and number of employees displaced. Table 5-20 shows the number of non-residential acquisitions by jurisdiction.

TABLE 5-20
FULL ACQUISITIONS OF NON-RESIDENTIAL PROPERTIES (PARCELS) BY JURISDICTION

JURISDICTION	ALTERNATIVE 1.0	ALTERNATIVE 2.1A	ALTERNATIVE 2.1S	ALTERNATIVE 2.2[1]
CARSON	0	0	0	*
COMPTON	57	4	21	*
HUNTINGTON PARK	22	1	15	4
LYNWOOD	1	1	3	*
LOS ANGELES	149	119	125	140
SOUTH GATE	6	0	0	*
VERNON	26	4	9	0
LOS ANGELES COUNTY	80	10	35	*
TOTAL	341	139	208	158

Notes:
[1]Alternative 2.2 differs from Alternative 2.1A only in Segment B1.
[2](*) indicates same as Alternative 2.1A.

Source: Myra L. Frank & Associates, Inc., 1992.

Segment A

Non-residential acquisitions are identical for all the build alternatives in this segment: The proposed right-of-way would acquire 2 office, 4 retail, 22 industrial, 4 parking and 4 vacant lots, displacing 326,267 square feet and 561 employees. The office properties which would be displaced are located east of Santa Fe Avenue and south of Washington Boulevard. The displaced retail/wholesale properties are located west of Santa Fe Avenue, along the south side of Washington Boulevard; along the east side of Alameda, south of 15th Street; the southeast corner of Long Beach Avenue and Vernon Avenue; and on the west side of Alameda, between 42nd and 43rd. Streets.

The majority of industrial properties in this area that would be displaced (which includes Liquette Inc.) are located around the intersection of Washington Boulevard and Santa Fe Avenue, south of 15th Street. In addition, three properties of the Thermo Electron Corp., east of Soto Street and north of the UP railroad line, would be displaced. On the north side of 24th Street, east of Alameda, approximately nine properties would be displaced, including L.A. By Products and three properties of the McCaffrey Thomas Co.

The parking and vacant lots which would be acquired are located primarily around the Washington Boulevard and Santa Fe Avenue intersection and east of Alameda Street, north of 25th Street.

<u>Segment B1</u>

- Alternative 1.0

Alternative 1.0 would displace the largest number of non-residential properties: 4 office, 1 retail, 28 industrial, 11 parking and 3 vacant lots, totaling 1,333,259 square feet and displacing 1,634 employees. The office displacements would occur along the south side of Vernon Avenue, east of Alameda Street; the east side of Alameda Street, just north of 38th Street; and the west side of Alameda Street, directly north of 43rd Street. One small retail store would be acquired on the north side of 38th Street, east of Alameda.

The industrial acquisitions would occur primarily along the west side of Alameda Street: property owned by Cereal Foods Processing, Inc. located north of 55th Street would be displaced, as well as Crown Beck, Inc. south of 55th Street. Approximately seven acquisitions would occur along the west side of Alameda from 48th Street to Slauson Avenue. On the south side of Slauson Avenue, west of Wilmington Avenue, the Day Paint and Body Center would be displaced, as well as Goes Lithographing, on the south side of 38th Street, west of Ross Street. Approximately four industrial properties would be acquired along the south side of Vernon Avenue, east of Alameda Street.

Most of the acquired parking under Alternative 1.0 is located along the south side of Vernon Avenue, east of Alameda; north of 38th Street, east of Alameda; and north of 57th Street, along the east side of Alameda Street. The vacant lots which would be acquired are located south of Vernon Avenue, on the west and east sides of Alameda Street.

- Alternative 2.1A

Relatively few acquisitions would be required under Alternative 2.1A: 1 office, 1 retail, 8 industrial, 4 parking and 1 vacant lot. Total displacement would result in a loss of 914,791 square feet and 966 employees. All displacement would occur along the west side of Alameda Street. Industrial displacement, primarily of large-lot warehouses and manufacturers, would occur north of 55th Street (General Foods Processing), between 55th Street and Slauson Avenue, directly south of

55th Street and directly south of 45th Street. In addition, three properties would be required between 46th and 50th Street. The retail store which would be displaced is located south of 42nd Street.

- Alternative 2.1S

Alternative 2.1S would acquire more industrial properties than 2.1A, but still fewer than Alternative 1.0. Acquisitions would displace 2 office, 1 retail, 18 industrial, 5 parking and 1 vacant lot. Alternative 2.1S would displace the same properties as Alternative 2.1A with some additions on both the east and west sides of Alameda Street. Another office property would be displaced, located along the east side of Alameda Street, at the north corner of 38th Street. Industrial acquisitions would occur on the east side of Alameda, south of 41st Street; north 43rd Street; north of 45th Street; south of 57th Street (Liquid Carbonic Corp.); just south of Slauson Avenue; and south of 52nd Street. Additional displacements would occur along the west side of Alameda Street, north of 37th and 51st Streets. Alternative 2.1S would displace 1,040,169 square feet total and 1,192 employees.

- Alternative 2.2

Alternative 2.2 would displace larger numbers of industrial and vacant lots than Alternatives 2.1A and 2.1S, though still fewer than Alternative 1.0: 2 retail, 18 industrial, 3 parking and 10 vacant lots. Approximately 384,591 square feet and 587 employees would be displaced. Retail displacement would occur along the east side of Long Beach Avenue, south of Vernon and south of 41st Street. All industrial displacement would occur along the east side of Long Beach Avenue, between 24th Street to 48th Street, just south of 50th Street, south of Vernon Avenue and between 57th Street and Slauson Avenue. Industrial properties in this area are typically small-lot warehouses or manufacturers. Small vacant lots are located throughout the segment, along the east side of Long Beach Avenue.

<u>Segment B2</u>

- Alternative 1.0

Alternative 1.0 would displace the largest number of non-residential properties, largely along the streets designated for underpasses or flyovers: 4 office, 25 retail, 13 industrial, 3 parking and 19 vacant lots. The 25 retail/wholesale properties are largely small shops located along the south side of Florence Avenue, east and west of Alameda Street (including a Shell Oil station). A few retail/wholesale displacements would also occur along the south side of Alondra Boulevard. Office properties also along the south side of Florence Avenue, west of Alameda, would be displaced.

Almost all the industrial displacements (including the Allop Cleaning, Inc. Co.) would occur along the south side of Gage Avenue, west of Alameda Street. Industrial properties would be acquired along the south side of Florence Avenue, east of Alameda and the north side of Nadeau, west of Alameda. Most of the vacant lot acquisitions would occur along the south side of Florence Avenue, east and west of Alameda. Additional takes would be required on both the north and south sides of Nadeau Street, both east and west of Alameda. Parking lot acquisitions again would occur primarily along the south side of Florence Avenue, east of Alameda.

- Alternative 2.1A

Alternative 2.1A would displace minor amounts of non-residential properties: 2 retail, 2 industrial and 1 parking lot. Approximately 183,366 square feet and 90 employees would be displaced as a result. Both retail displacements -- one of which is a fast-food restaurant -- would occur on the west side of Alameda Street, north of Firestone Boulevard. Industrial displacement would occur at the southeast corner of Alameda and Nadeau streets and at the northeast corner of Alameda and Gage Avenue.

- Alternative 2.1S

Alternative 2.1S would displace the same properties as under Alternative 2.1A as well 7 retail, 25 industrial, 1 parking and 3 vacant lots, for a total of 436,123 square feet and 496 employees displaced. The additional retail displacements would occur along the west side of Alameda Street, south of 73rd Street, north of Nadeau Avenue, and north of 83rd Street. In addition, acquisitions would occur east of Alameda Street, north and directly south of Gage Road. Over half the additional industrial displacements would occur along the west side of Alameda Street, north of and south of Nadeau Avenue. The remainder would occur along the east side of Alameda, south of Gage Street to Zoe Avenue.

Segment C

- Alternative 1.0

Alternative 1.0 would again generate the largest number of acquisitions in this area, almost all of which are located along streets designated for flyovers or underpasses. These include: 8 office, 20 retail, 42 industrial, 6 parking and 18 vacant lots, for a total of 475,829 square feet and 383 employees displaced. Displacement of small-lot office properties would occur along the north side of Tweedy Boulevard, west of Alameda; south side of 92nd Street, west of Alameda; south side of Alondra Boulevard, west of Alameda; and three would be acquired, including the Capital National Bank of Compton, along the south side of Compton Boulevard, west of Alameda.

Retail properties which would be acquired are generally small grocery, liquor, convenience stores and auto-repair shops. Displacement would occur along the south side of Firestone Avenue, west of Alameda; north side of El Segundo, west of Alameda; south side of Compton Boulevard at Willowbrook, and east of Alameda; south side of Alondra, east and west of Alameda; north side of Greenleaf, east of Santa Fe; north east corner of Weber Avenue and Alameda Street; and north side of Weber, east of Alameda Street.

Displacement of industrial properties would occur along almost all streets designated for underpasses or flyovers in Segment C. Between five to seven displacements each would occur along the south side of 92nd Street, west of Alameda; north side of Greenleaf, west of Alameda; south and north sides of Weber Boulevard, east of Alameda (which includes the Tnemec Corp. of California and the Thorock Metals Inc. Co.); north side of Tweedy Boulevard, east of Alameda; north side of 124th Street, west of Alameda. One property of the Jorgensen Earle and Co. manufacturers on the west side of Alameda at 103rd Street would be acquired.

The vacant and parking lot acquisitions primarily would occur along the north side of El Segundo, west of Alameda.

- Alternative 2.1A

In this segment, Alternative 2.1A would displace relatively minor amounts of commercial properties: 1 office, 5 retail, 4 industrial and 1 parking lot, for a total of 65,106 square feet and 114 employees. The office displacement would occur along the west side of Alameda Street between Alondra and Raymond Streets. Retail displacement would occur along the west side of Alameda Street between 92nd and 93rd Street and the west side of Alameda Street, at the corner of 89th Street.

Industrial displacement would occur primarily along the west side of Alameda Street in the following locations: south of 88th Street (recycling center); north of 93rd Street; and between Reeves and Raymond Streets. On the east side of Alameda, one industrial property north of Imperial Highway would be acquired.

- Alternative 2.1S

In total, Alternative 2.1S would displace 1 office, 7 retail, 20 industrial, 1 parking and 1 vacant lot, displacing 169,534 square feet and 298 employees. Alternative 2.1S would acquire the same properties as under Alternative 2.1A and additional retail, industrial and vacant lots. The two additional retail properties that would be displaced are located on the west side of Alameda Street, directly south of Reeves (Murcole, Inc.) and directly north of Tichenor Street. Additional industrial displacement would occur along the west side of Alameda Street, almost continually from Greenleaf Boulevard to Tichenor Street.

Segment D

Non-industrial displacement in this area is identical for all alternatives: 1 office, 8 retail, 33 industrial, 2 parking 43 vacant lots. Square footage and employee displacement would total 114,653 square feet and 164 employees. The office displacement would occur on the south side of Pacific Coast Highway, west of Alameda Street. Half the retail displacement would occur on the north side of Anaheim Street, between Alameda and Henry Ford Avenue; the other half would occur along the north side of Pacific Coast Highway, west of Alameda at Coil Avenue.

Industrial displacement would occur primarily along two streets. Almost one half of the total displacement for this segment would occur east of Blinn and west of Alameda Streets, along the south side of Pacific Coast Highway. These are primarily large warehouses and manufacturers. About one third of the acquisitions would occur along the north side of Anaheim Street, east of Henry Ford Avenue. A few other displacements would occur in the area of the intersection of Henry Ford Avenue and Alameda Street and along the east side of Alameda, between M and Robidoux Streets.

Two parking lots along the north side of Anaheim Street, east of Henry Ford would be acquired. The majority of vacant lot displacement would occur east and west of Southerland Avenue, along the southern side of the Dominguez Channel. Several parcels of the vacant property, owned by the City of Los Angeles, are currently used as hazardous waste disposal sites.

5.3.5 Other Displacements

In addition to the residential and commercial displacement, a small number of community and institutional facilities along the corridor would be displaced. Community and institutional facilities are defined as churches, schools, facilities for the elderly, public housing developments, community centers and other local institutions.

Alternative 1.0 would acquire seven and Alternative 2.1S would acquire two community or institutional facilities, all in Segment C. The Willowbrook Foursquare Church, located on the north east corner of Mona Boulevard and El Segundo Boulevard, would be displaced along with two adjacent properties owned by the church which are currently vacant. Alternative 1.0 would also displace the Crusada de La Fe Iglesia Church, located on the south side of Alondra Boulevard, west of Tamarind Avenue. Along the south side of Compton Boulevard, Alternative 1.0 would displace the Regional Investment and Finance Corporation, located on the west corner of Willow Avenue, and a Pacific Bell office located between Willow and Santa Fe Avenue. In addition, Alternative 1.0 would displace several small local grocery stores, swap meet facilities and restaurants which primarily serve Hispanic patrons. These facilities may likely serve as gathering places for residents in the area.

Alternative 2.1S would displace a structure designated as a facility for the elderly, located directly north of Raymond Avenue, on the west side of Alameda Street. In addition, a Southern California Edison facility located south of Greenleaf Boulevard on the west side of Alameda Street would be displaced.

Alternative 2.2 would displace approximately five units of the Pueblo del Rio Housing project, which is located between 51st and 55th Streets on Long Beach Avenue. Acquisition under Alternative 2.2 would require a total of five units in three buildings fronting Long Beach Avenue, north of 52nd Street. One unit would be acquired from the structure adjacent to the parking lot, just north of 52nd Street, and two units each would be acquired from the other two buildings.

Alternative 2.2 would also acquire five parking lots, a basketball court and a recreation building located between 52nd and 55th Street along the east side of Long Beach Avenue, which are part of the Pueblo del Rio development.

No community or institutional facilities would be displaced under Alternatives 2.1A.

5.3.5 Partial Acquisitions

All alternatives would require partial acquisitions of properties. Acquisitions which would not acquire the existing structure, or would not interfere with the function of the existing structure, are considered partial acquisitions. If a taking would result in the loss of a business' parking, and no other parking was available in the immediate surrounding area, a full acquisition was assumed. In some cases, where a taking would result in only the loss of a structure's facade, or the acquired piece of the structure could easily be rebuilt without damaging the function of the building, a partial acquisition was assumed. Only non-residential properties generally are assessed as partial acquisitions.

Alternative 1.0 would require 223 partial acquisitions. Alternative 2.1S would require almost as many, 208, and Alternative 2.1A would require 141 partial takes. Alternative 2.2 would acquire 18 partial acquisitions in Segment B1, which is the least number of partial takes of all the alternatives in Segment B1. In most cases, partial acquisitions would take vacant or parking areas in front of structures. Most of the partial acquisitions would be of industrial properties. Table 5-21. illustrates partial acquisitions for each alternative by segment.

Relocation Difficulties

The land use make up of the corridor includes a great many small-scale industrial businesses that have been in operation prior to the enactment of recent stringent air quality regulations. It is likely that a substantial number of these businesses do not meet the Southern California Air Quality Management District's standards regarding toxic substances, criteria pollutant production, and hazardous materials. Relocation would require these establishments to meet AQMD codes. Because many may not be able to reach compliance without incurring severe costs, it is possible that many of these establishments could not continue their business, or may be unable to relocate in Southern California. Similarly, relocation of many small businesses, such as auto-repair shops, scrap metal yards, fast-food restaurants, and grocery stores, would require significant costs which could eliminate these establishments.

5.3.6 Mitigation Measures

Provisions of the Federal and State law regarding relocation and assistance (California Government Code, Chapter 16, Section 7260 et sea., "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970") require the Alameda Corridor Transportation Authority, or its member agencies, to provide payments and relocation services to eligible residents, businesses concerns and non-profit organizations displaced by the project. It is assumed that these federal requirements would need to be followed, in principle. The actual relocation provision to be applied would depend upon the regulations governing the agency responsible for the acquisition. For purposes of discussion, the regulations pertaining to the Federal Highway Administration are offered as examples. Application of these (or similar) regulations are judged to result in less-than-significant risidual impacts.

The payments that are provided for by the Act include replacement housing payments and/or moving costs. The maximum limit of the replacement housing payments are $22,500 for owner-occupants who have owned and occupied their property for 180 days prior to the date of the first written offer to purchase, and $5,250 for tenant-occupants of 90-days or more and owner-occupants of 90-179 days. Certain payments may also be made for increased mortgage interest costs and/or incidental expenses, provided that the total of all housing benefits does not exceed the above mentioned limits. In order to receive payment, the displaced person must occupy decent, safe and sanitary replacement housing within one year from the date the Department of Transportation takes legal possession of the property. In addition to the replacement housing payments described above, there are also moving cost payments to persons, businesses, farms and non-profit organizations. Actual moving costs for residences include actual reasonable moving costs up to 50 miles or a fixed payment based on the number of furnished or unfurnished rooms of their present dwelling.

TABLE 5-21
PARTIAL ACQUISITIONS OF NON-RESIDENTIAL PROPERTIES (NUMBER OF PARCELS AFFECTED)

PARCEL USE	ALTERNATIVE 1.0	ALTERNATIVE 2.1A	ALTERNATIVE 2.1S	ALTERNATIVE 2.2
SEGMENT A				
OFFICE	2	2	2	Same as Alternative 2.1A
RETAIL	2	2	2	
INDUSTRIAL	9	9	9	
PARKING	1	1	1	
VACANT	2	2	2	
TOTAL ACQUISITIONS	16	16	16	
SEGMENT B1				
OFFICE	0	0	0	0
RETAIL	5	2	2	1
INDUSTRIAL	43	21	20	7
PARKING	18	8	8	5
VACANT	10	5	4	5
TOTAL ACQUISITIONS	76	36	34	18
SEGMENT B2				
OFFICE	0	1	1	Same as Alternative 2.1A
RETAIL	1	5	7	
INDUSTRIAL	6	20	25	
PARKING	2	2	5	
VACANT	3	7	10	
TOTAL ACQUISITIONS	12	35	48	
SEGMENT C				
OFFICE	2	1	3	Same as Alternative 2.1A
RETAIL	20	4	13	
INDUSTRIAL	31	13	42	
PARKING	7	1	2	
VACANT	25	3	11	
TOTAL ACQUISITIONS	85	22	71	
SEGMENT D				
OFFICE	0	0	0	Same as Alternative 2.1A
RETAIL	2	2	2	
INDUSTRIAL	22	22	22	
PARKING	3	3	3	
VACANT	10	10	10	
TOTAL ACQUISITIONS	37	37	37	
TOTAL PARTIAL ACQUISITIONS	226	146	206	128

Source: Myra L. Frank & Associates Inc., 1992

In the event comparable replacement housing is not available to rehouse persons displaced by public projects, or when their anticipated replacement exceeds the limits of the standard relocation procedures, replacement "housing as a last resort" will be utilized to accomplish the rehousing. Federal regulations (49 CFR Section 25) contain policy and procedures for implementing the Last Resort Housing Program.

The moving cost payments to businesses are broken down into several categories, which include actual moving expenses and payments in lieu of actual moving expenses. The owner of a displaced business is entitled to receive a payment for actual reasonable moving and related expenses in moving his business, or personal property; actual direct losses of tangible personal property; and actual reasonable expenses for searching for a replacement site.

The actual reasonable moving expenses may be paid for a move by a commercial mover or for a self-move. Generally, payments for the actual reasonable expenses are limited to a 50 mile radius. The expenses claimed for actual cost commercial moves must be supported by receipted bills. an inventory of the items to be moved must be prepared in all cases. In self-moves, the state will negotiate an amount for payment, not to exceed the lowest acceptable bid obtained. The allowable expenses of a self-move may include amounts paid for equipment hired, the cost of using the business' own vehicles or equipment, wages paid to persons who physically participate in the move, the cost of actual supervision of the move, replacement insurance for their personal property moved, costs of licenses or permits required, and other related expenses.

In addition to the actual moving expenses mentioned above, the displaced business is entitled to receive a payment for the actual direct losses of tangible personal property that the business is entitled to if it elects not to move. These payments may only be made after an effort by the owner to sell the personal property involved. The costs of the sale are also reimbursable moving expenses. If the business is to be reestablished, and the personal property is not moved but is replaced at the new location, the payment would be the lesser of the replacement cost minus tenant proceeds of sale (or trade-in value) or the estimated cost of moving the item. If the business is being discontinued or the item is not to be replaced in the reestablished business, the payment would be the lesser of the sale or the estimated cost of moving the item. When personal property is abandoned without an effort by the owner to dispose of the property for sale, unless permitted by the state, the owner would not be entitled to moving expenses, or losses, for the item involved.

The owner of a displaced business may be reimbursed for the actual reasonable expenses in searching for replacement business up to $1,000. All expenses must be supported by receipted bills. Time spent in the actual search may be reimbursed on an hourly basis, within the maximum limit.

Businesses are also eligible to receive a payment of up to $10,000 for expenses actually incurred in relocating and reestablishing a business. Reestablishment expenses must be reasonable and necessary, and they may include items such as: (1) repairs or improvements to real property, (2) modifications to the replacement property to accommodate the business, (3) construction and installation of exterior signing, (4) extension of utilities, (5) redecoration or replacement of worn surfaces, (6) licenses, fees and permits, (7) feasibility survey, soil testing and marketing studies, (8) advertisement of new business location, (9) professional services in conjunction with a purchase or lease, (10) increased cost of operation during the first two years of operation at the new site, (11) one-time assessment for heavy utility usage, and (12) other items that may be considered essential to the reestablishment of the affected business.

In lieu of the payments described above, the business may elect to receive a payment equal to the average annual net earnings of the business. Such payment shall not be less than $1,000 nor more than $20,000. In order to be entitled to this payment, the state must determine that the business cannot be relocated without a substantial loss of its existing patronage, the business is not part of a commercial enterprise having more than three establishments in the same or similar business that are not being acquired, and the business contributed materially to the income of a displaced owner during the two taxable years prior to displacement.

Considerations in the state's determination of loss of existing patronage are the type of business conducted by the displaced business and the nature of the clientele. The relative importance of the present and proposed locations to the displaced business, and the availability of suitable replacement sites are also factors.

In order to determine the amount of the "in lieu" moving expense payment, the average annual net earnings of the business is considered to be one-half of tenant earnings, before taxes, during the two taxable years immediately preceding the taxable year in which the business is relocated. If the two taxable years are not representative, the state may use another two-year period that would be more representative. Average annual net earnings include any compensation paid by the business to the owner, his spouse, or his dependents during the period. Should a business be in operation less than two years, the owner of the business may still be eligible to receive the "in lieu of" payment. In all cases, the owner of the business must provide information to support its net earnings, such as income tax returns, for the tax years in question.

For displaced farms and non-profit organizations, the actual reasonable moving costs generally up to 50 miles, actual direct losses of tangible personal property, and searching costs are paid. A non-profit organization is eligible to receive "in lieu of" actual moving cost payments, in the amount of $1,000 to $20,000.

5.4 TRANSPORTATION AND CIRCULATION

This section presents the analysis of traffic impacts related to the Alameda Corridor Project. It focuses on construction and operational impacts in the study area. The analysis examines traffic operations in a study area that includes 116 existing and proposed intersections. The study intersections, methodology and technical approach have been approved by the Technical Working Group of the Alameda Corridor Transportation Authority (ACTA).

5.4.1 Methodology

The methodology was developed by Katz, Okitsu and Associates in conjunction with Daniel, Mann, Johnson and Mendenhall (DMJM) and ACTA. The technical assumptions, study intersections and geographic coverage of the study area were identified as part of the study approach. AM and PM manual turning movement traffic counts were conducted between January and May 1992 at the study intersections, with the exception of 12 counts which were taken in late 1990 and early 1991. Field surveys and data collection (existing striping plans, traffic signal phasing, etc.) were also conducted during the time of the 1992 traffic counts. All other information was obtained from supporting Alameda Corridor documentation (See Bibliography).

This traffic study examines the existing and future traffic operations at 116 intersections. Figure 5-29 schematically illustrates the location of the study intersections. Table 5-22 lists the study intersections.

The project buildout year is assumed to be 2010. However, future conditions for both 2010 and 2020 are to be examined. Additional improvements are proposed for Year 2020 conditions.

Intersection analyses were conducted at the study intersections for each of the following nine scenarios:

1) 1990 Existing
2) 2010 No Project
3) 2020 No Project
4) 2010 Alternative 1
5) 2020 Alternative 1
6) 2010 Alternative 2.1
7) 2020 Alternative 2.1
8) 2010 Alternative 2.2
9) 2020 Alternative 2.2

Growth rates were obtained from the EMME/2 traffic model for the PM peak hour. The EMME/2 traffic model results were prepared in 1991 and approved for this purpose by the Alameda Corridor Technical Working Group.

The Critical Movement Analysis (CMA) methodology was used to calculate volume-to-capacity (V/C) ratios and corresponding level of service (LOS) at study intersections to analyze the traffic impacts of the project alternatives. Proposed traffic improvements and additional improvements beyond that level (See Section 5.4.7) along the Corridor are based on threshold criteria approved by the ACTA Technical Working Group.

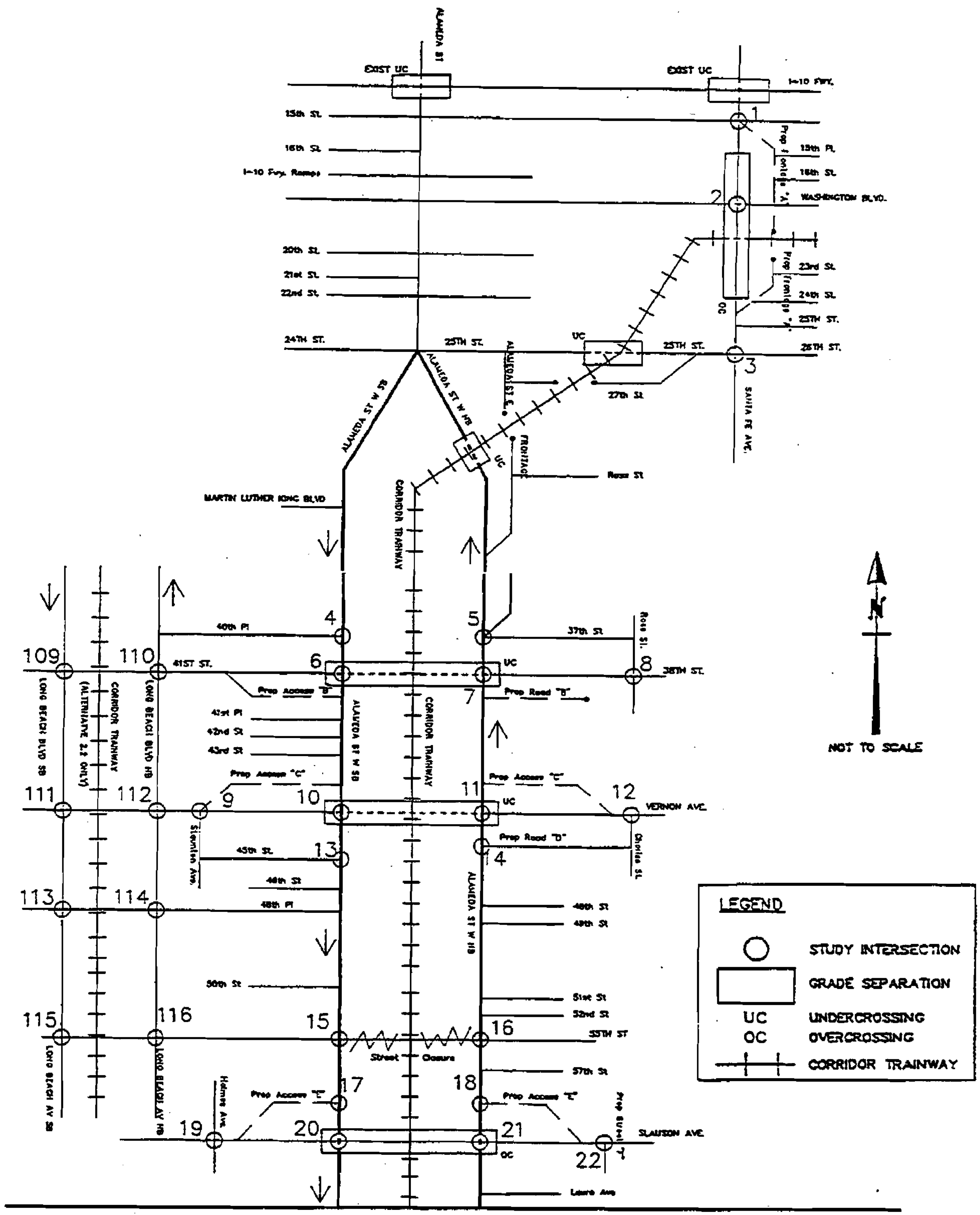
5.4.2 SETTING

Regional Setting

The Alameda Corridor is a proposed 20-mile corridor which would run along Alameda Street between downtown Los Angeles and the ports of Los Angeles and Long Beach. Figure 5-30 illustrates the Alameda Corridor traffic study area which extended from the I-10 freeway in the north to the ports in the south and from I-110 in the west to I-710 in the east.

Street System

Alameda Street is a major north-south arterial roadway. I-710 and I-110 are major north-south regional facilities approximately 2.5 miles to the east and 4 miles to the west of Alameda Street. Major east-west facilities intersecting the Alameda Corridor include Washington



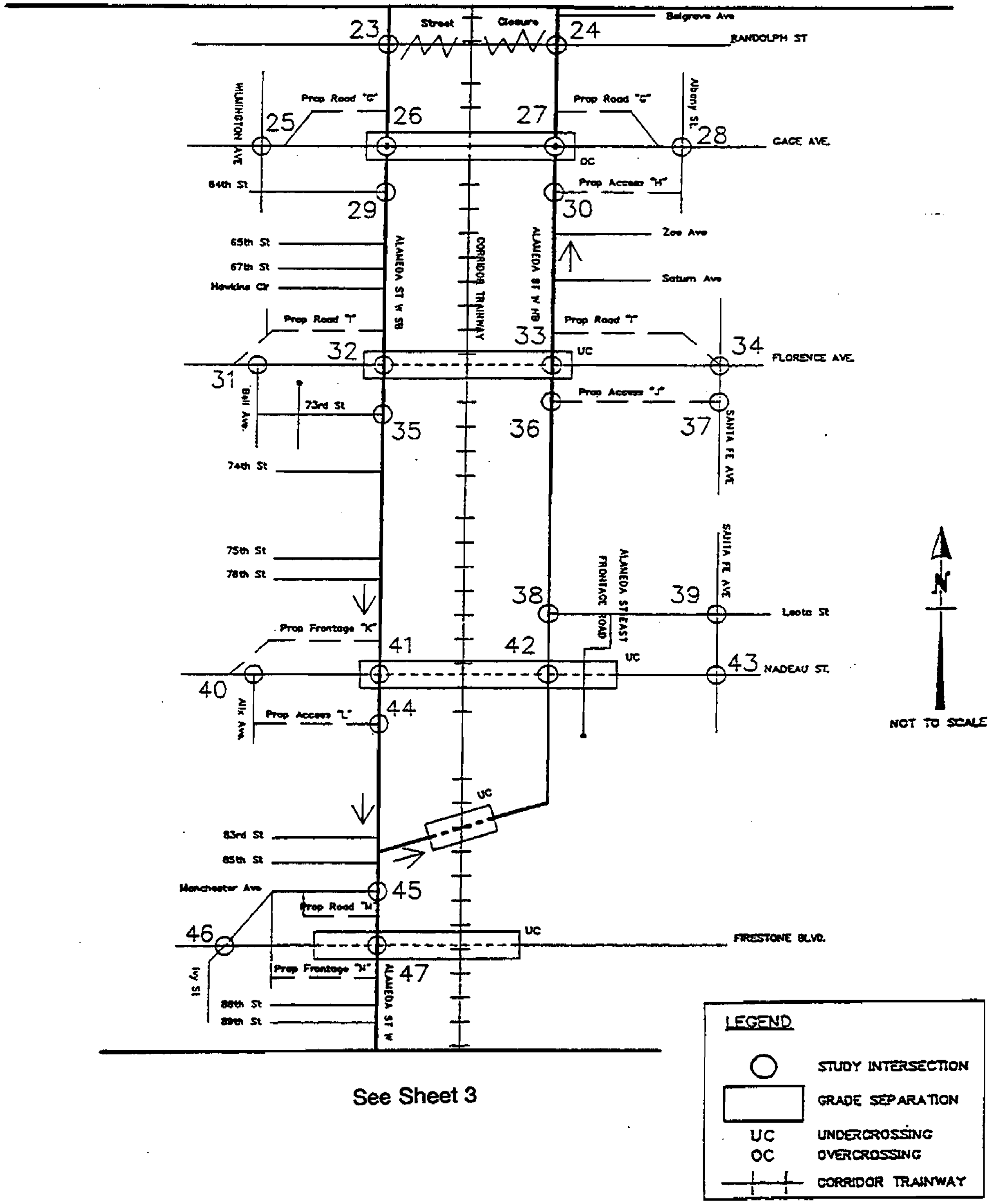
See Sheet 2

Source: Katz, Okitsu & Associates, 1992

Sheet 1 of 4

FIGURE 5-29	Study Intersections	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 1



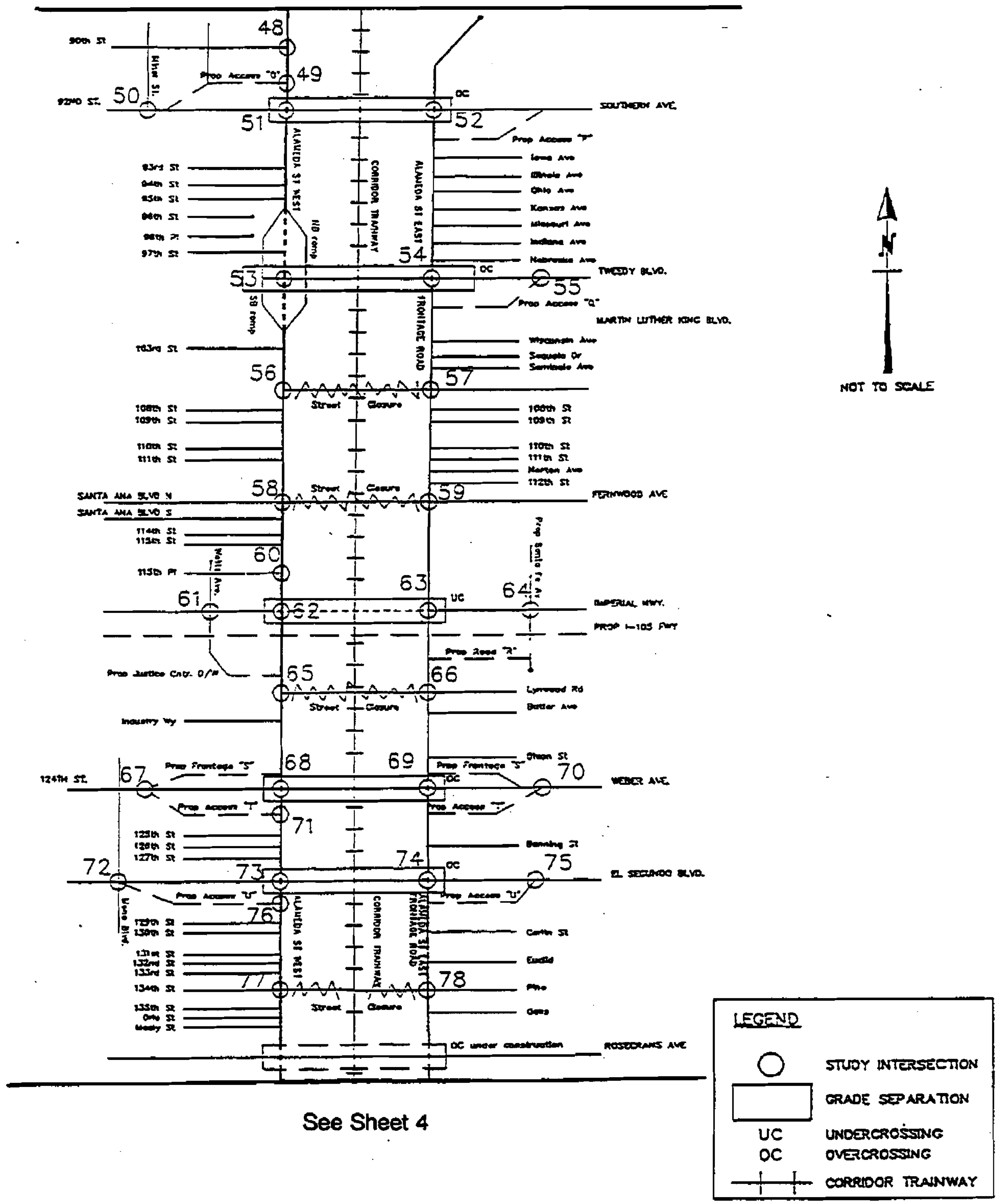
See Sheet 3

Source: Katz, Okitsu & Associates, 1992

Sheet 2 of 4

FIGURE 5-29	Study Intersections	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 2



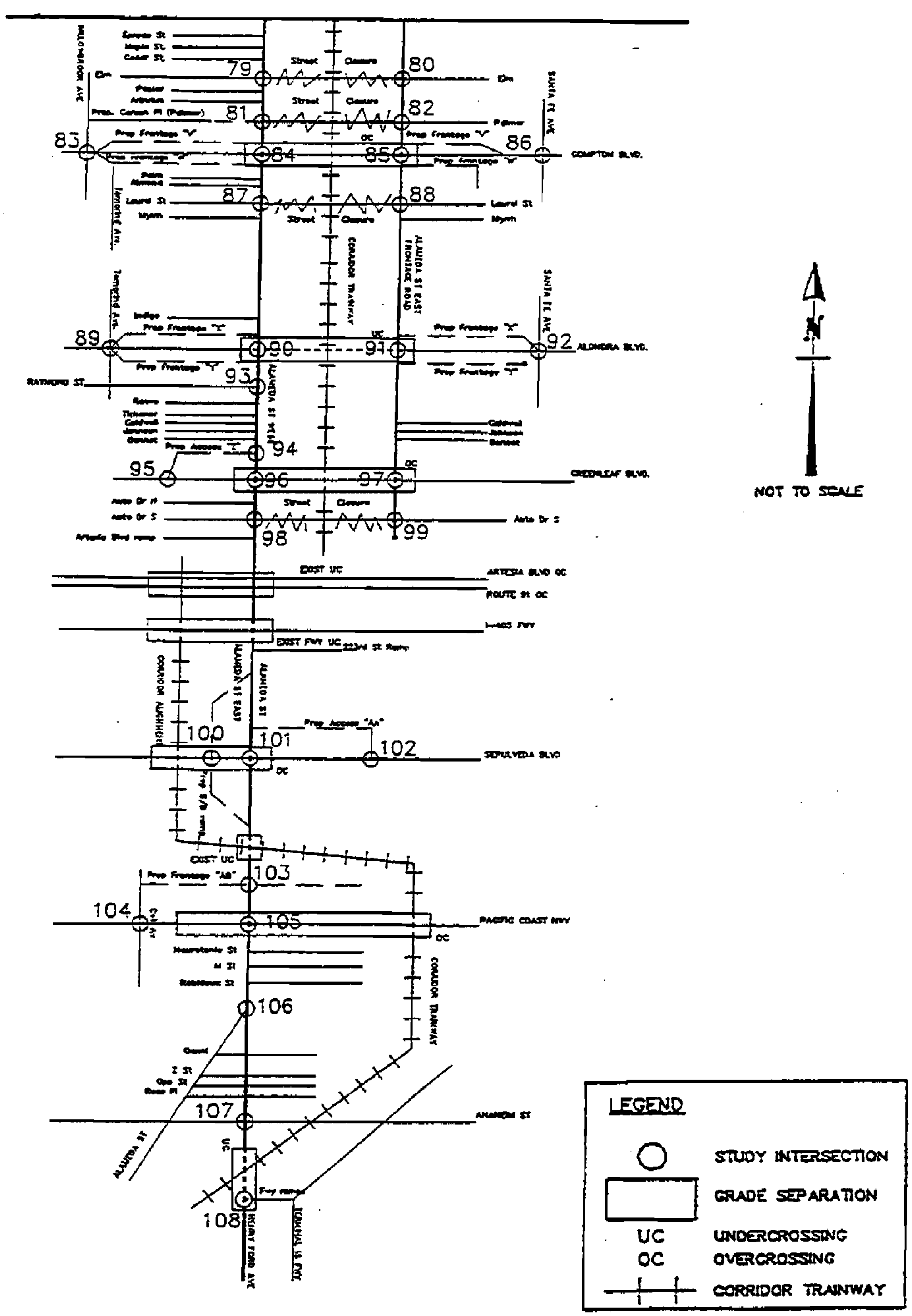
See Sheet 4

Source: Katz, Okitsu & Associates, 1992

Sheet 3 of 4

FIGURE 5-29	Study Intersections	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 3



Source: Katz, Okitsu & Associates, 1992

Sheet 4 of 4

FIGURE 5-29	**Study Intersections**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

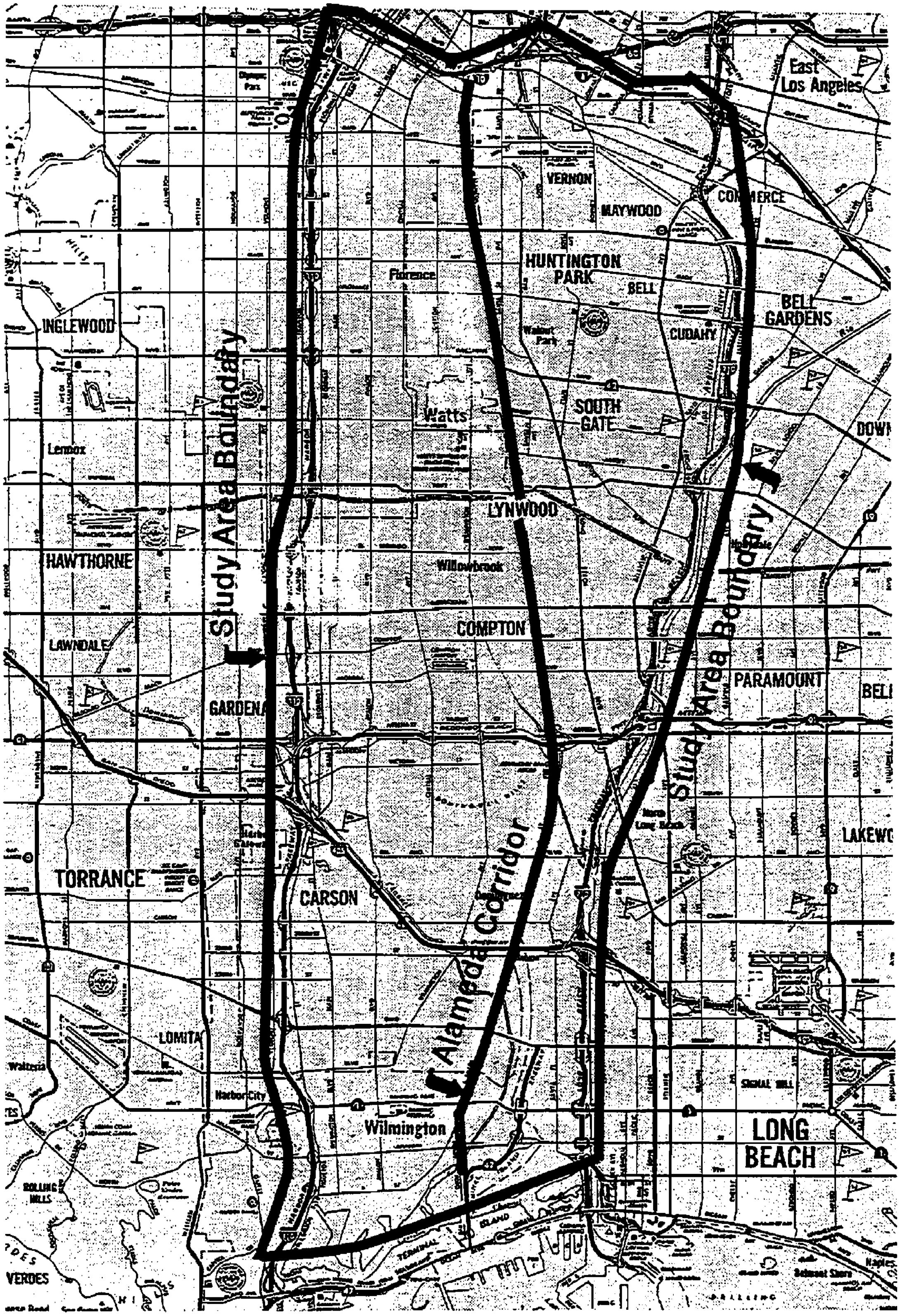
TABLE 5-22
STUDY INTERSECTIONS

#	Intersections		#	Intersections	
Segment A			50	92nd St	Miner St
1	15th St	Santa Fe Av	51	92nd St	Alameda(West)
2	Washington Bl	Santa Fe Av	52	Southern Av	Alameda(East)
3	25th St	Santa Fe Av	53	Tweedy Bl	Alameda(West)
Segment B-1			54	Tweedy Bl	Alameda(East)
4	Prop 40th Pl	Alameda(West)	55	Tweedy Bl	Prop Access "Q"
5	37th St	Alameda(East)	56	ML King Bl	Alameda(West)
6	41st St	Alameda(West)	57	ML King Bl	Alameda(East)
7	38th St	Alameda(East)	58	Santa Ana Bl(North)	Alameda(West)
8	38th St	Ross St	59	Fernwood Av	Alameda(East)
9	Vernon Av	Staunton Av	60	Prop 115th Pl	Alameda(West)
10	Vernon Av	Alameda(West)	61	Imperial Hwy	Watts Av
11	Vernon Av	Alameda(East)	62	Imperial Hwy	Alameda(West)
12	Vernon Av	Charles St	63	Imperial Hwy	Alameda(East)
13	45th St	Alameda(West)	64	Imperial Hwy	Prop Santa Fe
14	Prop Road "D"	Alameda(East)	65	Lynwood Rd	Alameda(West)
15	55th St	Alameda(West)	66	Lynwood Rd	Alameda(East)
16	55th St	Alameda(East)	67	124th St	Prop Access "T"
17	Prop Access "E"	Alameda(West)	68	124th St	Alameda(West)
18	Prop Access "E"	Alameda(East)	69	Weber Av	Alameda(East)
19	Slauson Av	Holmes Av	70	Weber Av	Prop Access "T"
20	Slauson Av	Alameda(West)	71	124th St	Prop Road "S"
21	Slauson Av	Alameda(East)	72	El Segundo Bl	Mona Bl
22	Slauson Av	Prop Street "F"	73	El Segundo Bl	Alameda(West)
109	41st St	Long Beach(West)	74	El Segundo Bl	Alameda(East)
110	41st St	Long Beach(East)	75	El Segundo Bl	Prop Access "U"
111	Vernon Av	Long Beach(West)	76	Prop Access "U"	Alameda(West)
112	Vernon Av	Long Beach(East)	77	134th St	Alameda(West)
113	48th Pl	Long Beach(West)	78	Pine Av	Alameda(East)
114	48th Pl	Long Beach(East)	79	Elm St	Alameda(West)
115	55th St	Long Beach(West)	80	Elm St	Alameda(East)
116	55th St	Long Beach(East)	81	Palmer St	Alameda(West)
Segment B-2			82	Palmer St	Alameda(East)
23	Randolph St	Alameda(West)	83	Compton Bl	Willowbrook Av
24	Randolph St	Alameda(East)	84	Compton Bl	Alameda(West)
25	Gage Av	Wilmington Av	85	Compton Bl	Alameda(East)
26	Gage Av	Alameda(West)	86	Compton Bl	Santa Fe

TABLE 5-22 Continued..

#	Intersections		#	Intersections	
27	Gage Av	Alameda(East)	87	Laurel Street	Alameda(West)
28	Gage Av	Albany St	88	Laurel Street	Alameda(East)
29	64th St	Alameda(West)	89	Alondra Bl	Tamarind Av
30	Prop Access "H"	Alameda(East)	90	Alondra Bl	Alameda(West)
31	Florence Av	Bell Av	91	Alondra Bl	Alameda(East)
32	Florence Av	Alameda(West)	92	Alondra Bl	Santa Fe
33	Florence Av	Alameda(East)	93	Raymond St	Alameda St
34	Florence Av	Santa Fe Av	94	Prop Access "Z"	Alameda St
35	73rd St	Alameda(West)	95	Greenleaf Bl	Prop Access "Z"
36	Prop Access "J"	Alameda(East)	96	Greenleaf Bl	Alameda(West)
37	Prop Access "J"	Santa Fe Av	97	Greenleaf Bl	Alameda(East)
38	Leota St	Alameda(East)	98	S Auto Dr	Alameda(West)
39	Leota St	Santa Fe Av	99	S Auto Dr	Alameda(East)
40	Nadeau St	Alix Av	**Segment D**		
41	Nadeau St	Alameda(West)	100	Sepulveda Bl	Prop SB Ramp
42	Nadeau St	Alameda(East)	101	Sepulveda Bl	Alameda St
43	Nadeau St	Santa Fe Av	102	Sepulveda Bl	Prop Access "AA"
44	Prop Access "L"	Alameda(West)	103	Prop Road "AB"	Alameda St
Segment C			104	Pacific Coast Hwy	Coil Av
45	Manchester Av	Alameda(West)	105	Pacific Coast Hwy	Alameda St
46	Firestone Bl	Manchester Av	106	Henry Ford Av	Alameda St
47	Firestone Bl	Alameda(West)	107	Henry Ford Av	Anaheim
48	90th St	Alameda(West)	108	Henry Ford Av	TI Fwy Ramps
49	Prop Access "O"	Alameda(West)			

Source: Katz, Okitsu & Associates, 1992.



Source: Katz, Okitsu & Associates, 1992

FIGURE 5-30	Traffic Study Area	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Boulevard, Vernon Avenue, Slauson Avenue, Gage Avenue, Florence Avenue, Manchester Avenue/Firestone Boulevard (SR-42), Imperial Highway, Century Freeway (I-105), El Segundo Boulevard, Rosecrans Avenue, Compton Boulevard, Alondra Boulevard, Artesia Freeway (SR-91), Del Amo Boulevard, Carson Street, 223rd Street, Sepulveda Boulevard, Pacific Coast Highway (SR-1) and Anaheim Street. Street system information was obtained through extensive field work, the EMME/2 traffic model, and information from the various jurisdictions along the Corridor. The following describes the major streets and highways in the study area:

Harbor Freeway (Interstate 110) - I-110 is a major north-south regional facility beginning in San Pedro south and continuing north to downtown Los Angeles. Trucks are prohibited north of the Los Angeles Central Business District. I-110 is primarily an eight-lane facility with freeway interchanges at the San Diego Freeway (I-405), SR-91, the future I-105 and I-10. A transitway scheduled for completion in 1994 is currently under construction on an aerial structure above the median of the freeway.

Long Beach Freeway (Interstate 710) - I-710 is a major north-south regional facility on the east edge of the study area and is a heavily travelled truck route. I-710 is primarily an eight-lane facility with freeway interchanges at I-405, SR-91, I-105 (under construction), the Golden State Freeway (I-5), the Pomona Freeway (SR-60) and I-10.

Santa Monica Freeway (Interstate 10) - I-10 is a major east-west regional facility along the northern edge of the study area. I-10 has an interchange with I-110 west of Alameda Street and an interchange east of Alameda Street with the Santa Ana Freeway (I-5 and US 101), Golden State Freeway (I-5) and SR-60. The freeway has 10 through lanes in each direction between freeway interchanges. There are freeway access ramps at Alameda Street.

Glenn Anderson Freeway (Interstate 105) - I-105 (also referred to as the Century Freeway) will be a major east-west regional facility beginning at the San Gabriel River Freeway (I-605) to the east and terminating just south of Los Angeles International Airport to the west. The freeway will have six-lanes for mixed-flow traffic, one high-occupancy vehicle lane in each direction in the median as well as the Metro Green Line Rail Transit. I-105 is scheduled for completion in 1994 and is expected to attract traffic from the parallel SR-91 and I-10 as well as major east-west highways.

Artesia Freeway (State Route 91) - SR-91 (also referred to as the Redondo Beach Freeway) is a major east-west regional facility. The Artesia Freeway has interchanges with both I-110 and I-710. SR-91 is primarily an eight-lane facility for mixed-flow traffic and has an HOV lane eastbound through the study area.

San Diego Freeway (Interstate 405) - I-405 is a major north-south regional facility through Los Angeles County, but it travels east-west through the study area. I-405 is primarily an eight-lane facility for mixed flow traffic and has interchanges with I-110 and I-710 within the study area.

Terminal Island Freeway (State Route 47/103) - SR-47/103 is a north-south freeway which travels approximately 2.5 miles from Ocean Boulevard to the south to Willow Street to the north. The freeway is a six-lane facility with interchanges at Henry Ford Avenue, Anaheim Street and Pacific Coast Highway (SR-1).

Alameda Street - Alameda Street begins at B Street just south of Anaheim Street in the City of Los Angeles to the south and proceeds north to downtown Los Angeles. Alameda Street parallels the Southern Pacific Railroad right-of-way.

Santa Fe Avenue - Santa Fe Avenue is a major north-south highway with two to four travel lanes. It discontinues between Imperial Highway and Firestone Boulevard.

Washington Boulevard - Washington Boulevard is a six-lane east-west major highway.

Vernon Avenue - Vernon Avenue is a four-lane secondary highway. It is an east-west street west of Santa Fe Avenue where it curves southward and becomes Pacific Avenue.

Slauson Avenue - Slauson Avenue is a four-lane east-west major highway.

Gage Avenue - Gage Avenue is a four-lane east-west secondary highway.

Florence Avenue - Florence Avenue is a four-lane east-west street classified as a major highway.

Nadeau Street - Nadeau Street is a two- and four-lane east-west secondary highway.

Firestone Boulevard (State Route 42) - SR-42 is a four-lane major highway which begins as Manchester Boulevard near the Los Angeles International Airport and continues toward Orange County as Firestone Boulevard from one mile west of Alameda Street.

Tweedy Boulevard - Tweedy Boulevard is a two-lane east-west secondary highway. It has a T-intersection with Alameda Street.

Imperial Highway - Imperial Highway is a four-lane east-west major highway. This street runs adjacent to the I-105 alignment west of Alameda Street until its termination in the City of El Segundo. East of Alameda Street, the highway continues eastwardly into Orange County.

El Segundo Boulevard - El Segundo Boulevard is a four-lane east-west major highway.

Rosecrans Avenue - Rosecrans Avenue is a four-lane east-west major highway. Rosecrans Avenue is grade separated with Alameda Street.

Compton Boulevard - Compton Boulevard is a four-lane east-west secondary highway.

Alondra Boulevard - Alondra Boulevard is a two and four-lane major east-west highway.

Greenleaf Boulevard - Greenleaf Boulevard is an east-west four-lane major highway.

Del Amo Boulevard - Del Amo Boulevard is a four-lane east-west highway. Del Amo Boulevard is proposed to be grade separated with Alameda Street as part of a separate project.

Carson Street - Carson Street is a four-lane east-west major highway. Carson Street is proposed to be grade separated with Alameda Street as part of a separate project.

Sepulveda Boulevard - Sepulveda Boulevard is an east-west major highway that has one lane in each direction between Wilmington Avenue and Alameda Street.

Pacific Coast Highway (State Route 1) - SR-1 runs east-west in the study area. This major highway has four to six lanes in the study area.

Henry Ford Avenue - Henry Ford Avenue is a north-south major highway with two to four lanes. This street begins at Alameda Street and terminates at the Cerritos Channel. The southern segment of Henry Ford Avenue runs across Terminal Island.

Anaheim Street - Anaheim Street is an east-west major highway. Trucks are restricted from Figueroa Street to Eubank Street.

Figueroa Street - Figueroa Street runs north-south and parallel to I-110. This major highway has between two and four lanes in the study area.

Broadway - Broadway is a four-lane north-south major highway.

Avalon Boulevard - Avalon Boulevard is a north-south major highway.

Central Avenue - Central Avenue is a highway.

Wilmington Avenue - Wilmington Avenue is a major highway and has between two to four lanes. Trucks are restricted from B Street to the City of Los Angeles boundary.

Long Beach Avenue - Long Beach Avenue runs north-south from the northern boundary of the study area to Slauson Avenue. The median of Long Beach Avenue contains the Wilmington Branch and the Metro Blue Line.

Long Beach Boulevard - This major north-south highway has four to six lanes.

Atlantic Avenue - Atlantic Avenue is a north-south major highway.

Existing Roadway Characteristics

The streets in the study area form a grid pattern along most of the Alameda Corridor. Table 5-23 tabulates standard street dimensions assumed for purposes of the traffic analysis.

TABLE 5-23 STANDARD STREET DIMENSIONS BY CLASSIFICATION - CITY OF LOS ANGELES			
Street Classification	Right-of-Way Width (Feet)	Pavement Width (Feet)	Typical Number of Through Lanes
Major Highway	100 to 104	80 to 84	6
Secondary Highway New/Unconstrained (a) Existing/Constrained (b)	 86 80 to 84	 66 60 to 66	 4 4
Collector Street	64	44	2
Local Street Continuous Non-Continuous	 60 54	 36 to 40 36	 2 2

Notes:
(a) Secondary highway standards for new streets and for existing street with 86 feet of available right-of-way.
(b) Secondary highway standard for existing street where setback/right-of -way lines have been established at 80 or 84 feet over a long period of time; not to be used for new streets.

Table 5-24 shows the roadway characteristics for the street crossings along the Alameda Corridor.

The following describes the streets located along the Corridor.

Segment A (I-10 to 25th Street)

Long Beach Avenue, Alameda Street, Santa Fe Avenue and Washington Boulevard are major highways in Segment A. These streets are signal controlled at intersections with other major facilities.

Segment B-1 (25th Street to Randolph Street)

In Segment B-1, Alameda Street West and Alameda Street East are divided by the trainway right-of-way. Along this segment of the study area, the major east-west streets are 41st Street and Slauson Avenue. These streets are signal controlled at the Alameda Street West intersections. The Slauson Avenue/Alameda Street East intersection is stop controlled for north-south traffic. During train preemptions, the traffic signals operate in a "flashing red" mode.

Other streets that cross Alameda Street and the trainway at-grade are 38th Street, Vernon Avenue and 55th Street. The intersections of these streets with Alameda Street East are operated by two-phase signals. The Vernon Avenue/Alameda Street West and 55th Street/Alameda Street West intersections are also controlled by a two-phase signal which is coordinated with the signals at Alameda Street East. During train preemptions, the traffic signals operate in a "flashing red" mode.

The streets which cross Long Beach Avenue and the SP Wilmington Branch at-grade are 41st Street, Vernon Avenue, 48th Place, 55th Street and Slauson Avenue. With the exception of 55th

TABLE 5-24
ROADWAY CHARACTERISTICS

Street Name	Direction	Road Classification	*Maximum Width	Travel Lanes		**ADT Volume
				NB/EB	SB/WB	
Segment A						
Long Beach Av	North/South	major highway	104'	1	1	14,800
Alameda St	North/South	major highway	104'	3	3	
Santa Fe Av	North/South	major highway	104'	2	2	19,520
15th St	East/West	local street	60'	1	1	
Modoc St	East/West	local street	60'	1	1	
16th St	East/West	local street	60'	1	1	
Washington Bl	East/West	major highway	104'	3	3	36,697
20th St	East/West	local street	60'	1	1	
23rd St	East/West	collector street	64'	1	1	
24th St	East/West	collector street	64'	1	1	
25th St	East/West	collector street	64'	1	1	9,758
26th St	East/West	local street	60'	1	1	
Segment B-1						
Alameda St	North/South	major highway	104'	2	2	32,046
Long Beach Av	North/South	major highway	104'	2	2	13,463
Ross St	North/South	local street	60'	1	1	
Staunton Av	North/South	local street	60'	1	1	
St Charles St	North/South	local street	60'	1	1	
Holmes Av	North/South	local street	60'	1	1	
24th St	East/West	local street	60'	1	1	9,540
25th St	East/West	local street	60'	1	1	9,758
M.L. King Bl	East/West	local street	60'	1	1	
37th St	East/West	local street	60'	1	1	
38th St	East/West	local street	60'	1	1	12,150
41st St	East/West	major highway	104'	1	1	5,039
41st Pl	East/West	local street	60'	1	1	
42nd St	East/West	local street	60'	1	1	
43rd St	East/West	local street	60'	1	1	
Vernon Av	East/West	secondary highway	90'	2	2	
45th St	East/West	local street	60'	1	1	
46th St	East/West	local street	60'	1	1	
48th St	East/West	local street	60'	1	1	
48th Pl	East/West	collector street	64'	1	1	
49th St	East/West	local street	60'	1	1	
50th St	East/West	local street	60'	1	1	

TABLE 5-24 Continued..

Street Name	Direction	Road Classification	*Maximum Width	Travel Lanes		**ADT Volume
				NB/EB	SB/WB	
51st St	East/West	secondary highway	90'	1	1	7,422
52nd St	East/West	local street	60'	1	1	
55th St	East/West	collector street	64'	1	1	5,977
57th St	East/West	local street	60'	1	1	
Slauson Av	East/West	major highway	104'	2	2	29,340
Laura Av	East/West	local street	60'	1	1	
Belgrave Av	East/West	local street	60'	1	1	
Segment B-2						
Alameda St West	North/South	major highway	110'	2	2	21,219
Santa Fe Av	North/South	major highway	110'	2	2	22,605
Wilmington Av	North/South	secondary highway	88'	2	2	
Albany St	North/South	local street	60'	1	1	
Bell Av	North/South	local street	60'	1	1	
Alix St	North/South	local street	60'	1	1	
Randolph St	East/West	collector st	60'	2	2	2,842
Gage Av	East/West	secondary highway	88'	2	2	39,303
64th St	East/West	local street	60'	1	1	
Zoe Av	East/West	local street	60'	1	1	
65th St	East/West	local street	60'	1	1	
67th St	East/West	local street	60'	1	1	
Saturn Av	East/West	collector street	64'	1	1	
Hawkins Cir	East/West	local street	60'	1	1	
Florence Av	East/West	major highway	104'	2	2	35,920
73rd St	East/West	local street	60'	1	1	
74th St	East/West	local street	60'	1	1	
75th St	East/West	local street	60'	1	1	
76th St	East/West	local street	60'	1	1	
Lecta St	East/West	local street	60'	1	1	
Nadeau St	East/West	secondary highway	90'	1	1	5,668
83rd St	East/West	local street	60'	1	1	
85th St	East/West	local street	60'	1	1	
Segment C						
Alameda St	North/South	major highway	110'	2	2	23,568
Miner St	North/South	local street	60'	1	1	
Watts Av	North/South	secondary highway	80'	1	1	243
Mona Bl	North/South	secondary highway	80'	1	1	7,342
Willowbrook Av	North/South	local street	60'	1	1	3,921

TABLE 5-24 Continued..

Street Name	Direction	Road Classification	Maximum Width	Travel Lanes		ADT Volume
				NB/EB	SB/WB	
Santa Fe Av	North/South	major highway	104'	2	2	25,196
Tamarind Av	North/South	local street	60'	1	1	
Manchester Av	East/West	major highway	110'	1	1	40,121
Firestone Bl	East/West	major highway	110'	2	2	27,705
88th St	East/West	local street	60'	1	1	4,532
89th St	East/West	local street	60'	1	1	1,693
90th St	East/West	local street	60'	1	1	
92nd St	East/West	secondary highway	90'	1	1	
Southern Av	East/West	secondary highway	90'	1	1	
Iowa Av	East/West	local street	65'	1	1	
93rd St	East/West	local street	60'	1	1	
Illinois Av	East/West	local street	65'	1	1	
94th St	East/West	local street	60'	1	1	
Ohio Av	East/West	local street	65'	1	1	
95th St	East/West	local street	60'	1	1	
Kansas Av	East/West	local street	65'	1	1	
96th St	East/West	local street	60'	1	1	
Missouri Av	East/West	local street	65'	1	1	
96th Pl	East/West	local street	60'	1	1	
Indiana Av	East/West	local street	65'	1	1	
97th St	East/West	collector street	64'	1	1	5,142
Nebraska Av	East/West	local st	65'	1	1	
Tweedy Bl	East/West	secondary highway	80'	1	1	12,362
Wisconsin Av	East/West	local street	65'	1	1	
103rd St	East/West	collector street	64'	1	1	33,984
Sequoia Dr	East/West	local street	65'	1	1	4,581
Seminole Av	East/West	local street	65'	1	1	
M.L. King Bl	East/West	major highway	100'	1	1	14,139
108th St	East/West	secondary highway	80'	1	1	
109th St	East/West	local street	50'	1	1	
110th St	East/West	local street	50'	1	1	
11th St	East/West	local street	50'	1	1	
112th St	East/West	local street	50'	1	1	
Norton Av	East/West	local street	50'	1	1	
Santa Ana Bl	East/West	collector street	64'	1	1	6,526
Fernwood Av	East/West	second hwy	80'	1	1	7,361
114th St	East/West	local street	60'	1	1	

TABLE 5-24 Continued..

Street Name	Direction	Road Classification	*Maximum Width	Travel Lanes NB/EB	Travel Lanes SB/WB	**ADT Volume
115th St	East/West	local street	60'	1	1	
115th Pl	East/West	local street	60'	1	1	
Imperial Hwy	East/West	major highway	104'	2	2	35,991
Lynwood Rd	East/West	collector street	66'	1	1	
Butler Av	East/West	local street	50'	1	1	
Industry Wy	East/West	local street	50'	1	1	
124th St	East/West	local street	50'	1	1	17,089
Weber Av	East/West	local street	50'	1	1	16,065
125th St	East/West	local street	50'	1	1	
Banning St	East/West	local street	50'	1	1	990
126th St	East/West	local street	50'	1	1	
127th St	East/West	local street	60'	1	1	
El Segundo Bl	East/West	major highway	106'	2	2	22,196
129th St	East/West	local street	60'	1	1	
130th St	East/West	local street	60'	1	1	
Carlin St	East/West	local street	60'	1	1	
131st St	East/West	local street	60'	1	1	
132nd St	East/West	local street	60'	1	1	
Euclid St	East/West	local street	60'	1	1	
133rd St	East/West	local street	60'	1	1	
134th St	East/West	collector street	60'	1	1	4,482
Pine St	East/West	collector street	60'	1	1	90
135th St	East/West	local street	60'	1	1	
Oaks St	East/West	local street	60'	1	1	
Oris St	East/West	local street	60'	1	1	5,767
Mealy St	East/West	local street	60'	1	1	
Rosecrans Av	East/West	major highway	106'	2	2	24,751
Spruce St	East/West	local street	60'	1	1	
Maple St	East/West	local street	60'	1	1	
Cedar St	East/West	local street	60'	1	1	
Elm St	East/West	local street	60'	1	1	7,010
Poplar Av	East/West	local street	60'	1	1	
Arbutus Av	East/West	local street	60'	1	1	
Palmer St	East/West	local street	60'	1	1	4,225
Compton Bl	East/West	secondary highway	88'	2	2	
Palm St	East/West	local street	60'	1	1	
Almond St	East/West	local street	60'	1	1	

TABLE 5-24 Continued..

Street Name	Direction	Road Classification	*Maximum Width	Travel Lanes		**ADT Volume
				NB/EB	SB/WB	
Laurel St	East/West	local street	60'	1	1	
Myrrh St	East/West	local street	60'	1	1	
Indigo St	East/West	local street	60'	1	1	
Alondra Bl	East/West	major highway	106'	2	2	17,795
Raymond St	East/West	local street	60'	1	1	
Reeve St	East/West	local street	60'	1	1	
Tichenor St	East/West	local street	60'	1	1	
Caldwell St	East/West	local street	60'	1	1	
Johnson St	East/West	local street	60'	1	1	
Bennet St	East/West	local street	60'	1	1	
Greenleaf Bl	East/West	major highway	106'	2	2	8,047
Auto Dr N	East/West	collector st	60'	1	1	
Auto Dr S	East/West	collector st	60'	2	2	
Artesia Bl Ramps	East/West	connector	40'	1	1	
Segment D						
Alameda St	North/South	major highway	100'	2	2	11,892
Coil Av	North/South	local street	60'	1	1	
Henry Ford Av	North/South	major highway	100'	2	2	12,048
91 E/B On-ramp	North/South	connector	20'	1	0	2,877
91 E/B Off-ramp	North/South	connector	20'	1	0	3,756
Manville St	East/West	local street	60'	1	1	
Laurel Pk Rd	North/South	local street	60'	1	1	
Vista Industria	East/West	local street	60'	1	1	
Del Amo Bl	East/West	major highway	100'	2	2	32,908
El Presidio St	East/West	local street	60'	1	1	
Dominguez St	East/West	collector street	64'	1	1	
Tyler St	East/West	local street	60'	1	1	
Harrison St	East/West	local street	60'	1	1	
Van Buren St	East/West	local street	60'	1	1	
Jackson St	East/West	local street	60'	1	1	
Monroe St	East/West	local street	60'	1	1	
Madison St	East/West	local street	60'	1	1	
Jefferson St	East/West	local street	60'	1	1	
Adams St	East/West	local street	60'	1	1	
Washington St	East/West	local street	60'	1	1	
Carson St	East/West	major highway	100'	2	2	22,148

TABLE 5-24 Continued..

Street Name	Direction	Road Classification	* Maximum Width	Travel Lanes		** ADT Volume
				NB/EB	SB/WB	
218th Pl	East/West	local street	60'	1	1	
I-405 Ramps	North/South	connector	40'	1	1	14,471
223rd St Ramps	East/West	connector	40'	2	2	5,886
Sepulveda Bl	East/West	major highway	100'	2	2	24,961
Pacific Coast Hwy	East/West	major highway	100'	2	2	29,279
Mauretania St	East/West	local street	60'	1	1	
M St	East/West	local street	60'	1	1	
Robidoux St	East/West	local street	60'	1	1	
Denni	East/West	local street	60'	1	1	
Grant St	East/West	local street	60'	1	1	
Opp St	East/West	local street	60'	1	1	
I St	East/West	local street	60'	1	1	
Anaheim St	East/West	major highway	100'	2	2	33,731
SR-47 Ramps	North/South	connector	40'	2	2	3,759

Notes: * Maximum roadway widths per masterplan of highways and circulation element documents from the cities of Los Angeles, Vernon, Huntington Park, South Gate, Lynwood, Compton, Carson and the County of Los Angeles.
** Average daily traffic volumes obtained from the 1990 EMME/2 printout.

Source: Katz, Okitsu & Associates, 1992.

Street and Slauson Avenue, the intersections with these streets and Long Beach Avenue West and Long Beach Avenue East are controlled by a two-phase signal. During train preemptions, the traffic signals operate in a "flashing red" mode. The 55th Street/Long Beach Avenue West and 55th Street/Long Beach Avenue East intersections are stop controlled. The Long Beach Avenue couplet discontinues at Slauson Avenue, turning into Slauson Avenue's frontage roads. Many local streets have T-intersections with Alameda Street West and East and Long Beach Avenue West and East.

Segment B-2 (Randolph Street to Manchester/Firestone)

Within Segment B-2, the streets which intersect the existing SP San Pedro Branch and Alameda Street West and East at-grade are:

- Randolph Street
- Gage Avenue
- Florence Avenue
- Nadeau Street

These streets are signal controlled at the Alameda Street West intersections. The Gage Avenue/Alameda Street West and Florence Avenue/Alameda Street West intersections have eight signal phases and are fully-actuated. During train preemptions, the traffic signals operate in a "flashing red" mode. The intersections with Alameda Street East are stop controlled. The stop controls on Alameda Street East allow free movement along the east-west arterials and allow vehicles to clear the track area prior to train arrival. Alameda Street East discontinues between Florence Avenue and Southern Avenue. Many local streets have T-intersections with Alameda Street East and West.

Segment C (Manchester/Firestone to SR 91)

Within Segment C, the major highways which intersect the trainway and Alameda Street West and East at-grade are:

- Firestone Boulevard
- Martin Luther King, Jr. Boulevard
- Imperial Highway
- El Segundo Boulevard
- Alondra Boulevard
- Greenleaf Boulevard

Only Martin Luther King, Jr. Boulevard, Alondra Boulevard and Greenleaf Boulevard are signal controlled at both the Alameda Street West and the Alameda Street East intersections. The adjacent signals on Alameda Street West and East are coordinated. Because Alameda Street East discontinues between Nadeau Street and Southern Avenue, Firestone Boulevard only intersects the trainway and Alameda Street West. This intersection is operated on a four-phase signal. Imperial Highway has an eight-phase signal at Alameda Street West and a one-way stop sign for southbound travel at Alameda Street East. El Segundo Boulevard has a two-phase signal at Alameda Street West and a two-way stop sign for north-south traffic at the Alameda Street East intersection. During train preemptions, traffic signals operate in a "flashing red" mode. Alameda Street East continues south from I-105 as a frontage road and terminates north of SR-91.

The secondary highways which intersect the trainway and Alameda Street West and East at-grade are:

- 92nd Street/Southern Avenue
- Tweedy Boulevard
- Fernwood Avenue
- Compton Boulevard

These streets are located between the major highway. Tweedy Boulevard terminates at Alameda Street West, forming a three-legged T-intersection. All intersections with Alameda West are signal operated with the exception of Fernwood Avenue, which continues as Santa Ana Avenue east of the trainway crossing. All of these secondary highways are stop controlled at the intersection of Alameda East, excluding Compton Boulevard. The Compton Boulevard/Alameda Street East intersection is controlled by a two-phase signal.

The other streets that cross Alameda Street and the Southern Pacific Rail Line at-grade in this segment of the Corridor are:

- Santa Ana Avenue North
- Lynwood Avenue
- 124th Street/Weber Avenue
- 134th Street/Pine Avenue
- Elm Street
- Palmer Street
- Laurel Street
- Auto Drive South

Santa Ana Avenue, Lynwood Avenue, 134th Street, Pine Street and Auto Drive South are collector streets and are controlled by a traffic signal at the Alameda Street West intersections, with the exception of Lynwood Avenue. The Lynwood Avenue/Alameda Street West intersection is a T-intersection which has a one-way stop sign for westbound traffic. The other streets are classified as local streets. These local streets are also signal controlled at the Alameda Street West intersection. The Palmer Street/Alameda Street East intersection is signal controlled operating on two phases. The South Auto Drive/Alameda Street East intersection is also signal controlled with six phases and coordinated with the South Auto Drive/Alameda Street West intersection.

The remaining streets in this segment do not cross the trainway, terminating at either Alameda Street East or Alameda Street West. With the exception of 103rd Street, Industry Way and the Artesia Boulevard ramps, which are signal controlled at the Alameda Street West intersection, all of these local streets are controlled by a stop sign.

Segment D (SR 91 to Henry Ford/Cerritos Channel)

In Segment D, the rail line runs parallel to Alameda Street on the west side of the street south of Dominguez Street. The rail alignment continues along Alameda Street onto Henry Ford Avenue until it reaches SR-47. The major highways which cross the Corridor at-grade in this segment are:

- Del Amo Boulevard
- Carson Street
- Sepulveda Boulevard
- Pacific Coast Highway (SR-1)
- Anaheim Street

Del Amo Boulevard is signal controlled at the Alameda Street West and East intersections. The Carson Street, Sepulveda Boulevard and SR-1 have signal controls at the Alameda Street intersections. Del Amo Boulevard and Carson Street are proposed to be grade separated from the Alameda Corridor as part of a separate project. Anaheim Street crosses the Southern Pacific San Pedro Branch at the Alameda Street/Anaheim Street intersection. During train preemptions, the signals provide "limited service" which allows certain movements that do not conflict with rail operations at the intersection. There are no rail crossings through the Henry Ford Avenue/Anaheim Street intersection.

Dominguez Street also crosses the trainway and has signals at the two Alameda Street intersections, with coordination between the intersections, due to their close proximity.

The Henry Ford Avenue/Alameda Street intersection is a Y-intersection with Henry Ford Avenue terminating at Alameda Street. The intersection is controlled by a one-way stop sign for northbound Alameda Street traffic. During train preemptions, the signals provide "limited service" which allows certain movements that do not conflict with rail operations at the intersection. The Henry Ford Avenue/Anaheim Street intersection is signal controlled and does not have any train crossings adjacent to the intersection.

The Artesia Freeway Eastbound Ramps, Manville Street, Laurel Park Road, and San Diego Freeway Ramps have T-intersections at the Alameda Street crossings and are controlled by traffic signals. Also, the 223rd Street Ramps/Alameda Street intersection is a T-intersection which is controlled by a four-phase traffic signal. The Terminal Island Freeway Ramps/Henry Ford Avenue intersection to the south is controlled by a five-phase traffic signal. Other local streets that terminate at Alameda Street West or East have stop signs controlling the local street traffic.

Intersection Level-of-Service

Level-of-service (LOS) is a qualitative measure used to describe the condition of traffic flow, which can range from excellent conditions at LOS A to overloaded conditions at LOS F. Level-of-service definitions for signalized intersections are provided in Table 5-25.

TABLE 5-25 LEVEL-OF-SERVICE DEFINITIONS		
Level-of-Service	Volume/Capacity Ratio	Interpretation
A	0.00-0.60	Low volumes; primarily free-flow
B	0.61-0.70	Stable flow with some restrictions
C	0.71-0.80	Stable operations, but ability to move is more restricted
D	0.81-0.90	Approaching unstable flow
E	0.91-1.00	Significant approach delays and substantially reduced speeds
F	Greater than 1.00	Forced flow operations with high approach delays and low speeds
Source: Transportation Research Board, Transportation Research Circular 212, Interim Materials on Highway Capacity, January 1980.		

Existing Intersection Analysis

The turning movement volumes for the study intersections area were determined and are documented in a supporting technical report. Table 5-26 shows the results of the intersection analyses. Only two intersections currently operate at a poor level of service during the PM peak hour. The Firestone Boulevard/Alameda Street West intersection has a V/C ratio of 0.92 and the Imperial Highway/Alameda Street West intersection has a V/C ratio of 0.99. Both intersections are operating at LOS E.

The intersection analysis conducted for existing conditions includes the existing railroad preemption at study intersections.

5.4.3 Regional Effects

As part of the Concept Study, a regional travel demand analysis was conducted, the results of which are presented in Appendix A to the Concept Study. This work demonstrates the importance of the Alameda Corridor for both vehicular and truck traffic. Using a study area that extended from I-10 in the north to the ports in the south, and from I-110 in the west to I-710 in the east, the following general conclusions can be derived:

- Between 1990 and 2010, study area vehicle miles of travel (VMT) is expected to increase by 20.6 percent.
- Between 1990 and 2010, VMT in the Alameda Corridor portion of the study area is expected to increase by 76.8 percent.

TABLE 5-26
PM PEAK ANALYSIS EXISTING CONDITIONS

#	Intersections		Existing	
			V/C[a]	LOS[b]
Segment A				
1	15th St	Santa Fe Av	0.61	B
2	Washington Bl	Santa Fe Av	0.76	C
3	25th St	Santa Fe Av	0.60	B
Segment B-1				
4	Prop 40th Pl	Alameda(West)	c	-
5	37th St	Alameda (East)	0.34	A
6	41st St	Alameda St(West)	0.65	B
7	38th St	Alameda St(East)	0.56	A
8	38th St	Ross St	0.33	A
9	Vernon Av	Staunton Av	0.29	A
10	Vernon Av	Alameda(West)	0.56	A
11	Vernon Av	Alameda(East)	0.53	A
12	Vernon Av	Charles St	0.29	A
13	45th St	Alameda(West)	0.49	A
14	Prop Road "D"	Alameda(East)	c	-
15	55th St	Alameda(West)	0.73	C
16	55th St	Alameda(East)	0.44	A
17	Prop Access "E"	Alameda(West)	c	-
18	Prop Access "E"	Alameda(East)	c	-
19	Slauson Av	Holmes Av	0.69	B
20	Slauson Av	Alameda(West)	0.82	D
21	Slauson Av	Alameda(East)	0.52	A
22	Slauson Av	Prop Street "F"	c	-
109	41st St	Long Beach Av(West)	0.56	A
110	41st St	Long Beach Av(East)	0.48	A
111	Vernon Av	Long Beach Av(West)	0.53	A
112	Vernon Av	Long Beach Av(East)	0.44	A
113	48th Pl	Long Beach Av(West)	0.34	A
114	48th Pl	Long Beach Av(East)	0.24	A
115	55th St	Long Beach Av(West)	0.63	B
116	55th St	Long Beach Av(East)	0.50	A
Segment B-2				
23	Randolph St	Alameda(West)	0.62	B
24	Randolph St	Alameda(East)	0.33	A
25	Gage Av	Wilmington Av	0.47	A

TABLE 5-26 Continued..

#	Intersections		Existing V/C[a]	Existing LOS[b]
26	Gage Av	Alameda(West)	0.80	D
27	Gage Av	Alameda(East)	0.37	A
28	Gage Av	Albany St	0.44	A
29	64th St	Alameda(West)	0.39	A
30	Prop Access "H"	Alameda(East)	c	-
31	Florence Av	Bell Av	0.53	A
32	Florence Av	Alameda(West)	0.82	D
33	Florence Av	Alameda(East)	0.51	A
34	Florence Av	Santa Fe Av	0.90	E
35	73rd St	Alameda(West)	c	-
36	Prop Access "J"	Alameda (East)	c	-
37	Prop Access "J"	Santa Fe Av	c	-
38	Leota St	Alameda(East)	c	-
39	Leota St	Santa Fe Av	0.46	A
40	Nadeau St	Alix Av	0.35	A
41	Nadeau St	Alameda(West)	0.83	D
42	Nadeau St	Alameda(East)	0.42	A
43	Nadeau St	Santa Fe Av	0.58	A
44	Prop Access "L"	Alameda(West)	c	-
Segment C				
45	Manchester Av	Alameda (West)	0.47	A
46	Firestone Bl	Manchester Av	0.47	A
47	Firestone Bl	Alameda(West)	0.92	E
48	90th St	Alameda(West)	0.48	A
49	Prop Access "O"	Alameda(West)	c	-
50	92nd St	Miner St	0.26	A
51	92nd St	Alameda(West)	0.81	D
52	Southern Av	Alameda(East)	0.71	C
53	Tweedy Bl	Alameda(West)	0.80	D
54	Tweedy Bl	Alameda(East)	0.40	A
55	Tweedy Bl	Prop Access "Q"	c	-
56	ML King Bl	Alameda(West)	0.75	C
57	ML King Bl	Alameda(East)	0.39	A
58	Santa Ana Bl N	Alameda(West)	0.70	C
59	Fernwood Av	Alameda(East)	0.59	A
60	Prop 115th Pl	Alameda(West)	c	-
61	Imperial Hwy	Watts Av	0.65	B

TABLE 5-26 Continued..

#	Intersections		Existing	
			V/C[a]	LOS[b]
62	Imperial Hwy	Alameda(West)	0.99	E
63	Imperial Hwy	Alameda(East)	0.59	A
64	Imperial Hwy	Prop Santa Fe	c	-
65	Lynwood Rd	Alameda(West)	0.59	A
66	Lynwood Rd	Alameda(East)	0.42	A
67	124th St	Prop Access "T"	c	-
68	124th St	Alameda(West)	0.54	A
69	Weber Av	Alameda(East)	0.53	A
70	Weber Av	Prop Access "T"	c	-
71	Prop Access "T"	Alameda (West)	c	-
72	El Segundo Bl	Mona Bl	0.56	A
73	El Segundo Bl	Alameda(West)	0.72	C
74	El Segundo Bl	Alameda(East)	0.45	A
75	El Segundo Bl	Prop Access "U"	c	-
76	Prop Access "U"	Alameda St	c	-
77	134th St	Alameda(West)	0.59	A
78	Pine Av	Alameda(East)	0.64	B
79	Elm St	Alameda(West)	0.61	B
80	Elm St	Alameda(East)	0.88	D
81	Palmer St	Alameda(West)	0.52	A
82	Palmer St	Alameda(East)	0.32	A
83	Compton Bl	Willowbrook Av	0.49	A
84	Compton Bl	Alameda(West)	0.70	C
85	Compton Bl	Alameda(East)	0.65	B
86	Compton Bl	Santa Fe	0.76	C
87	Laurel Street	Alameda(West)	0.51	A
88	Laurel Street	Alameda(East)	0.17	A
89	Alondra Bl	Tamarind Av	0.51	A
90	Alondra Bl	Alameda(West)	0.84	D
91	Alondra Bl	Alameda(East)	0.56	A
92	Alondra Bl	Santa Fe	0.81	D
93	Raymond St	Alameda St	0.28	A
94	Prop Access "Z"	Alameda St	c	-
95	Greenleaf Bl	Prop Access "Z"	c	-
96	Greenleaf Bl	Alameda(West)	0.70	C
97	Greenleaf Bl	Alameda(East)	0.38	A
98	S Auto Dr	Alameda(West)	0.43	A

TABLE 5-26 Continued..

#	Intersections		Existing	
			V/C[a]	LOS[b]
99	S Auto Dr	Alameda(East)	0.14	A
Segment D				
100	Sepulveda Bl	Prop SB Ramp	c	-
101	Sepulveda Bl	Alameda St	0.62	B
102	Sepulveda Bl	Prop Access "AA"	c	-
103	Prop Road "AB"	Alameda St	c	-
104	Pacific Coast Hwy	Coil Av	0.74	C
105	Pacific Coast Hwy	Alameda St	0.75	C
106	Henry Ford Av	Alameda St	0.47	A
107	Henry Ford Av	Anaheim	0.61	B
108	Henry Ford Av	TI Fwy Ramps	0.18	A

Notes: a Volume to capacity (V/C) ratio.
b Level-of-service (LOS).
c Intersection does not currently exist.

Source: Katz, Okitsu & Associates, 1992.

- Between 2010 and 2020, study area VMT is expected to increase by an additional 12.9 percent.

- Between 2010 and 2020, VMT along Alameda is expected to increase by an additional 23.6 percent.

- By the year 2020, the study area will be carrying over 36 percent more traffic than in 1990, and the Alameda Corridor will be carrying 118 percent more traffic in 2020 than in 1990.

Also, as part of the Alameda Corridor project, a truck origin-destination study was conducted at all container terminals in the port area. That study shows that about 70 percent of all container truck trips had an origin or destination within the study area. This area includes the three principal intermodal rail yards. The remaining 30 percent of the container truck trips had an origin or destination beyond the central area.

Based on the terminal operator survey, 38 percent of truck trips leaving the ports are destined for ICTF and 62 percent are destined for either the Hobart or East L.A. yards. Based on the truck driver survey, these proportions are 31 percent and 69 percent, respectively. The average of the two would be 34.5 percent and 65.5 percent.

At the south end of the study area, port trucks make up over 80 percent of all trucks. At the north end of the study area this diminishes to less than 20 percent.

Ports truck volumes in 1989 were 17,981 (trucks per day). By 2010 this would increase to 30,627 (70.3 percent increase over 1989). By 2020 this would increase to 45,290 (47.9 percent increase over 2010).

On a busy day, about 20,000 trucks enter or leave the ports of Los Angeles and Long Beach. About 14,000 of these are container trucks. Principal routes to/from the harbor area include I-710, I-110, SR-47/103), "B" Street, Henry Ford Avenue, Anaheim Street and Alameda Street.

South of I-405, I-710 typically carries about 13,500 trucks per day (both port and non-port). Estimated at 10,300 per day, port trucks account for about 75 percent of all trucks south of I-405. I-710 generally has a higher percentage of port trucks than does I-110. SR-91 is the most heavily travelled route for ports-related trucks, carrying 34 percent of the trips made outside of the study area.

As part of the Alameda Corridor design effort, detailed traffic projections were made using the EMME2 model. Data from the truck origin-destination surveys were used to calibrate the model.

An extensive network of on-dock rail yards has been assumed in the forecasts for 2010 and 2020--six moderately sized yards in Long Beach and three large yards in Los Angeles. These yards would significantly reduce truck traffic to and from the ports, thus relieving congestion on the freeways and reducing emissions. A typical 8,000 foot-long double-stack train carries 280 forty-foot containers. Without on-dock rail, these containers would have to be trucked to either the ICTF, Hobart or East Los Angeles. It has been estimated that with a complete network of on-dock rail in 2020, up to 16,000 container truck trips per day could be eliminated.

Forecasts of ports trucks indicate that on-dock rail facilities would result in a 20.9 percent decrease in the number of trucks by 2010 (compared to no on-dock rail), and by 2020 this would be a difference of 26.4 percent between the on-dock rail and no on-dock rail conditions.

The traffic forecasts also assumed that the Ports Access Demonstration Projects (PADP) would eventually be built. One of the key features of the PADP is the widening of Alameda Street from SR-91 to Henry Ford Avenue, and the widening of Henry Ford Avenue from Alameda Street to the on/off ramps of SR-47/103. These improvements would result in significantly higher truck volumes on Alameda Street south of I-405 and south of SR-91 relative to 1990.

The combination of on-dock rail yards and the widening of Alameda Street from the port area to SR-91 could actually reduce truck traffic slightly on I-710 in 2010 relative to 1990 volumes. The traffic analysis predicted that I-710 would carry 12,900 trucks (9,310 port trucks) south of I-405 in the year 2010, compared to 13,500 trucks (10,300 port trucks) in 1990. In 2020, truck traffic on I-710 south of I-405 is projected to reach 16,800 per day (12,600 port trucks).

The project would not result in a significant decrease in truck volumes on parallel freeways. Rather, an improved Alameda Street would attract trucks from parallel arterials.

There would be no significant reduction in port trucks on freeways when Alameda Street is improved north of SR-91. Alternative 1.0 would be more attractive to port trucks north of the I-105, whereas Alternative 2.1 would be slightly more attractive to port trucks south of I-105.

5.4.4 Operational Impacts

Related Projects

Table 5-27 lists the related projects in the study area. These are freeway and street projects anticipated to be built by 2010. These projects will generate traffic in 2010 and 2020 which are assumed in the No Build Alternative.

Growth Rates

Growth rates for each of the future scenarios were calculated using data from the EMME/2 model, which was developed and calibrated for the base year 1990. The methodology and assumptions for obtaining growth rates was approved by the Alameda Corridor Technical Working Group.

EMME/2 model output was used for PM peak hour traffic conditions for all vehicles for seven scenarios. To smooth out uneven growth rates from the model, an average growth rate was calculated for groups of intersections. A cordon line was drawn around a selected group of study intersections. Inbound and outbound trips crossing the cordon were summed. Inbound and outbound volumes for future scenarios were compared with the base year volumes. The ratio of future volume to existing volume was used to determine the future growth rates. Table 5-28 tabulates growth factors for all vehicles during the PM peak hour for the seven scenarios. Growth factors for the 2010 No Build condition range from 0.74 to 1.31. Growth factors that are less than 1.00 imply a decrease in traffic volumes on specific links as a result of the completion

TABLE 5-27
RELATED ROADWAY PROJECTS

Agency	Project	Project Limits	Project Type
LA City	Alameda St	n/o B St to B St	widening
	Alameda St*	s/o PCH to Henry Ford	widening
	Alameda St	N City border to Colon St	widening
	Henry Ford Av	Alameda St to Anaheim St	widening
	Vermont Av	s/o Lomita Bl to 253rd St	widening
	Vermont Av	Normandie to Anaheim	widening
POLB	Ocean Bl*	City Limit to SR-47	widening
	Anaheim RR Xing	intersection	overpass
	9th St	9th St to SR-47	extension
	I-710 Ramps	9th St	new ramps
	Pico/Harbor Scnc	intersection	widening
POLA	Henry Ford Av	Anaheim St to SR-47	widening
	Alameda St*	PCH to Lomita Bl	widening
	Seaside Av*	Toll Plaza to City limits	widening
LA County	Alameda St*	Lomita Bl to I-405	widening
	Alameda St*	I-405 to Del Amo Bl	widening
	Alameda St*	Del Amo Bl to SR-91	widening
	Alameda/Carson*	intersection	grade sep
	Alameda/Del Amo*	intersection	grade sep
CALTRANS	SR-91	Central Av to I-710	1 WB HOV
	SR-91	I-710 to Downey	1 WB HOV
	SR-91	Downey to I-605	1 WB HOV
	SR-91	I-110 to Orange Co	1 WB HOV
	I-105	entire length	fwy/intrchg
	I-110	San Pedro limits	widening
	I-110	SR-91 to 23rd St	4 HOV
	I-110	Sepulveda Bl to I-405	1 NB lane
	I-405	LA to Orange Co	HOV
	I-405	Arbor Vitae	interchng
	I-605	SR-91 to Fairton St	widen/aux ln
	I-710	SR-91 to I-5	widening
	I-710	Slauson intchng	interchng
	I-710	extend to I-210	fwy/intchng
	I-710	Atlantic to Washington Bl	widening
	I-710	Washington Bl to I-5	1 NB lane
	I-710	Southern	NB off-rmp
	I-710	SR-60 to I-10	1 SB lane

Notes: * Improvement is a Ports Access Demonstration Project.

Source: "Alameda Consolidated Transportation Corridor, Highway Capacity Study", DKS Associates, December 1991.

TABLE 5-28
GROWTH FACTORS

Grouped Intersections	Corridor Crossings		No Build		Alternative 1		Alternative 2	
			2010	2020	2010	2020	2010	2020
Segment A								
1-3	Washington Bl	Santa Fe Av	0.92	2.17	0.95	2.05	0.85	2.19
Segment B-1								
4-8	41st St/38th St	Alameda St	0.94	1.94	1.28	2.63	1.20	2.77
9-14	Vernon Av	Alameda St	0.88	1.76	1.20	2.56	1.25	2.60
15-16	55th St	Alameda St	0.92	1.71	1.29	2.41	1.22	2.33
17-25	Slauson Av	Alameda St	0.91	1.86	1.19	2.31	1.14	2.43
109-110	41st St	Long Beach Av	1.10	2.35	1.10	2.33	1.02	2.32
111-112	Vernon Av	Long Beach Av	0.78	1.41	0.94	2.03	1.07	2.03
113-114	48th Pl	Long Beach Av	1.01	2.34	0.64	1.48	0.75	1.74
115-116	55th St	Long Beach Av	0.98	1.74	0.71	1.39	0.78	1.52
Segment B-2								
25-30	Gage Av	Alameda St	0.90	1.74	1.26	2.24	1.18	2.17
31-37	Florence Av	Alameda St	0.79	1.66	1.08	1.91	0.99	1.89
38-44	Nadeau St	Alameda St	0.95	2.46	1.60	3.60	1.40	2.95
Segment C								
45-47	Firestone Bl	Alameda St	0.82	2.09	1.47	3.30	1.07	2.94
48-52	92nd St/Southern	Alameda St	0.96	1.86	1.89	3.52	1.49	2.84
53-55	Tweedy Bl	Alameda St	0.85	1.79	1.54	3.12	1.32	2.72
56-57	ML King Bl	Alameda St	0.86	2.14	1.29	3.02	1.20	2.88
58-66	Imperial Hwy	Alameda St	0.88	1.80	1.18	2.46	1.09	2.30
67-71	124th St/Weber	Alameda St	0.77	1.95	1.23	2.61	1.11	2.37
72-76	El Segundo Bl	Alameda St	0.76	2.27	1.02	2.30	0.91	2.09
77-78	134th St/Pine	Alameda St	0.74	1.99	1.11	2.39	0.94	2.13
79-88	Compton Bl	Alameda St	0.85	2.21	1.13	2.46	0.99	2.24
89-93	Alondra Bl	Alameda St	0.91	1.98	1.18	2.55	1.02	2.32
94-99	Greenleaf Bl	Alameda St	0.92	2.20	1.01	2.40	0.92	2.31
Segment D								
100-102	Sepulveda Bl	Alameda St	1.31	2.29	1.37	2.37	1.33	2.39
103-106	Pacific Coast Hwy	Alameda St	1.09	2.11	1.37	2.43	1.24	2.34
107-108	Henry Ford Av	Anaheim St	1.24	1.07	2.01	1.13	1.12	2.62
GROWTH FACTOR RANGES								
MAXIMUM			1.31	2.46	2.01	3.60	1.49	2.95
MINIMUM			0.74	1.07	0.64	1.13	0.75	1.52

Source: Katz, Okitsu & Associates, 1992.

of the Century Freeway (I-105), the installment of HOV (high occupancy vehicle) lanes along the Harbor Freeway and improvements along major facilities within the study area. 2020 growth factors range from 1.07 to 2.46. This is due to the increase in travel demand on freeways and highways both within and outside the study area.

The 2010 growth factors for Alternative 1 range from 0.64 to 2.01. The maximum growth for Alternative 1 is higher than the No Build condition, due to the attraction of the Alameda Corridor. The 2020 growth factors for Alternative 1 range from 1.13 to 3.60. This increase is again due to the attraction of the Alameda Corridor along with the increased traffic on parallel facilities.

Similar to Alternative 1, the 2010 growth factors for Alternative 2 (including 2.1 and 2.2) range from 0.75 to 1.49. The growth rates for the year 2020 range from 1.52 to 2.95.

Future Trip Reassignments

Alternatives 1, 2.1 and 2.2 have varying roadway configurations and geometries; some existing streets would be closed and new streets would be created. Existing turning movement volumes were reassigned to new streets and intersections, as necessary, to reflect the differences in the street system at each intersection that would occur under each alternative, and the reassigned volumes were multiplied by growth factors to yield future turning movements.

The roadway system for the 2010 and 2020 No Build conditions is equivalent to the existing system. However, the implementation of related projects in some instances would change the number of lanes at the approaches to the study intersections for 2010 and 2020 conditions. Traffic was not reassigned to account for these related projects.

Under Alternative 1, rail lines would remain at-grade with grade separations at 18 existing crossings (Rosecrans Boulevard, Del Amo Boulevard and Carson Street grade separations are not a part of this Alternative and are considered to be related projects). The grade separations would be either underpasses or overpasses. This alternative proposes access roads and ramps and a divided highway north of Firestone Boulevard. Due to the changes in the layout and function of Alameda Street and cross streets, new turning movements were developed. Trips that could no longer make a turning movement through an intersection were reassigned to other intersections. For instance, a vehicle traveling westbound on Randolph Street could no longer make a left turn onto southbound Alameda Street because Randloph Street would be closed under Alternative 1. Thus the vehicle must turn right and go north to the Slauson Avenue overcrossing, cross Alameda via the structure, then turn right to go south on Alameda Street West via the proposed access road.

Under Alternative 2.1 and 2.2, the Alameda Corridor would be depressed between 25th Street and SR-91. Alameda Street would be a divided highway north of Laurel Street. Several street crossings will be closed. Trips under Alternative 2.1 and 2.2 were reassigned in a similar manner to Alternative 1 reassignments.

2010 & 2020 Projected Volumes

Future turning movement volumes were projected for the year 2010 and 2020 for each of the scenarios, by multiplying the reassigned existing turning movement volumes by the growth factor calculated from the EMME/2 model. Two assumptions relating to the computation of future turning movement volumes were necessary: first, growth between 1990 and 1992 was assumed to be negligible. Thus, turning movement volumes counted in 1992 were treated as if they were counted in 1990. Second, the growth rate for every movement within a group of intersections was assumed to be the same.

Intersection Analysis (Future Conditions)

Intersection analyses were calculated at the study intersections for the year 2010 for the No Build, Alternative 1, 2.1 and 2.2 conditions. Table 5-29 tabulates the PM peak hour V/C ratios and corresponding LOS for the PM peak hour for these scenarios. 2010 turning movement volumes and PM peak hour intersection capacity analysis calculations can be found in the supporting technical report.

The results of the PM peak hour intersection analysis for the different scenarios for the year 2020 are shown in Table 5-30. The technical report contains the 2020 turning movement volumes and PM peak hour intersection capacity analysis calculations.

The project alternatives provide many improvements to the Corridor, including removal of grade crossings and widening of streets. However, tables 5-29 and 5-30 show that many intersections have higher V/C ratios with the project alternatives than with the No Build condition. This is mostly due to the large attraction of vehicles to the Corridor by the improvements, as indicated by the high growth rates.

5.4.5 Construction Impacts

Traffic Circulation Impacts

The construction of the Corridor would affect the circulation of traffic within the study area. All project alternatives would affect traffic parallel and perpendicular to the Corridor because of the loss of lanes and possible road closures during construction. Construction impacts during the construction of Alternative 1 would be greater than those for Alternatives 2.1 and 2.2, since there would be more construction work areas on cross streets for Alternative 1. Detours would be required to direct traffic around road closures, thus sending more traffic onto other streets. Although temporary road closures during construction would have the most impact on traffic, partial blockage of roadways would constrict traffic which would cause congestion. Construction vehicles accessing the work areas would contribute to traffic volumes. However, some traffic would be diverted to other streets due to the construction work. On-street parking would need to be temporarily prohibited on many streets to increase the vehicle capacity on the detour routes.

Corridor Access Impacts

Access to businesses and homes adjacent to the construction area would be impaired by road closures, blockage of driveways and traffic congestion. Measures should be taken to maintain access to driveways for residences and businesses during construction.

TABLE 5-29
PM PEAK ANALYSIS
YEAR 2010 CONDITIONS

Intersections			No Build		Alternatives					
					1		2.1		2.2	
#			V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]
Segment A										
1	15th St	Santa Fe Av	0.55	A	0.60	B	0.53	A	e	-
2	Washington Bl	Santa Fe Av	0.72	C	0.29	A	0.26	A	e	-
3	25th St	Santa Fe Av	0.55	A	0.78	C	0.70	C	e	-
Segment B-1										
4	Prop 40th Pl	Alameda(West)	c	-	0.58	A	c	-	0.42	A
5	37th St	Alameda (East)	0.31	A	0.68	B	0.33	A	g	-
6	41st St	Alameda St(West)	0.62	B	d	-	0.72	C	0.80	D
7	38th St	Alameda St(East)	0.54	A	d	-	g	-	g	-
8	38th St	Ross St	0.30	A	0.78	C	0.25	A	0.39	A
9	Vernon Av	Staunton Av	0.25	A	0.75	C	0.37	A	0.36	A
10	Vernon Av	Alameda(West)	0.53	A	d	-	0.75	C	0.78	C
11	Vernon Av	Alameda(East)	0.48	A	d	-	g	-	g	-
12	Vernon Av	Charles St	0.25	A	0.60	B	0.37	A	0.37	A
13	45th St	Alameda(West)	0.42	A	0.84	D	0.50	A	0.46	A
14	Prop Road "D"	Alameda(East)	c	-	0.46	A	c	-	c	-
15	55th St	Alameda(West)	0.67	B	0.44	A	0.40	A	0.70	C
16	55th St	Alameda(East)	0.41	A	0.36	A	0.35	A	g	-
17	Prop Access "E"	Alameda(West)	c	-	0.45	A	c	-	c	-
18	Prop Access "E"	Alameda(East)	c	-	0.32	A	c	-	c	-
19	Slauson Av	Holmes Av	0.67	B	1.62	F	1.01	F	0.75	C
20	Slauson Av	Alameda(West)	0.80	D	d	-	1.13	F	0.79	C
21	Slauson Av	Alameda(East)	0.56	A	d	-	g	-	g	-
22	Slauson Av	Prop Street "F"	c	-	1.19	F	c	-	c	-
109	41st St	Long Beach (West)	0.72	C	0.65	B	f	-	0.60	B
110	41st St	Long Beach (East)	0.57	A	0.49	A	f	-	0.45	A
111	Vernon Av	Long Beach (West)	0.47	A	0.48	A	f	-	0.54	A
112	Vernon Av	Long Beach (East)	0.39	A	0.38	A	f	-	0.45	A
113	48th Pl	Long Beach (West)	0.33	A	0.20	A	f	-	0.24	A
114	48th Pl	Long Beach (East)	0.29	A	0.14	A	f	-	0.17	A
115	55th St	Long Beach (West)	0.60	B	0.44	A	f	-	0.49	A
116	55th St	Long Beach (East)	0.50	A	0.36	A	f	-	0.39	A
Segment B-2										
23	Randolph St	Alameda(West)	0.61	B	0.20	A	0.25	A	0.55	A
24	Randolph St	Alameda(East)	0.36	A	0.34	A	0.26	A	g	-

TABLE 5-29 Continued..

Intersections			No Build		Alternatives					
					1		2.1		2.2	
#			V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]
25	Gage Av	Wilmington Av	0.42	A	1.00	F	0.57	A	e	-
26	Gage Av	Alameda(West)	0.72	C	d	-	0.81	D	e	-
27	Gage Av	Alameda(East)	0.34	A	d	-	g	-	e	-
28	Gage Av	Albany St	0.39	A	0.96	E	0.48	A	e	-
29	64th St	Alameda(West)	0.34	A	0.61	B	0.31	A	e	-
30	Prop Access "H"	Alameda(East)	c	-	0.35	A	c	-	e	-
31	Florence Av	Bell Av	0.41	A	0.83	D	0.51	A	e	-
32	Florence Av	Alameda(West)	0.66	B	d	-	0.82	D	e	-
33	Florence Av	Alameda(East)	0.42	A	d	-	g	-	e	-
34	Florence Av	Santa Fe Av	0.66	B	1.26	F	0.94	E	e	-
35	73rd St	Alameda(West)	c	-	0.42	A	c	-	e	-
36	Prop Access "J"	Alameda (East)	c	-	0.35	A	c	-	e	-
37	Prop Access "J"	Santa Fe Av	c	-	0.56	A	c	-	e	-
38	Leota St	Alameda(East)	c	-	0.60	B	c	-	e	-
39	Leota St	Santa Fe Av	0.43	A	1.14	F	0.64	B	e	-
40	Nadeau St	Alix Av	0.33	A	0.92	E	0.48	A	e	-
41	Nadeau St	Alameda(West)	0.79	C	d	-	1.14	F	e	-
42	Nadeau St	Alameda(East)	0.41	A	d	-	g	-	e	-
43	Nadeau St	Santa Fe Av	0.56	A	1.26	F	0.83	D	e	-
44	Prop Access "L"	Alameda(West)	c	-	0.67	B	c	-	e	-
Segment C										
45	Manchester Av	Alameda (West)	0.39	A	0.67	B	0.30	A	e	-
46	Firestone Bl	Manchester Av	0.38	A	0.97	E	0.59	A	e	-
47	Firestone Bl	Alameda(West)	0.81	D	d	-	0.80	D	e	-
48	90th St	Alameda(West)	0.56	A	0.96	E	0.50	A	e	-
49	Prop Access "O"	Alameda(West)	c	-	0.80	D	c	-	e	-
50	92nd St	Miner St	0.39	A	1.07	F	0.41	A	e	-
51	92nd St	Alameda(West)	0.38	A	d	-	0.91	E	e	-
52	Southern Av	Alameda(East)	0.81	D	d	-	0.48	A	e	-
53	Tweedy Bl	Alameda(West)	0.46	A	d	-	0.79	C	e	-
54	Tweedy Bl	Alameda(East)	c	-	d	-	0.26	A	e	-
55	Tweedy Bl	Prop Access "Q"	0.25	A	0.95	E	c	-	e	-
56	ML King Bl	Alameda(West)	0.81	D	d	-	0.69	B	e	-
57	ML King Bl	Alameda(East)	0.74	C	d	-	0.31	A	e	-
58	Santa Ana Bl N	Alameda(West)	0.73	C	0.58	A	0.43	A	e	-
59	Fernwood Av	Alameda(East)	0.41	A	0.42	A	0.34	A	e	-
60	Prop 115th Pl	Alameda(West)	c	-	1.23	F	c	-	e	-

TABLE 5-29 Continued..

#	Intersections		No Build V/C[a]	No Build LOS[b]	Alt. 1 V/C[a]	Alt. 1 LOS[b]	Alt. 2.1 V/C[a]	Alt. 2.1 LOS[b]	Alt. 2.2 V/C[a]	Alt. 2.2 LOS[b]
61	Imperial Hwy	Watts Av	0.71	C	1.45	F	0.50	A	e	-
62	Imperial Hwy	Alameda(West)	1.06	F	d	-	1.10	F	e	-
63	Imperial Hwy	Alameda(East)	0.58	A	d	-	g	-	e	-
64	Imperial Hwy	Prop Santa Fe	c	-	1.05	F	0.44	A	e	-
65	Lynwood Rd	Alameda(West)	0.55	A	0.24	A	0.20	A	e	-
66	Lynwood Rd	Alameda(East)	0.43	A	0.4[illegible]	A	0.38	A	e	-
67	124th St	Prop Access "T"	c	-	0.[illegible]4	A	c	-	e	-
68	124th St	Alameda(West)	0.53	A	d	-	0.33	A	e	-
69	Weber Av	Alameda(East)	0.49	A	d	-	0.31	A	e	-
70	Weber Av	Prop Access "T"	c	-	0.22	A	c	-	e	-
71	Prop Access "T"	Alameda (West)	c	-	0.36	A	c	-	e	-
72	El Segundo Bl	Mona Bl	0.42	A	0.98	E	0.56	A	e	-
73	El Segundo Bl	Alameda(West)	0.61	B	d	-	0.65	B	e	-
74	El Segundo Bl	Alameda(East)	0.43	A	d	-	g	-	e	-
75	El Segundo Bl	Prop Access "U"	c	-	0.78	C	c	-	e	-
76	Prop Access "U"	Alameda St	c	-	0.43	A	c	-	e	-
77	134th St	Alameda(West)	0.50	A	0.24	A	0.24	A	e	-
78	Pine Av	Alameda(East)	0.55	A	0.55	A	0.35	A	e	-
79	Elm St	Alameda(West)	0.68	B	0.76	C	0.34	A	e	-
80	Elm St	Alameda(East)	0.86	D	0.61	B	0.37	A	e	-
81	Palmer St	Alameda(West)	0.55	A	0.29	A	0.23	A	e	-
82	Palmer St	Alameda(East)	0.43	A	0.17	A	0.30	A	e	-
83	Compton Bl	Willowbrook Av	0.41	A	1.02	F	0.48	A	e	-
84	Compton Bl	Alameda(West)	0.75	C	d	-	0.93	E	e	-
85	Compton Bl	Alameda(East)	0.70	C	d	-	g	-	e	-
86	Compton Bl	Santa Fe	0.65	B	1.55	F	0.80	D	e	-
87	Laurel Street	Alameda(West)	0.57	A	0.20	A	0.23	A	e	-
88	Laurel Street	Alameda(East)	0.15	A	0.40	A	0.32	A	e	-
89	Alondra Bl	Tamarind Av	0.46	A	0.95	E	0.52	A	e	-
90	Alondra Bl	Alameda(West)	0.91	E	d	-	0.65	B	e	-
91	Alondra Bl	Alameda(East)	0.67	B	d	-	0.51	A	e	-
92	Alondra Bl	Santa Fe	0.73	C	0.97	E	0.82	D	e	-
93	Raymond St	Alameda St	0.24	A	0.30	A	0.21	A	e	-
94	Prop Access "Z"	Alameda St	c	-	0.45	A	c	-	e	-
95	Greenleaf Bl	Prop Access "Z"	c	-	0.62	B	c	-	e	-
96	Greenleaf Bl	Alameda(West)	0.78	C	d	-	0.57	A	e	-
97	Greenleaf Bl	Alameda(East)	0.53	A	d	-	0.31	A	e	-

TABLE 5-29 Continued..

Intersections			No Build		Alternatives					
					1		2.1		2.2	
#			V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]
98	S Auto Dr	Alameda(West)	0.52	A	0.25	A	0.22	A	e	-
99	S Auto Dr	Alameda(East)	0.31	A	0.12	A	0.05	A	e	-
Segment D										
100	Sepulveda Bl	Prop SB Ramp	c	-	0.69	B	0.66	B	e	-
101	Sepulveda Bl	Alameda St	0.86	D	d	-	d	-	e	-
102	Sepulveda Bl	Prop Access "AA"	c	-	0.58	A	0.56	A	e	-
103	Prop Road "AB"	Alameda St	c	-	0.71	C	0.65	B	e	-
104	Pacific Coast Hwy	Coil Av	0.78	C	1.13	F	1.01	F	e	-
105	Pacific Coast Hwy	Alameda St	0.90	E	d	-	d	-	e	-
106	Henry Ford Av	Alameda St	0.56	A	0.19	A	0.19	A	e	-
107	Henry Ford Av	Anaheim	0.66	B	0.55	A	0.54	A	e	-
108	Henry Ford Av	TI Fwy Ramps	0.18	A	d	-	d	-	e	-

Notes: a. Volume to capacity (V/C) ratio.
b. Level-of-service (LOS).
c. Intersection does not currently exist.
d. Intersection proposed as grade separation.
e. Results same as Alternative 2.1.
f. Results same as Alternative 2.2.
g. Intersection is combined with Alameda Street West intersection. See V/C in line above.

Source: Katz, Okitsu & Associates, 1992.

TABLE 5-30
PM PEAK ANALYSIS
YEAR 2020 CONDITIONS

#	Intersections		No Build V/C[a]	No Build LOS[b]	Alternatives 1 V/C[a]	1 LOS[b]	2.1 V/C[a]	2.1 LOS[b]	2.2 V/C[a]	2.2 LOS[b]
	Segment A									
1	15th St	Santa Fe Av	1.38	F	1.30	F	1.40	F	e	-
2	Washington Bl	Santa Fe Av	1.60	F	0.61	B	0.66	B	e	-
3	25th St	Santa Fe Av	1.30	F	1.68	F	1.79	F	e	-
	Segment B-1									
4	Prop 40th Pl	Alameda(West)	c	-	1.20	F	c	-	0.97	E
5	37th St	Alameda (East)	0.64	B	1.41	F	0.77	C	g	-
6	41st St	Alameda St(West)	1.85	F	d	-	1.64	F	2.31	F
7	38th St	Alameda St(East)	1.20	F	d	-	g	-	g	-
8	38th St	Ross St	0.66	B	1.61	F	0.64	B	1.01	F
9	Vernon Av	Staunton Av	0.51	A	1.47	F	0.76	C	0.74	C
10	Vernon Av	Alameda(West)	1.34	F	d	-	1.56	F	1.77	F
11	Vernon Av	Alameda(East)	1.15	F	d	-	g	-	g	-
12	Vernon Av	Charles St	0.52	A	1.17	F	0.76	C	0.76	C
13	45th St	Alameda(West)	0.85	D	1.66	F	1.04	F	0.94	E
14	Prop Road "D"	Alameda(East)	c	-	0.91	E	c	-	c	-
15	55th St	Alameda(West)	1.44	F	0.84	D	0.76	C	1.49	F
16	55th St	Alameda(East)	0.87	D	0.68	B	0.66	B	g	-
17	Prop Access "E"	Alameda(West)	c	-	0.87	D	c	-	c	-
18	Prop Access "E"	Alameda(East)	c	-	0.63	B	c	-	c	-
19	Slauson Av	Holmes Av	1.33	F	3.14	F	2.16	F	1.62	F
20	Slauson Av	Alameda(West)	1.56	F	d	-	2.41	F	1.69	F
21	Slauson Av	Alameda(East)	1.02	F	d	-	g	-	g	-
22	Slauson Av	Prop Street "F"	c	-	2.32	F	c	-	c	-
109	41st St	Long Beach (West)	1.49	F	1.38	F	f	-	1.37	F
110	41st St	Long Beach (East)	1.15	F	1.13	F	f	-	1.02	F
111	Vernon Av	Long Beach (West)	0.85	D	1.03	F	f	-	1.03	F
112	Vernon Av	Long Beach (East)	0.69	B	0.90	E	f	-	0.90	E
113	48th Pl	Long Beach (West)	0.84	D	0.47	A	f	-	0.55	A
114	48th Pl	Long Beach (East)	0.60	B	0.32	A	f	-	0.37	A
115	55th St	Long Beach (West)	1.08	F	0.86	D	f	-	0.95	E
116	55th St	Long Beach (East)	0.88	D	0.70	C	f	-	0.76	C
	Segment B-2									
23	Randolph St	Alameda(West)	1.24	F	0.40	A	0.54	A	1.36	F

TABLE 5-30 Continued..

#	Intersections		No Build		Alternatives					
					1		2.1		2.2	
			V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]
24	Randolph St	Alameda(East)	0.66	B	0.66	B	0.57	A	g	-
25	Gage Av	Wilmington Av	0.86	D	2.25	F	1.08	F	e	-
26	Gage Av	Alameda(West)	1.38	F	d	-	1.49	F	e	-
27	Gage Av	Alameda(East)	0.66	B	d	-	g	-	e	-
28	Gage Av	Albany St	0.79	C	1.70	F	0.90	E	e	-
29	64th St	Alameda(West)	0.67	B	1.08	F	0.58	A	e	-
30	Prop Access "H"	Alameda(East)	c	-	0.63	B	c	-	e	-
31	Florence Av	Bell Av	0.87	D	1.45	F	0.99	E	e	-
32	Florence Av	Alameda(West)	1.35	F	d	-	1.55	F	e	-
33	Florence Av	Alameda(East)	0.85	D	d	-	g	-	e	-
34	Florence Av	Santa Fe Av	1.48	F	2.25	F	1.80	F	e	-
35	73rd St	Alameda(West)	c	-	0.75	C	c	-	e	-
36	Prop Access "J"	Alameda (East)	c	-	0.61	B	c	-	e	-
37	Prop Access "J"	Santa Fe Av	c	-	0.99	E	c	-	e	-
38	Leota St	Alameda(East)	c	-	1.35	F	c	-	e	-
39	Leota St	Santa Fe Av	1.13	F	2.54	F	1.36	F	e	-
40	Nadeau St	Alix Av	0.86	D	2.08	F	1.03	F	e	-
41	Nadeau St	Alameda(West)	2.03	F	d	-	2.41	F	e	-
42	Nadeau St	Alameda(East)	1.02	F	d	-	g	-	e	-
43	Nadeau St	Santa Fe Av	1.45	F	2.85	F	1.73	F	e	-
44	Prop Access "L"	Alameda(West)	c	-	1.50	F	c	-	e	-
Segment C										
45	Manchester Av	Alameda (West)	1.00	F	1.48	F	0.83	D	e	-
46	Firestone Bl	Manchester Av	0.97	E	1.95	F	1.61	F	e	-
47	Firestone Bl	Alameda(West)	1.91	F	d	-	2.23	F	e	-
48	90th St	Alameda(West)	0.90	E	1.80	F	0.94	E	e	-
49	Prop Access "O"	Alameda(West)	c	-	1.48	F	c	-	e	-
50	92nd St	Miner St	0.50	A	1.90	F	0.79	C	e	-
51	92nd St	Alameda(West)	1.48	F	d	-	1.74	F	e	-
52	Southern Av	Alameda(East)	1.36	F	d	-	0.91	E	e	-
53	Tweedy Bl	Alameda(West)	1.44	F	d	-	1.63	F	e	-
54	Tweedy Bl	Alameda(East)	0.82	D	d	-	0.53	A	e	-
55	Tweedy Bl	Prop Access "Q"	c	-	1.91	F	c	-	e	-
56	ML King Bl	Alameda(West)	1.61	F	d	-	1.68	F	e	-
57	ML King Bl	Alameda(East)	0.83	D	d	-	0.76	C	e	-
58	Santa Ana Bl N	Alameda(West)	1.08	F	1.21	F	0.92	E	e	-

TABLE 5-30 Continued..

#	Intersections		No Build		Alternatives 1		Alternatives 2.1		Alternatives 2.2	
			V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]
59	Fernwood Av	Alameda(East)	1.25	F	0.91	E	0.72	C	e	-
60	Prop 115th Pl	Alameda(West)	c	-	2.57	F	c	-	e	-
61	Imperial Hwy	Watts Av	1.17	F	3.03	F	1.06	F	e	-
62	Imperial Hwy	Alameda(West)	1.75	F	d	-	2.33	F	e	-
63	Imperial Hwy	Alameda(East)	1.08	F	d	-	g	-	e	-
64	Imperial Hwy	Prop Santa Fe	c	-	2.18	F	0.93	E	e	-
65	Lynwood Rd	Alameda(West)	1.24	F	0.50	A	0.43	A	e	-
66	Lynwood Rd	Alameda(East)	0.76	C	0.95	E	0.79	C	e	-
67	124th St	Prop Access "T"	c	-	0.52	A	c	-	e	-
68	124th St	Alameda(West)	1.04	F	d	-	0.71	C	e	-
69	Weber Av	Alameda(East)	1.05	F	d	-	0.68	B	e	-
70	Weber Av	Prop Access "T"	c	-	0.48	A	c	-	e	-
71	Prop Access "T"	Alameda (West)	c	-	0.77	C	c	-	e	-
72	El Segundo Bl	Mona Bl	1.27	F	2.37	F	1.36	F	e	-
73	El Segundo Bl	Alameda(West)	1.47	F	d	-	1.52	F	e	-
74	El Segundo Bl	Alameda(East)	1.21	F	d	-	g	-	e	-
75	El Segundo Bl	Prop Access "U"	c	-	1.76	F	c	-	e	-
76	Prop Access "U"	Alameda St	c	-	0.97	E	c	-	e	-
77	134th St	Alameda(West)	1.15	F	0.50	A	0.54	A	e	-
78	Pine Av	Alameda(East)	1.29	F	1.18	F	0.82	D	e	-
79	Elm St	Alameda(West)	1.40	F	1.66	F	0.77	C	e	-
80	Elm St	Alameda(East)	1.93	F	1.34	F	0.85	D	e	-
81	Palmer St	Alameda(West)	1.45	F	0.65	B	0.52	A	e	-
82	Palmer St	Alameda(East)	0.76	C	0.37	A	0.69	B	e	-
83	Compton Bl	Willowbrook Av	1.12	F	2.85	F	1.15	F	e	-
84	Compton Bl	Alameda(West)	1.59	F	d	-	2.09	F	e	-
85	Compton Bl	Alameda(East)	1.46	F	d	-	g	-	e	-
86	Compton Bl	Santa Fe	1.69	F	3.38	F	1.84	F	e	-
87	Laurel Street	Alameda(West)	1.19	F	0.44	A	0.52	A	e	-
88	Laurel Street	Alameda(East)	0.40	A	0.88	D	0.75	C	e	-
89	Alondra Bl	Tamarind Av	0.99	E	2.27	F	1.17	F	e	-
90	Alondra Bl	Alameda(West)	1.72	F	d	-	1.49	F	e	-
91	Alondra Bl	Alameda(East)	1.21	F	d	-	1.15	F	e	-
92	Alondra Bl	Santa Fe	1.59	F	2.11	F	1.87	F	e	-
93	Raymond St	Alameda St	0.54	A	0.65	B	0.46	A	e	-
94	Prop Access "Z"	Alameda St	c	-	1.07	F	c	-	e	-

TABLE 5-30 Continued..

Intersections			No Build		Alternatives					
					1		2.1		2.2	
#			V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]	V/C[a]	LOS[b]
95	Greenleaf Bl	Prop Access "Z"	c	-	1.49	F	c	-	e	-
96	Greenleaf Bl	Alameda(West)	1.56	F	d	-	1.44	F	e	-
97	Greenleaf Bl	Alameda(East)	0.96	E	d	-	0.78	C	e	-
98	S Auto Dr	Alameda(West)	0.99	E	0.60	B	0.53	A	e	-
99	S Auto Dr	Alameda(East)	0.44	A	0.29	A	0.14	A	e	-
Segment D										
100	Sepulveda Bl	Prop SB Ramp	c	-	1.18	F	1.19	F	e	-
101	Sepulveda Bl	Alameda St	1.44	F	d	-	d	-	e	-
102	Sepulveda Bl	Prop Access "AA"	c	-	1.01	F	1.03	F	e	-
103	Prop Road "AB"	Alameda St	c	-	1.25	F	1.19	F	e	-
104	Pacific Coast Hwy	Coil Av	1.51	F	2.00	F	1.92	F	e	-
105	Pacific Coast Hwy	Alameda St	1.67	F	d	-	d	-	e	-
106	Henry Ford Av	Alameda St	0.99	E	0.38	A	0.44	A	e	-
107	Henry Ford Av	Anaheim	1.24	F	1.10	F	1.27	F	e	-
108	Henry Ford Av	TI Fwy Ramps	0.34	A	d	-	d	-	e	-

Notes: a. Volume to capacity (V/C) ratio.
b. Level-of-service (LOS).
c. Intersection does not currently exist.
d. Intersection proposed as grade separation.
e. Results same as Alternative 2.1.
f. Results same as Alternative 2.2.
g. Intersection is combined with Alameda Street West intersection. See V/C in line above.

Source: Katz, Okitsu & Associates, 1992.

TABLE 5-31
YEAR 2020 PM PEAK ANALYSIS
V/C RATIO COMPARISON

Intersections			No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
#			V/C	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]
Segment A												
1	15th St	Santa Fe Av	1.38	1.30	-0.08	no	1.40	0.02	no	e	-	-
2	Washington Bl	Santa Fe Av	1.60	0.61	-0.99	no	0.66	-0.94	no	e	-	-
3	25th St	Santa Fe Av	1.30	1.68	0.38	yes	1.79	0.49	yes	e	-	-
Segment B-1												
4	Prop 40th Pl	Alameda(West)	c	1.20	1.20	yes	c	-	-	0.97	0.97	yes
5	37th St	Alameda (East)	0.64	1.41	0.77	yes	0.77	0.13	no	g	-	-
6	41st St	Alameda St(West)	1.85	d	-	-	1.64	-0.21	no	2.31	0.46	yes
7	38th St	Alameda St(East)	1.20	d	-	-	g	-	-	g	-	-
8	38th St	Ross St	0.66	1.61	0.95	yes	0.64	-0.02	no	1.01	0.35	yes
9	Vernon Av	Staunton Av	0.51	1.47	0.96	yes	0.76	0.25	no	0.74	0.23	no
10	Vernon Av	Alameda(West)	1.34	d	-	-	1.56	0.22	yes	1.77	0.43	yes
11	Vernon Av	Alameda(East)	1.15	d	-	-	g	-	-	g	-	-
12	Vernon Av	Charles St	0.52	1.17	0.65	yes	0.76	0.24	no	0.76	0.24	no
13	45th St	Alameda(West)	0.85	1.66	0.81	yes	1.04	0.19	yes	0.94	0.09	yes
14	Prop Road "D"	Alameda(East)	c	0.91	0.91	yes	c	-	-	c	-	-
15	55th St	Alameda(West)	1.44	0.84	-0.60	no	0.76	-0.68	no	1.49	0.05	yes
16	55th St	Alameda(East)	0.87	0.68	-0.19	no	0.66	-0.21	no	g	-	-
17	Prop Access "E"	Alameda(West)	c	0.87	0.87	no	c	-	-	c	-	-
18	Prop Access "E"	Alameda(East)	c	0.63	0.63	no	c	-	-	c	-	-
19	Slauson Av	Holmes Av	1.33	3.14	1.81	yes	2.16	0.83	yes	1.62	0.29	yes
20	Slauson Av	Alameda(West)	1.56	d	-	-	2.41	0.85	yes	1.69	0.13	yes
21	Slauson Av	Alameda(East)	1.02	d	-	-	g	-	-	g	-	-
22	Slauson Av	Prop Street "F"	c	2.32	2.32	yes	c	-	-	c	-	-
109	41st St	Long Beach (West)	1.49	1.38	-0.11	no	f	-	-	1.37	-0.12	no
110	41st St	Long Beach (East)	1.15	1.13	-0.02	no	f	-	-	1.02	-0.13	no

TABLE 5-31 Continued..

Intersections			No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
#			V/C	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]
111	Vernon Av	Long Beach (West)	0.85	1.03	0.18	yes	f	-	-	1.03	0.18	yes
112	Vernon Av	Long Beach (East)	0.69	0.90	0.21	yes	f	-	-	0.90	0.21	yes
113	48th Pl	Long Beach (West)	0.84	0.47	-0.37	no	f	-	-	0.55	-0.29	no
114	48th Pl	Long Beach (East)	0.60	0.32	-0.28	no	f	-	-	0.37	-0.23	no
115	55th St	Long Beach (West)	1.08	0.86	-0.22	no	f	-	-	0.95	-0.13	no
116	55th St	Long Beach (East)	0.88	0.70	-0.18	no	f	-	-	0.76	-0.12	no
Segment B-2												
23	Randolph St	Alameda(West)	1.24	0.40	-0.84	no	0.54	-0.70	no	1.36	0.12	yes
24	Randolph St	Alameda(East)	0.66	0.66	0.00	no	0.57	-0.09	no	g	-	-
25	Gage Av	Wilmington Av	0.86	2.25	1.39	yes	1.08	0.22	yes	e	-	-
26	Gage Av	Alameda(West)	1.38	d	-	-	1.49	0.11	yes	e	-	-
27	Gage Av	Alameda(East)	0.66	d	-	-	g	-	-	e	-	-
28	Gage Av	Albany St	0.79	1.70	0.91	yes	0.90	0.11	yes	e	-	-
29	64th St	Alameda(West)	0.67	1.08	0.41	yes	0.58	-0.09	no	e	-	-
30	Prop Access "H"	Alameda(East)	c	0.63	0.63	no	c	-	-	e	-	-
31	Florence Av	Bell Av	0.87	1.45	0.58	yes	0.99	0.12	yes	e	-	-
32	Florence Av	Alameda(West)	1.35	d	-	-	1.55	0.20	yes	e	-	-
33	Florence Av	Alameda(East)	0.85	d	-	-	g	-	-	e	-	-
34	Florence Av	Santa Fe Av	1.48	2.25	0.77	yes	1.80	0.32	yes	e	-	-
35	73rd St	Alameda(West)	c	0.75	0.75	no	c	-	-	e	-	-
36	Prop Access "J"	Alameda (East)	c	0.61	0.61	no	c	-	-	e	-	-
37	Prop Access "J"	Santa Fe Av	c	0.99	0.99	yes	c	-	-	e	-	-
38	Leota St	Alameda(East)	c	1.35	1.35	yes	c	-	-	e	-	-
39	Leota St	Santa Fe Av	1.13	2.54	1.41	yes	1.36	0.23	yes	e	-	-
40	Nadeau St	Alix Av	0.86	2.08	1.22	yes	1.03	0.17	yes	e	-	-
41	Nadeau St	Alameda(West)	2.03	d	-	-	2.41	0.38	yes	e	-	-
42	Nadeau St	Alameda(East)	1.02	d	-	-	g	-	-	e	-	-
43	Nadeau St	Santa Fe Av	1.45	2.85	1.40	yes	1.73	0.28	yes	e	-	-
44	Prop Access "L"	Alameda(West)	c	1.50	1.50	yes	c	-	-	e	-	-

TABLE 5-31 Continued..

#	Intersections		No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
			V/C	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]
Segment C												
45	Manchester Av	Alameda (West)	1.00	1.48	0.48	yes	0.83	-0.17	no	e	-	-
46	Firestone Bl	Manchester Av	0.97	1.95	0.98	yes	1.61	0.64	yes	e	-	-
47	Firestone Bl	Alameda(West)	1.91	d	-	-	2.23	0.32	yes	e	-	-
48	90th St	Alameda(West)	0.90	1.80	0.90	yes	0.94	0.04	yes	e	-	-
49	Prop Access "O"	Alameda(West)	c	1.48	1.48	yes	c	-	-	e	-	-
50	92nd St	Miner St	0.50	1.90	1.40	yes	0.79	0.29	no	e	-	-
51	92nd St	Alameda(West)	1.48	d	-	-	1.74	0.26	yes	e	-	-
52	Southern Av	Alameda(East)	1.36	d	-	-	0.91	-0.45	no	e	-	-
53	Tweedy Bl	Alameda(West)	1.44	d	-	-	1.63	0.19	yes	e	-	-
54	Tweedy Bl	Alameda(East)	0.82	d	-	-	0.53	-0.29	no	e	-	-
55	Tweedy Bl	Prop Access "Q"	c	1.91	1.91	yes	c	-	-	e	-	-
56	ML King Bl	Alameda(West)	1.61	d	-	-	1.68	0.07	yes	e	-	-
57	ML King Bl	Alameda(East)	0.83	d	-	-	0.76	-0.07	no	e	-	-
58	Santa Ana Bl N	Alameda(West)	1.08	1.21	0.13	yes	0.92	-0.16	no	e	-	-
59	Fernwood Av	Alameda(East)	1.25	0.91	-0.34	no	0.72	-0.53	no	e	-	-
60	Prop 115th Pl	Alameda(West)	c	2.57	2.57	yes	c	-	-	e	-	-
61	Imperial Hwy	Watts Av	1.17	3.03	1.86	yes	1.06	-0.11	no	e	-	-
62	Imperial Hwy	Alameda(West)	1.75	d	-	-	2.33	0.58	yes	e	-	-
63	Imperial Hwy	Alameda(East)	1.08	d	-	-	g	-	-	e	-	-
64	Imperial Hwy	Prop Santa Fe	c	2.18	2.18	yes	0.93	0.93	yes	e	-	-
65	Lynwood Rd	Alameda(West)	1.24	0.50	-0.74	no	0.43	-0.81	no	e	-	-
66	Lynwood Rd	Alameda(East)	0.76	0.95	0.19	yes	0.79	0.03	no	e	-	-
67	124th St	Prop Access "T"	c	0.52	0.52	no	c	-	-	e	-	-
68	124th St	Alameda(West)	1.04	d	-	-	0.71	-0.33	no	e	-	-

TABLE 5-31 Continued . .

#	Intersections		No Build V/C	Alternative 1 V/C	Alternative 1 Diff[a]	Alternative 1 ETC[b]	Alternative 2.1 V/C	Alternative 2.1 Diff[a]	Alternative 2.1 ETC[b]	Alternative 2.2 V/C	Alternative 2.2 Diff[a]	Alternative 2.2 ETC[b]
69	Weber Av	Alameda(East)	1.05	d	-	-	0.68	-0.37	no	e	-	-
70	Weber Av	Prop Access "T"	c	0.48	0.48	no	c	-	-	e	-	-
71	Prop Access "T"	Alameda (West)	c	0.77	0.77	no	c	-	-	e	-	-
72	El Segundo Bl	Mona Bl	1.27	2.37	1.10	yes	1.36	0.09	yes	e	-	-
73	El Segundo Bl	Alameda(West)	1.47	d	-	-	1.52	0.05	yes	e	-	-
74	El Segundo Bl	Alameda(East)	1.21	d	-	-	g	-	-	e	-	-
75	El Segundo Bl	Prop Access "U"	c	1.76	1.76	yes	c	-	-	e	-	-
76	Prop Access "U"	Alameda St	c	0.97	0.97	yes	c	-	-	e	-	-
77	134th St	Alameda(West)	1.15	0.50	-0.65	no	0.54	-0.61	no	e	-	-
78	Pine Av	Alameda(East)	1.29	1.18	-0.11	no	0.82	-0.47	no	e	-	-
79	Elm St	Alameda(West)	1.40	1.66	0.26	yes	0.77	-0.63	no	e	-	-
80	Elm St	Alameda(East)	1.93	1.34	-0.59	no	0.85	-1.08	no	e	-	-
81	Palmer St	Alameda(West)	1.45	0.65	-0.80	no	0.52	-0.93	no	e	-	-
82	Palmer St	Alameda(East)	0.76	0.37	-0.39	no	0.69	-0.07	no	e	-	-
83	Compton Bl	Willowbrook Av	1.12	2.85	1.73	yes	1.15	0.03	yes	e	-	-
84	Compton Bl	Alameda(West)	1.59	d	-	-	2.09	0.50	yes	e	-	-
85	Compton Bl	Alameda(East)	1.46	d	-	-	g	-	-	e	-	-
86	Compton Bl	Santa Fe	1.69	3.38	1.69	yes	1.84	0.15	yes	e	-	-
87	Laurel Street	Alameda(West)	1.19	0.44	-0.75	no	0.52	-0.67	no	e	-	-
88	Laurel Street	Alameda(East)	0.40	0.88	0.48	no	0.75	0.35	no	e	-	-
89	Alondra Bl	Tamarind Av	0.99	2.27	1.28	yes	1.17	0.18	yes	e	-	-
90	Alondra Bl	Alameda(West)	1.72	d	-	-	1.49	-0.23	no	e	-	-
91	Alondra Bl	Alameda(East)	1.21	d	-	-	1.15	-0.06	no	e	-	-
92	Alondra Bl	Santa Fe	1.59	2.11	0.52	yes	1.87	0.28	yes	e	-	-
93	Raymond St	Alameda St	0.54	0.65	0.11	no	0.46	-0.08	no	e	-	-
94	Prop Access "Z"	Alameda St	c	1.07	1.07	yes	c	-	-	e	-	-

TABLE 5-31 Continued..

Intersections			No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
#			V/C	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]	V/C	Diff[a]	ETC[b]
95	Greenleaf Bl	Prop Access "Z"	c	1.49	1.49	yes	c	-	-	e	-	-
96	Greenleaf Bl	Alameda(West)	1.56	d	-	-	1.44	-0.12	no	e	-	-
97	Greenleaf Bl	Alameda(East)	0.96	d	-	-	0.78	-0.18	no	e	-	-
98	S Auto Dr	Alameda(West)	0.99	0.60	-0.39	no	0.53	-0.46	no	e	-	-
99	S Auto Dr	Alameda(East)	0.44	0.29	-0.15	no	0.14	-0.30	no	e	-	-
Segment D												
100	Sepulveda Bl	Prop SB Ramp	c	1.18	1.18	yes	1.19	1.19	yes	e	-	-
101	Sepulveda Bl	Alameda St	1.44	d	-	-	d	-	-	e	-	-
102	Sepulveda Bl	Prop Access "AA"	c	1.01	1.01	yes	1.03	1.03	yes	e	-	-
103	Prop Road "AB"	Alameda St	c	1.25	1.25	yes	1.19	1.19	yes	e	-	-
104	Pacific Coast Hwy	Coll Av	1.51	2.00	0.49	yes	1.92	0.41	yes	e	-	-
105	Pacific Coast Hwy	Alameda St	1.67	d	-	-	d	-	-	e	-	-
106	Henry Ford Av	Alameda St	0.99	0.38	-0.61	no	0.44	-0.55	no	e	-	-
107	Henry Ford Av	Anaheim	1.24	1.10	-0.14	no	1.27	0.03	yes	e	-	-
108	Henry Ford Av	TI Fwy Ramps	0.34	d	-	-	d	-	-	e	-	-

Notes: a. Difference (Diff) between 2020 Null and 2020 Project Alternative; "-" sign indicates improvements over 2020 Null.
b. Exceeds Threshold Criteria (ETC). Requires additional improvements.
c. Intersection does not currently exist.
d. Intersection proposed as grade separation.
e. Results same as Alternative 2.1.
f. Results same as Alternative 2.2.
g. Intersection is combined with Alameda Street West Intersection. See V/C in line above.

Source: Katz, Okitsu & Associates, 1992.

5.4.6 Project Traffic Impacts

Threshold criteria were defined to determine whether an intersection would be affected by the project in place. The design goal would be to provide additional improvements to satisfy the threshold criteria. The project would assume responsibility for some of these improvements, and other agencies and jurisdictions would be required to assume responsibility for some improvements. The criteria were agreed upon by the Alameda Corridor Technical Working Group.

- An intersection would exceed threshold criteria if the 2020 V/C ratio for a project alternative meets both the following:

  1) exceeds 0.90 (LOS E or greater), and
  2) exceeds the No Build condition V/C ratio by 0.02

- The design goal would be to implement additional improvements at an intersection such that the 2020 V/C ratio for the project alternative would be reduced to either of the following:

  1) below 0.90, or
  2) within 0.02 of the No Build condition V/C ratio.

- For new intersections, the design goal would be to provide for a volume-to-capacity ratio less than 0.90.

<u>Affected Streets and Intersections</u>

The streets and intersections which would be affected are those that would have V/C ratios that exceed the threshold criteria (ETC) discussed above. Many of the study intersections would exceed the threshold criteria under the different project alternatives by the year 2020. These intersections are identified in Table 5-31. Note that the difference in V/C ratios is the difference between the No Build condition and the project alternatives. Where the difference is negative, the intersection improves under the project alternatives.

Generally, Alternative 1 produces impacts at grade separation access points. The main reason these locations are affected is because demand for turning movements off and onto Alameda Street must be funneled into the access roads. Alternatives 2.1 and 2.2 tend to have more impacts at intersections on Alameda Street and fewer impacts at intersections away from the Corridor, relative to Alternative 1. Alternative 2.2 has fewer improvements on Alameda Street and more impacts on Alameda Street than Alternative 2.1 in segment B-1. However, Alternative 2.1 has more street closures which tend to affect the east-west streets that remain open.

<u>Corridor Access Impacts</u>

The three project alternatives propose geometric changes along the Alameda Corridor between downtown Los Angeles and the Ports of Long Beach and Los Angeles. While eliminating conflicts between rail and vehicles, the proposed roadway configurations along and adjacent to the Corridor impose several other geometric problems. Many of these problems relate to Corridor access.

The most substantial impacts from the project alternatives would result from the closure of existing crossings and intersections along the Corridor. The following are streets that have crossings that would be closed:

- 55th Street (alternatives 1 and 2.1 only)
- Randolph Street
- Martin Luther King, Jr. Boulevard (alternatives 2.1 and 2.2 only)
- Santa Ana Boulevard/Fernwood Avenue
- Lynwood Avenue
- Elm Street
- Palmer Street
- Laurel Street
- South Auto Drive

These closures would force vehicles that currently cross both roadways of Alameda Street to detour around to an east-west street that would cross the Corridor. This diversion of traffic onto other streets would affect local and collector streets and would add to the traffic on Alameda Street West and East as well as the east-west crossings. Vehicles making this type of detour would also be required to make more turns than before.

Also significant would be the change of Alameda Street West from an undivided to divided highway. With the proposed separation of the northbound and southbound travel lanes, vehicles would be forced to make additional turning movements along the Corridor. Travel time and distance would increase for motorists making these movements.

Another source of impact would be the closure of some access roads to Alameda Street West and Santa Fe Avenue. These streets are now all local streets with very low volumes of traffic and serve few residential and light industrial developments. The following are streets that would no longer have direct access to the Corridor:

- 15th Place
- 16th Street
- 23rd Street
- 24th Street
- 96th Street (Alternative 1 only)
- 96th Place (Alternative 1 only)

In addition, there are some north-south streets that would no longer have direct access to perpendicular streets due to grade separations and rail crossings, such as 73rd Street, Coil Avenue and sections of frontage roads. These street closures would force vehicles to use other local streets to reach their destinations.

Alternative 1.0 would impact driveways, which are located along the corridor, and east-west crossings near an intersection, which would either become grade separated or widened, would be permanently removed.

Impacts to Local Streets

Traffic circulation would change along the Alameda Corridor due to the grade separations, the separation of northbound and southbound lanes and the closure of crossings and streets. With Alternative 1.0, vehicles making turns at existing intersections would be reassigned to access roads or local streets. Although most of these would be new access roads, many of them are existing local roads. Residences and businesses would be affected by increased traffic volumes.

Converting Alameda Street West to a divided highway under alternatives 2.1A, 2.1S or 2.2 would force right turns only to and from the corridor. The separation between travel directions under alternatives 2.1 and 2.2 would force vehicles to make U-turns at the intersections along the Corridor. Many vehicles may choose to detour to local streets to avoid making these U-turns. As a result, some local streets would experience a slight increase in traffic.

5.4.7 Additional Traffic Improvements

Additional Roadway Improvements

Despite project-related improvements, some intersections would still exceed the threshold criteria, largely due to background traffic growth. These intersections would require additional roadway improvements such as widening to provide for more travel lanes. Intersection capacity analyses were conducted for intersections with additional travel lanes. The addition of travel lanes was constrained by right-of-way widths set by the master plans of streets and highways for the various agencies. Because of this constraint, some intersections would not be able to meet the design goals. The indicated additional roadway improvements are listed in Table 5-32 and Table 5-33. Figures of these additional improvements are in Appendix VII. Implementation of these improvements would be the responsibility of other agencies and jurisdictions.

Table 5-34 lists the V/C ratios for each year 2020 scenario under the proposed project (Proj) design with the additional improvements (w/Imp) to be provided by other agencies.

Of the 48 intersections that would require additional improvements under Alternative 1, only 15 of the intersections were able to meet the design goal. The intersections would still exceed the threshold criteria even with additional improvements at intersections which would be completely built-out and could no longer be widened. These intersections are typically access points for the following grade separations along the Alameda Corridor:

- 41st Street/38th Street
- Vernon Avenue
- Slauson Avenue
- Gage Avenue
- Florence Avenue
- Nadeau St
- Firestone Boulevard
- 92nd Street/Southern Avenue
- Tweedy Boulevard
- Imperial Highway

TABLE 5-32
ADDITIONAL IMPROVEMENTS FOR ALTERNATIVE 1

Intersections			Alternative 1 Additional Turning Lane(s)											
			Northbound			Southbound			Eastbound			Westbound		
#			Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
Segment A														
3	25th St	Santa Fe Av	-	-	-	-	-	-	-	-	1	-	-	-
Segment B-1														
4	Prop 40th Pl	Alameda(West)	-	-	-	-	-	-	-	-	1	-	-	-
5	37th St	Alameda (East)	-	-	-	-	-	-	-	-	-	-	-	1
8	38th St	Ross St	-	-	1	-	-	1	1	-	-	-	-	-
9	Vernon Av	Staunton Av	-	-	-	-	-	-	-	-	1	-	-	-
12	Vernon Av	Charles St	1	-	-	-	-	-	-	1	-	-	1	-
13	45th St	Alameda(West)	-	-	-	-	-	-	-	-	1	-	-	-
14	Prop Road "D"	Alameda(East)	-	-	-	-	-	-	-	-	-	-	-	1
19	Slauson Av	Holmes Av	-	-	-	1	-	-	-	1	-	-	1	-
22	Slauson Av	Prop Street "F"	1	-	-	-	-	-	-	1	1	-	1	-
111	Vernon Av	Long Beach (West)	-	-	-	-	-	-	-	1	-	-	1	-
112	Vernon Av	Long Beach (East)	-	-	-	-	-	-	-	1	-	-	-	-
Segment B-2														
25	Gage Av	Wilmington Av	1	-	1	2	-	-	1	-	1	1	-	-
28	Gage Av	Albany St	-	-	1	-	-	-	2	-	-	-	-	-
29	64th St	Alameda(West)	-	-	-	-	-	-	-	-	1	-	-	-
31	Florence Av	Bell Av	-	-	1	-	-	-	-	1	-	-	1	1
34	Florence Av	Santa Fe Av	1	-	-	-	1	-	-	-	-	-	-	-
37	Prop Access "J"	Santa Fe Av	-	-	-	-	-	1	-	-	-	-	-	-
38	Leota St	Alameda(East)	-	-	-	-	-	-	-	-	-	-	-	1
39	Leota St	Santa Fe Av	2	1	-	-	1	1	-	-	1	-	-	-
40	Nadeau St	Alix Av	-	-	1	-	-	-	-	-	1	1	-	-
43	Nadeau St	Santa Fe Av	1	1	-	1	1	-	1	-	-	1	-	-
44	Prop Access "L"	Alameda(West)	-	-	-	-	-	-	-	-	-	-	-	1
Segment C														
45	Manchester Av	Alameda (West)	-	-	-	-	-	-	-	-	-	1	-	-
46	Firestone Bl	Manchester Av	-	-	-	2	-	-	1	1	1	-	1	-
48	90th St	Alameda(West)	-	-	-	-	-	-	1	-	1	-	-	-
49	Prop Access "O"	Alameda(West)	-	-	-	-	-	-	-	-	-	-	-	-
50	92nd St	Miner St	-	-	-	1	-	-	1	-	-	-	-	1
55	Tweedy Bl	Prop Access "Q"	1	-	-	-	-	-	-	-	1	1	-	-
58	Santa Ana Bl N	Alameda(West)	-	-	-	-	-	-	-	-	1	-	-	-

TABLE 5-32 Continued..

#	Intersections		Alternative 1 Additional Turning Lane(s)											
			Northbound			Southbound			Eastbound			Westbound		
			Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
60	Prop 115th Pl	Alameda(West)	1	-	-	-	-	-	1	-	-	-	-	-
61	Imperial Hwy	Watts Av	1	-	-	-	-	-	1	-	-	-	-	-
64	Imperial Hwy	Prop Santa Fe	1	-	-	-	-	-	-	-	-	-	-	-
66	Lynwood Rd	Alameda(East)	1	-	-	-	-	-	-	-	-	-	-	-
72	El Segundo Bl	Mona Bl	1	-	-	1	-	-	-	1	-	-	1	1
75	El Segundo Bl	Prop Access "U"	-	-	-	-	-	-	-	1	-	-	2	1
76	Prop Access "U"	Alameda St	-	-	-	-	-	-	-	-	-	-	-	-
79	Elm St	Alameda(West)	-	-	-	-	-	-	1	-	-	-	-	-
83	Compton Bl	Willowbrook Av	-	1	-	1	-	-	-	-	-	-	-	-
86	Compton Bl	Santa Fe	-	1	-	-	1	1	1	-	-	-	-	-
89	Alondra Bl	Tamarind Av	1	-	1	1	-	-	-	1	1	-	-	-
92	Alondra Bl	Santa Fe	-	1	-	-	1	-	-	1	-	-	1	-
94	Prop Access "Z"	Alameda St	-	-	-	-	-	-	-	-	-	-	-	-
95	Greenleaf Bl	Prop Access "Z"	-	-	-	-	-	-	-	1	-	-	1	1
Segment D														
100	Sepulveda Bl	Prop SB Ramp	-	-	-	-	-	-	-	1	-	-	-	-
101	Sepulveda Bl	Alameda St	-	-	-	-	-	-	-	-	-	-	-	1
102	Sepulveda Bl	Prop Access "AA"	-	-	-	-	-	1	-	-	-	-	-	-
103	Prop Road "AB"	Alameda St	-	-	-	-	-	-	-	-	1	-	1	-

Source: Katz, Okitsu & Associates, 1992.

TABLE 5-33
ADDITIONAL IMPROVEMENTS FOR ALTERNATIVES 2.1 & 2.2

Intersections			Alternative 2.1 & 2.2 Additional Turning Lane(s)											
			Northbound			Southbound			Eastbound			Westbound		
#			Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
Segment A - Alternative 2.1 and 2.2														
3	25th St	Santa Fe Av	-	-	-	-	-	-	-	-	1	-	-	-
Segment B-1 - Alternative 2.1														
10	Vernon Av	Alameda St	-	-	-	-	-	1	1	-	-	1	-	-
13	45th St	Alameda(West)	-	-	-	-	-	-	-	-	1	-	-	-
19	Slauson Av	Holmes Av	-	-	-	-	-	-	-	1	-	-	1	-
20	Slauson Av	Alameda St	-	-	-	-	-	-	-	1	-	1	1	-
111	Vernon Av	Long Beach (West)	-	-	-	-	-	-	-	1	-	-	1	-
112	Vernon Av	Long Beach (East)	-	-	-	-	-	-	-	1	-	-	-	-
Segment B-1 - Alternative 2.2														
4	40th Pl/37th St	Alameda St	-	-	-	-	-	-	-	-	-	-	-	1
6	41st St/38th St	Alameda St	-	-	-	-	-	-	1	-	-	-	-	-
8	38th St	Ross St	-	-	-	-	-	-	1	-	-	-	-	-
10	Vernon Av	Alameda St	-	-	-	-	-	-	1	-	-	1	-	-
13	45th St	Alameda St	-	-	-	-	-	-	-	-	1	-	-	-
15	55th St	Alameda St	-	-	-	-	-	-	1	-	-	-	-	-
19	Slauson Av	Alameda St	-	-	-	-	-	-	-	1	-	-	1	-
111	Vernon Av	Long Beach (West)	-	-	-	-	-	-	-	1	-	-	1	-
112	Vernon Av	Long Beach (East)	-	-	-	-	-	-	-	1	-	-	-	-
Segment B-2 - Alternative 2.1 and 2.2														
23	Randolph St	Alameda St (Alternative 2.2 only)				-	-	-	1	-	-	-	-	-
25	Gage Av	Wilmington Av	-	-	-	-	-	-	1	-	-	-	-	-
26	Gage Av	Alameda St	-	-	-	-	-	-	-	-	-	1	-	-
28	Gage Av	Albany St	-	-	-	-	-	-	1	-	-	1	-	-
32	Florence Av	Alameda St	-	-	-	-	-	-	-	-	-	-	1	-
31	Florence Av	Bell Av	-	-	-	-	-	-	-	1	-	-	1	-
34	Florence Av	Santa Fe Av	1	1	-	-	1	-	-	-	-	-	-	-
39	Leota St	Santa Fe Av	-	-	-	-	-	1	-	-	-	-	-	-
40	Nadeau St	Alix Av	-	-	-	-	-	-	-	-	1	1	-	-
41	Nadeau St	Alameda St	-	-	-	-	-	-	-	-	1	-	-	-

TABLE 5-33 Continued..

Intersections			Alternative 2.1 & 2.2 Additional Turning Lane(s)											
			Northbound			Southbound			Eastbound			Westbound		
#			Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
43	Nadeau St	Santa Fe Av	-	-	-	-	-	-	1	-	-	1	-	-
Segment C - Alternative 2.1 and 2.2														
46	Firestone Bl	Manchester Av	-	-	-	-	-	1	-	1	-	-	-	-
47	Firestone Bl	Alameda St	-	-	-	-	-	-	-	1	-	-	1	-
48	90th St	Alameda St	-	-	-	-	-	-	-	-	-	-	-	-
51	92nd/Southern	Alameda St	-	-	-	-	-	-	-	-	1	-	-	-
53	Tweedy Bl	Alameda St	-	-	1	-	-	-	-	-	-	-	-	-
56	ML King Bl	Alameda St	-	-	-	-	-	1	-	-	-	-	-	-
62	Imperial Hwy	Alameda St	1	-	-	1	-	-	1	-	-	1	-	-
64	Imperial Hwy	Prop Santa Fe	-	-	-	-	-	-	-	-	-	-	-	-
72	El Segundo Bl	Mona Bl	-	-	1	-	-	1	-	-	-	-	-	-
73	El Segundo Bl	Alameda St	-	-	-	-	-	-	1	-	-	1	-	-
83	Compton Bl	Willowbrook Av	-	-	-	-	1	-	-	-	-	-	-	-
84	Compton Bl	Alameda St	-	-	-	-	-	-	-	1	-	1	-	-
86	Compton Bl	Santa Fe	-	-	1	-	-	1	-	-	-	-	-	-
89	Alondra Bl	Tamarind Av	-	-	-	-	-	-	-	1	-	-	1	-
92	Alondra Bl	Santa Fe	-	-	-	-	-	-	-	1	-	-	1	-
Segment D - Alternative 2.1 and 2.2														
100	Sepulveda Bl	Prop SB Ramp	-	-	-	-	-	-	-	1	-	-	1	-
101	Sepulveda Bl	Alameda St	-	-	-	-	-	-	-	-	-	-	-	1
102	Sepulveda Bl	Prop Access "AA"	-	-	-	-	-	1	-	-	-	-	-	-
103	Prop Road "AB"	Alameda St	-	-	-	-	-	-	-	1	-	-	1	1

Source: Katz, Okitsu & Associates.

TABLE 5-34
V/C RATIO COMPARISON
PROJECT WITH ADDITIONAL IMPROVEMENTS (Year 2020)

Intersections			No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
#			V/C	Proj[a]	w/Imp[b]	ETC[i]	Proj	w/Imp	ETC	Proj	w/Imp	ETC
Segment A												
1	15th St	Santa Fe Av	1.38	1.30	h	-	1.40	h	-	e	e	-
2	Washington Bl	Santa Fe Av	1.60	0.61	h	-	0.66	h	-	e	e	-
3	25th St	Santa Fe Av	1.30	1.66	1.23	no	1.79	1.31	no	e	e	-
Segment B-1												
4	Prop 40th Pl	Alameda(West)	c	1.20	0.96	yes	c	c	-	0.97	0.82	no
5	37th St	Alameda (East)	0.64	1.41	1.03	yes	0.77	h	-	g	g	-
6	41st St	Alameda St(West)	1.85	d	d	-	1.64	h	-	2.31	1.64	no
7	38th St	Alameda St(East)	1.20	d	d	-	g	g	-	g	g	-
8	38th St	Ross St	0.66	1.61	0.91	yes	0.64	h	-	1.01	0.89	no
9	Vernon Av	Staunton Av	0.51	1.47	1.18	yes	0.76	h	-	0.74	h	-
10	Vernon Av	Alameda(West)	1.34	d	d	-	1.56	1.36	no	1.77	1.52	yes
11	Vernon Av	Alameda(East)	1.15	d	d	-	g	g	-	g	g	-
12	Vernon Av	Charles St	0.52	1.17	0.85	no	0.76	h	-	0.76	h	-
13	45th St	Alameda(West)	0.85	1.66	1.25	yes	1.04	0.94	yes	0.94	0.92	yes
14	Prop Road "D"	Alameda(East)	c	0.91	0.77	no	c	c	-	c	c	-
15	55th St	Alameda(West)	1.44	0.84	h	-	0.76	h	-	1.49	1.32	no
16	55th St	Alameda(East)	0.87	0.68	h	-	0.66	h	-	g	g	-
17	Prop Access "E"	Alameda(West)	c	0.87	h	-	c	c	-	c	c	-
18	Prop Access "E"	Alameda(East)	c	0.63	h	-	c	c	-	c	c	-
19	Slauson Av	Holmes Av	1.33	3.14	2.37	yes	2.16	1.68	yes	1.62	1.28	no
20	Slauson Av	Alameda(West)	1.56	d	d	-	2.41	1.84	yes	1.69	1.57	no
21	Slauson Av	Alameda(East)	1.02	d	d	-	g	g	-	g	g	-
22	Slauson Av	Prop Street "F"	c	2.32	1.25	yes	c	c	-	c	c	-
109	41st St	Long Beach (West)	1.49	1.38	h	-	f	f	-	1.37	h	-
110	41st St	Long Beach (East)	1.15	1.13	h	-	f	f	-	1.02	h	-
111	Vernon Av	Long Beach (West)	0.85	1.03	0.85	no	f	f	-	1.03	0.85	no
112	Vernon Av	Long Beach (East)	0.69	0.90	0.69	no	f	f	-	0.90	0.69	no
113	48th Pl	Long Beach (West)	0.84	0.47	h	-	f	f	-	0.55	h	-
114	48th Pl	Long Beach (East)	0.60	0.32	h	-	f	f	-	0.37	h	-
115	55th St	Long Beach (West)	1.08	0.86	h	-	f	f	-	0.95	h	-
116	55th St	Long Beach (East)	0.88	0.70	h	-	f	f	-	0.76	h	-
Segment B-2												
23	Randolph St	Alameda(West)	1.24	0.40	h	-	0.54	h	-	1.36	1.14	no

TABLE 5-34 Continued..

#	Intersections		No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
			V/C	Proj[a]	w/Imp[b]	ETC[i]	Proj	w/Imp	ETC	Proj	w/Imp	ETC
24	Randolph St	Alameda(East)	0.66	0.66	h	-	0.57	h	-	g	g	-
25	Gage Av	Wilmington Av	0.85	2.25	1.20	yes	1.08	0.93	yes	e	e	-
26	Gage Av	Alameda(West)	1.38	d	d	-	1.49	1.37	no	e	e	-
27	Gage Av	Alameda(East)	0.66	d	d	-	g	g	-	e	e	-
28	Gage Av	Albany St	0.79	1.70	1.26	yes	0.90	0.85	no	e	e	-
29	64th St	Alameda(West)	0.67	1.08	0.81	no	0.58	h	-	e	e	-
30	Prop Access "H"	Alameda(East)	c	0.63	h	-	c	c	-	e	e	-
31	Florence Av	Bell Av	0.87	1.45	0.83	no	0.99	0.71	no	e	e	-
32	Florence Av	Alameda(West)	1.35	d	d	-	1.55	1.35	no	e	e	-
33	Florence Av	Alameda(East)	0.85	d	d	-	g	g	-	e	e	-
34	Florence Av	Santa Fe Av	1.48	2.25	1.56	yes	1.80	1.48	no	e	e	-
35	73rd St	Alameda(West)	c	0.75	h	-	c	c	-	e	e	-
36	Prop Access "J"	Alameda (East)	c	0.61	h	-	c	c	-	e	e	-
37	Prop Access "J"	Santa Fe Av	c	0.99	0.89	no	c	c	-	e	e	-
38	Leota St	Alameda(East)	c	1.35	1.13	yes	c	c	-	e	e	-
39	Leota St	Santa Fe Av	1.13	2.54	1.25	yes	1.36	1.10	no	e	e	-
40	Nadeau St	Alix Av	0.86	2.08	1.78	yes	1.03	1.01	yes	e	e	-
41	Nadeau St	Alameda(West)	2.03	d	d	-	2.41	2.30	yes	e	e	-
42	Nadeau St	Alameda(East)	1.02	d	d	-	g	g	-	e	e	-
43	Nadeau St	Santa Fe Av	1.45	2.85	2.22	yes	1.73	1.68	yes	e	e	-
44	Prop Access "L"	Alameda(West)	c	1.50	1.26	yes	c	c	-	e	e	-
	Segment C											
45	Manchester Av	Alameda (West)	1.00	1.48	1.20	yes	0.83	h	-	e	e	-
46	Firestone Bl	Manchester Av	0.97	1.95	1.14	yes	1.61	1.05	yes	e	e	-
47	Firestone Bl	Alameda(West)	1.91	d	d	-	2.23	1.90	no	e	e	-
48	90th St	Alameda(West)	0.90	1.80	1.73	yes	0.94	0.94	yes	e	e	-
49	Prop Access "O"	Alameda(West)	c	1.48	1.48	yes	c	c	-	e	e	-
50	92nd St	Miner St	0.50	1.90	1.38	yes	0.79	h	-	e	e	-
51	92nd St	Alameda(West)	1.48	d	d	-	1.74	1.53	yes	e	e	-
52	Southern Av	Alameda(East)	1.36	d	d	-	0.91	h	-	e	e	-
53	Tweedy Bl	Alameda(West)	1.44	d	d	-	1.63	1.45	no	e	e	-
54	Tweedy Bl	Alameda(East)	0.82	d	d	-	0.53	h	-	e	e	-
55	Tweedy Bl	Prop Access "Q"	c	1.91	1.42	yes	c	c	-	e	e	-
56	ML King Bl	Alameda(West)	1.61	d	d	-	1.68	1.39	no	e	e	-
57	ML King Bl	Alameda(East)	0.83	d	d	-	0.76	h	-	e	e	-
58	Santa Ana Bl N	Alameda(West)	1.08	1.21	0.89	no	0.92	h	-	e	e	-
59	Fernwood Av	Alameda(East)	1.25	0.91	h	-	0.72	h	-	e	e	-

TABLE 5-34 Continued..

Intersections			No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
#			V/C	Proj[a]	w/Imp[b]	ETC[l]	Proj	w/Imp	ETC	Proj	w/Imp	ETC
60	Prop 115th Pl	Alameda(West)	c	2.57	2.20	yes	c	c	-	e	e	-
61	Imperial Hwy	Watts Av	1.17	3.03	2.07	yes	1.06	h	-	e	e	-
62	Imperial Hwy	Alameda(West)	1.75	d	d	-	2.33	1.83	yes	e	e	-
63	Imperial Hwy	Alameda(East)	1.08	d	d	-	g	g	-	e	e	-
64	Imperial Hwy	Prop Santa Fe	c	2.18	1.38	yes	0.93	0.93	yes	e	e	-
65	Lynwood Rd	Alameda(West)	1.24	0.50	h	-	0.43	h	-	e	e	-
66	Lynwood Rd	Alameda(East)	0.76	0.95	0.85	no	0.79	h	-	e	e	-
67	124th St	Prop Access "T"	c	0.52	h	-	c	c	-	e	e	-
68	124th St	Alameda(West)	1.04	d	d	-	0.71	h	-	e	e	-
69	Weber Av	Alameda(East)	1.05	d	d	-	0.68	h	-	e	e	-
70	Weber Av	Prop Access "T"	c	0.48	h	-	c	c	-	e	e	-
71	Prop Access "T"	Alameda (West)	c	0.77	h	-	c	c	-	e	e	-
72	El Segundo Bl	Mona Bl	1.27	2.37	1.92	yes	1.36	1.26	no	e	e	-
73	El Segundo Bl	Alameda(West)	1.47	d	d	-	1.52	1.33	no	e	e	-
74	El Segundo Bl	Alameda(East)	1.21	d	d	-	g	g	-	e	e	-
75	El Segundo Bl	Prop Access "U"	c	1.76	1.10	yes	c	c	-	e	e	-
76	Prop Access "U"	Alameda St	c	0.97	0.97	yes	c	c	-	e	e	-
77	134th St	Alameda(West)	1.15	0.50	h	-	0.54	h	-	e	e	-
78	Pine Av	Alameda(East)	1.29	1.18	h	-	0.82	h	-	e	e	-
79	Elm St	Alameda(West)	1.40	1.66	1.38	no	0.77	h	-	e	e	-
80	Elm St	Alameda(East)	1.93	1.34	h	-	0.85	h	-	e	e	-
81	Palmer St	Alameda(West)	1.45	0.65	h	-	0.52	h	-	e	e	-
82	Palmer St	Alameda(East)	0.76	0.37	h	-	0.69	h	-	e	e	-
83	Compton Bl	Willowbrook Av	1.12	2.85	2.12	yes	1.15	1.10	no	e	e	-
84	Compton Bl	Alameda(West)	1.59	d	d	-	2.09	1.76	yes	e	e	-
85	Compton Bl	Alameda(East)	1.46	d	d	-	g	g	-	e	e	-
86	Compton Bl	Santa Fe	1.69	3.38	2.30	yes	1.84	1.72	yes	e	e	-
87	Laurel Street	Alameda(West)	1.19	0.44	h	-	0.52	h	-	e	e	-
88	Laurel Street	Alameda(East)	0.40	0.88	h	-	0.75	h	-	e	e	-
89	Alondra Bl	Tamarind Av	0.99	2.27	1.40	yes	1.17	0.86	no	e	e	-
90	Alondra Bl	Alameda(West)	1.72	d	d	-	1.49	h	-	e	e	-
91	Alondra Bl	Alameda(East)	1.21	d	d	-	1.15	h	-	e	e	-
92	Alondra Bl	Santa Fe	1.59	2.11	1.58	no	1.87	1.60	no	e	e	-
93	Raymond St	Alameda St	0.54	0.65	h	-	0.46	h	-	e	e	-
94	Prop Access "Z"	Alameda St	c	1.07	1.07	yes	c	c	-	e	e	-
95	Greenleaf Bl	Prop Access "Z"	c	1.49	1.11	yes	c	c	-	e	e	-
96	Greenleaf Bl	Alameda(West)	1.56	d	d	-	1.44	h	-	e	e	-

TABLE 5-34 Continued..

Intersections			No Build	Alternative 1			Alternative 2.1			Alternative 2.2		
#			V/C	Proj[a]	w/Imp[b]	ETC[i]	Proj	w/Imp	ETC	Proj	w/Imp	ETC
97	Greenleaf Bl	Alameda(East)	0.96	d	d	-	0.78	h	-	e	e	-
98	S Auto Dr	Alameda(West)	0.99	0.60	h	-	0.53	h	-	e	e	-
99	S Auto Dr	Alameda(East)	0.44	0.29	h	-	0.14	h	-	e	e	-
Segment D												
100	Sepulveda Bl	Prop SB Ramp	c	1.18	0.89	no	1.19	0.90	yes	e	e	-
101	Sepulveda Bl	Alameda St	1.44	d	d	-	d	d	-	e	e	-
102	Sepulveda Bl	Prop Access "AA"	c	1.01	0.87	no	1.03	0.89	no	e	e	-
103	Prop Road "AB"	Alameda St	c	1.25	1.06	yes	1.19	1.19	yes	e	e	-
104	Pacific Coast Hwy	Coll Av	1.51	2.00	1.52	no	1.92	1.46	no	e	e	-
105	Pacific Coast Hwy	Alameda St	1.67	d	d	-	d	d	-	e	e	-
106	Henry Ford Av	Alameda St	0.99	0.38	h	-	0.44	h	-	e	e	-
107	Henry Ford Av	Anaheim	1.24	1.10	h	-	1.27	1.27	yes	e	e	-
108	Henry Ford Av	TI Fwy Ramps	0.34	d	d	-	d	d	-	e	e	-

Notes: a. V/C ratio for the proposed Project (Proj) design.
b. V/C ratio for the proposed Project design with additional improvements (w/Imp).
c. Intersection does not currently exist.
d. Intersection proposed as grade separation.
e. Results same as Alternative 2.1.
f. Results same as Alternative 2.2.
g. Intersection is combined with Alameda Street West intersection. See V/C in line above.
h. Additional improvements not required.
i. Exceeds Threshold Criteria (ETC) with the additional improvements.

Source: Katz, Okitsu & Associates.

- El Segundo Boulevard
- Compton Boulevard
- Alondra Boulevard
- Greenleaf Boulevard
- Pacific Coast Highway

Under Alternative 2.1 conditions, 37 intersections would exceed the threshold criteria. However, with the additional improvements, 17 intersections would still exceed the threshold criteria. The following are the streets which intersect the Corridor and would not meet the design goals:

- 45th Street
- Slauson Avenue
- Nadeau St
- 90th Street
- 92nd Street/Southern Avenue
- Imperial Highway
- Compton Boulevard

Conditions for Alternative 2.2 would be similar to those under Alternative 2.1 except in Segment B-1 along Alameda Street. Whereas the 45th Street/Alameda Street West and Slauson Avenue/Alameda Street intersections would still exceed the threshold criteria with the additional improvements under Alternative 2.1, the Vernon Avenue/Alameda Street and 45th Street/Alameda Street intersections would exceed the threshold criteria under Alternative 2.2.

5.4.8 Pedestrian and Bicycle Impacts and Mitigation

Most of the development along the Alameda Corridor is either heavy industry, light industry or commercial. Thus, the pedestrian flow generated by these developments along the Corridor is low. However, many of the east-west cross streets have commercial and residential areas that generate higher pedestrian flows. Along these east-west streets, conflicts between vehicles and pedestrians could occur.

For Alternative 1, vehicle conflicts with pedestrian flow along the Corridor would be minimal because cross streets which have heavy vehicle traffic would be grade separated. However, grade separations would use local streets as access roads which are located in residential areas adjacent to the Corridor. With the high vehicle volume on these access roads, the chance of vehicle and pedestrian conflicts increase.

The distance a pedestrian must travel to access or cross the Alameda Corridor is much greater than the travel distance under alternatives 2.1 and 2.2. To cross the Corridor, a pedestrian must either walk up and down a set of stairs or walk via access roads and the flyovers. The distance and level of effort for the pedestrian is much greater than walking directly across an intersection.

Under alternatives 2.1 and 2.2, the heavier concentration of vehicular traffic through the intersections increases the chances of conflicts between pedestrians and vehicles. When pedestrians cross a leg of an intersection, enough "Walk" and "Don't Walk" time should be given pedestrians to allow them to clear the crosswalk before conflicting vehicle movements are made. Provisions for raised medians should be made to allow pedestrians to safely remain within the intersection between signal cycles. Raised islands are especially beneficial because of the large amount of vehicular traffic making U-turns, left-turns and right-turns. The concrete medians would help shelter pedestrians from vehicles making left-turns and U-turns. Concrete islands would allow vehicles to make right-turns behind pedestrians waiting to cross the intersection.

There are eight elementary and junior high schools, four public and private high schools, Compton College and a recreation center located in the vicinity of the Alameda Corridor. Pedestrian flow into these schools and centers create a problem when crossing the Corridor. Provisions for pedestrian crossings on the Alameda Corridor should be made if there is a demand for such crossings.

Under Alternative 1, pedestrian tunnels or "catwalks" could be constructed for pedestrians to cross Alameda Corridor between grade separations. Under Alternative 2, pedestrian bridges should be provided for pedestrians crossing the Corridor.

No existing bicycle facilities would be affected, since there are no bike paths, lanes or routes along the Alameda Corridor nor on the east/west cross streets. However, bicycles would be affected similar to vehicles in terms of longer travel distances to access grade separations.

5.4.9 Parking Impacts and Mitigation

On Street Parking Impacts

On street parking currently exists along Alameda Street (East and West) and along various side streets that cross it. No parking is officially allowed adjacent to the railroad right-of-way, but this restriction is often violated within the railroad right-of-way itself.

A field survey was conducted (June 1992) to identify parking restrictions along the corridor. This information was then transferred to aerial maps (Scale: 1"=50'). An allowance of 25 feet per vehicle was assumed, for purposes of calculating on-street parking spaces. Project engineering drawings were reviewed to determine the number of parking spaces that would be removed under each of the build alternatives. The results are displayed in Table 5-35.

The table shows that all of the build alternatives would remove all on-street parking in Segment A. In Segment B-1, Alternative 1.0 would remove 248 of the 448 existing parking spaces. Each of the remaining alternatives would remove none. In Segment B-2, Alternative 1.0 would remove all existing on-street parking spaces, whereas the remaining alternatives would each remove 251 of the existing spaces. Segment C would experience the least loss of on-street parking spaces. Here, all of the alternatives would have nearly the same effect, removing between 154 and 166 of the existing 1,148 spaces. In Segment D, all of the alternatives would remove all existing on-street parking spaces.

Taking all project segments into account, alternatives 2.1A, 2.1S and 2.2 would have the least adverse effect on on-street parking spaces, each of which would remove 592 of the 2,219 existing spaces. Alternative 1.0 would remove 1,025 spaces, the most of any alternative.

TABLE 5-35 ON-STREET PARKING SPACES REMOVED					
Segment	Existing Spaces	ALTERNATIVES			
		1.0	2.1A	2.1S	2.2
A	32	32	32	32	32
B1	448	248	0	0	0
B2	448	448	251	251	251
C	1148	154	166	166	166
D	143	143	143	143	143
TOTAL	2219	1025	592	592	592
Source: DMJM/M&N, 1992.					

The elimination of on-street parking would force vehicles who would otherwise use them to park either in off-street lots or on other streets nearby.

Off Street Parking Impacts

Off-street parking areas were identified from field investigations and review of aerial photographs. Project plan and profile drawings were reviewed and compared with the aerial photographs to yield estimates of the number of spaces affected. Where off-street parking spaces were marked as stalls, they were counted as such. Where an unmarked area was encountered, available parking was calculated at the rate of one space per 300 square feet of area. In some instances, such as open lots that were clearly being used for non-parking purposes, or where parking requirements were clearly less than the total land area would indicate, the number of spaces counted were reduced accordingly. The results are displayed in Table 5-36.

As shown in the table, all of the build alternatives would remove the same amount of off-street parking in Segment A. In Segment B-1, Alternative 1.0 would remove the most and Alternative 2.2 the least. In Segments B-2 and C, Alternative 2.1S would remove the most off-street parking and alternatives 2.1A and 2.2 the least. In Segment D, Alternative 1.0 would remove the most parking.

Taking into account all project segments, alternatives 1.0 and 2.1S would remove the most off-street parking (1,631 and 1,623 spaces, respectively). Alternative 2.1A would be next with 1,071 spaces removed, and Alternative 2.2 would remove the least off-street parking (834 spaces).

Depending upon the needs of specific businesses in the area, the losses in both on-street and off-street parking could constitute impacts ranging from minor to significant. An overall judgement of potentially significant is made for purposes of this environmental document.

TABLE 5-36 OFF-STREET PARKING REMOVAL				
Segment	ALTERNATIVES			
	1.0	2.1A	2.1S	2.2
A	207	207	207	207
B1	773	423	478	186
B2	63	24	207	24
C[1]	103	56	370[1]	56
D[3]	485	361	361	361
Total Spaces Removed	1631	1071	1623	834

Note:

[1]Does not include parking losses associated with any connections to the I-105.
[2]Includes an area providing off-street parking for truck/trailers.
[3]Does not include spaces off Henry Ford at a manufacturers car storage area (200-270 spaces).

Source: DMJM/M&N, 1992.

On-street parking should be maintained to the extent feasible, without impairing the functioning of the corridor. Off-street parking should be maintained in proximity to commercial uses in sufficient quantity to reduce the likelihood of spill-over effects into nearby residential areas. Before project implementation decisions are completed, parking plans should be developed that would address foreseeable demand. Excess land that is returned to the market after project completion should have off-street parking in mind as a potential use. Private development proposals received subsequent to completion of the corridor should be required to provide generous amounts of off-street parking.

5.4.10 Mass Transit Impacts

Mass transit facilities operating within the project corridor include the Metro Blue Line light rail service and various bus routes operated by the Southern California Rapid Transit District, the City of Torrance Department of Transportation, and the City of Carson. The following is an inventory of mass transit routes operating within the corridor.

> RTD Metro Blue Line - North/south rail line between the Los Angeles and Long Beach downtown areas. This rail line has 17 stations between the 7th Street/Flower Street Station and the Long Beach Loop. The rail line runs along the Willowbrook Branch Line alignment.

RTD Line 56 - North/south route between downtown Los Angeles and Willowbrook. This line runs along Long Beach Avenue, Holmes Avenue and Wilmington Avenue within the study area, and serves connections to the RTD Blue Line Stations.

RTD Line 60 - North/south route between downtown Los Angeles and downtown Long Beach. This line runs along the Santa Fe Avenue, Pacific Avenue, and Long Beach Boulevard with stops at the RTD Blue Line Stations in Long Beach.

RTD Line 65 - East/west route between Metro Blue Line Grand Avenue Station in downtown Los Angeles and California State University at Los Angeles. This line runs along Washington Boulevard through the study area.

RTD Line 102 - East/west route between the Crenshaw area and South Central Los Angeles. This line runs along 41st Street and 37th Street through the study area. Stops along this route include Jefferson High School, the University of Southern California and the Los Angeles Coliseum and Sports Arena.

RTD Line 105 - East/west route between West Hollywood and Cudahy. This line crosses the Alameda Corridor at Vernon Avenue. Stops include the Beverly Center, Crenshaw Shopping Center and Vernon Metro Blue Line Station.

RTD Line 107 - East/west route between Inglewood and Cudahy. This line runs along 55th Street across the Corridor.

RTD Line 108 - East/west route runs along Slauson Avenue through the study area between Marina Del Rey and Downey. Route serves Fox Hills Mall, and the Slauson Metro Blue Line Station.

RTD Line 110 - East/west route between Culver City and Bell Gardens via Gage Avenue. Stops include Fox Hills Mall and the Florence Blue Line Station.

RTD Line 111 - East/west route between the Los Angeles International Airport and Whitwood Shopping Center. This line runs along Florence Avenue through the study area and serves the Florence Metro Blue Line Station and the Santa Fe Springs Mall.

RTD Line 112 - East/west route between the Los Angeles International Airport and Lynwood via Florence Avenue. Stops at the Firestone Metro Blue Line Station.

RTD Line 114 - East/west route between Compton Avenue and Garfield Avenue. This line crosses the Corridor at Florence Avenue and serves the Florence Metro Blue Line Station. This line operates Mondays through Fridays, only.

RTD Line 115 - East/west route between Playa Del Rey and Norwalk via Manchester Boulevard and Firestone Boulevard (SR-47). This line serves the Firestone Blue Line Station.

RTD Line 117 - East/west route between the Los Angeles International Airport and Rancho Los Alamitos Hospital, via Century Boulevard, 103rd Street and Tweedy

Boulevard. This line runs along Alameda Street between 103rd Street and Tweedy Boulevard. This route serves the 103rd Street Metro Blue Line Station.

RTD Line 119 - East/west route between Hawthorne Plaza and Atlantic Boulevard via 108th Street. This line runs on the Corridor between Santa Ana Boulevard and Imperial Highway. This route serves the 103rd Metro Blue Line Station and operates Mondays through Fridays, only.

RTD Line 120 - East/west route between the Los Angeles International Airport and Brea Mall via Imperial Highway. Stops along this route include Southwest College, Imperial Blue Line Station, Rancho Los Amigos Medical Center and La Habra Fashion Square.

RTD Line 124 - East/west route between El Segundo and Compton Transit Center via El Segundo Boulevard. This line runs on the Alameda Corridor between El Segundo Boulevard and Industry Way. This route serves M.L. King Hospital and the Imperial and Compton Metro Blue Line Stations.

RTD Line 125 - East/west route between El Segundo and La Mirada via Rosecrans Boulevard. This line stops at Compton Metro Blue Line Station and Transit Center.

RTD Line 127 - East/west route operates Mondays through Fridays. This route runs between Carson and Downey via Compton Boulevard. This line runs on Alameda Corridor between Myrrh Street and Compton Boulevard. Stops along this route include California State University at Dominguez Hills and the Compton Blue Line Station and Transit Center.

RTD Line 128 - East/west route between the Compton Blue Line Station and Transit Center and La Mirada via Alondra Boulevard. This line crosses the Corridor at Compton Boulevard and operates Mondays through Fridays, only.

RTD Line 202 - North/south route between the Imperial Blue Line Station and Wilmington. This line utilizes the Corridor between Artesia Boulevard and Pacific Coast Highway.

RTD Line 205 - North/south route between Willowbrook and San Pedro via Wilmington Avenue. This line serves Park Plaza , Los Angeles Harbor College, Harbor General Hospital, Carson Mall, and the Artesia and Imperial Blue Line Stations.

RTD Line 232 - Route between the Los Angeles International Airport and downtown Long Beach via Pacific Coast Highway (SR-1). This line crosses Alameda Corridor at Anaheim Street and serves the Anaheim Blue Line Station.

RTD Line 251 - North/south route between Lincoln Heights and Watts via Soto Avenue. This line runs on the Corridor between Tweedy Boulevard and 103rd Street. This route serves the 103rd Street Metro Blue Line Station, Los Angeles County USC Medical Center and four junior high and high schools.

RTD Line 254 - North/south route between Los Angeles Southwest College and Los Angeles County USC Medical Center. This line crosses the Corridor at Nadeau Street and serves M.L. King Hospital and the 103rd Street and Firestone Blue Line Stations.

RTD Line 358 - North/south route between downtown Los Angeles and Lynwood. This line runs on the Corridor between Florence Avenue and Imperial Highway.

Carson Circuit Route D - Circular route within the City of Carson north of the San Diego Freeway (SR-405). Line begins at the Carson Mall and runs south on Alameda Street between Del Amo Boulevard and Dominguez Street.

Torrance Transit Line 3 - Torrance to Long Beach via Pacific Coast Highway. Crosses the Corridor at Pacific Coast Highway.

None of the project alternatives would have an adverse effect on Blue Line operations. With regard to bus service, three types of effects were found. First, there is one bus line (RTD #107) that would need to be rerouted. Second, there are two routes (RTD #119 and #124) which would require modification. Third, there are a number of others that would necessitate bus stop relocations. These effects, all of which are regarded as not significant, are discussed below.

Route Relocation

The proposed corridor improvements under alternatives 1.0, 2.1A and 2.1S would close 55th Street at Alameda. RTD Line 107 currently uses this street to cross the corridor and therefore it would need to be rerouted.

Route Modification

RTD Line 119 - This route currently reaches Alameda Street from the west along Santa Ana Boulevard, at which point it turns south along Alameda Street. The point of access to Alameda Street would need to be moved to 115th Place under Alternative 1.0.

RTD Line 124 - This line currently operates south along Alameda Street until El Segundo, at which point it turns east to cross the corridor. The turning movement for this line would need to be relocated to a point west of the overpass proposed under Alternative 1.0.

Bus Stop Relocations

Under Alternative 1.0, proposed grade separation structures would require the relocation of signs and stops, thereby affecting the following routes: RTD lines 102 (41st/38th streets), 105/576 (Vernon Avenue), 107 (55th Street), 108 (Slauson Avenue), 110 (Gage Avenue), 111/112 (Florence Avenue), 254 (Nadeau Street), 115 (Firestone Boulevard), 117/251 (Tweedy Boulevard), 124 (El Segundo Boulevard), 127/124 (Compton Boulevard), 202 Greenleaf Boulevard), 60 (Santa Fe Avenue), and Torrance line T3 (Pacific Coast Highway).

5.5 PUBLIC SERVICES

Public services discussed in the following section include police and fire protection, schools, libraries, medical facilities, churches, parks and recreational facilities. Since the greatest geographic extent of impacts would occur with east-west crossings proposed under the at-grade trainway alternative (approximately 1,000 feet either side of the corridor), a study area was generally drawn 1,300 feet (one-fourth mile) on either side of Alameda. For fire services, a study area extending one half a mile was defined at the request of fire departments serving the corridor.

5.5.1. Environmental Setting

Law Enforcement

The 20-mile long Alameda Corridor spans 6 different police jurisdictions: the Los Angeles County Sheriff's Department, the Los Angeles City, Vernon, South Gate, Huntington Park and Compton Police Departments. In addition to the unincorporated areas, the County Sheriff's Department also provides law-enforcement service to the cities of Carson and Lynwood on a contract basis.

Fire Services

Fire protection service along the corridor is provided by the Los Angeles City, Vernon, Compton, Lynwood and Los Angeles County Fire Departments. In addition to the unincorporated areas, the County Fire Department also provides service to the cities of Huntington Park, South Gate and Carson. Table 5-37 lists fire stations within one-half mile of the corridor and those identified as providing initial response to emergency arising in areas along the corridor. Locations of these fire stations are shown in Figure 5-31.

In addition to standard fire fighting units, there are currently 2 hazardous materials units covering areas along the Alameda Corridor. Located at the north end of the corridor (southwest corner of Olympic Boulevard and Santa Fe Avenue) is the Hazardous Materials Decontamination Unit housed in Station 17 of the Los Angeles City Fire Department. The second Hazardous Materials Unit is located mid-corridor (immediately north of the Alameda and Santa Fe junction) in Station 105 of the Los Angeles County Fire Department. The City of Vernon is in the process of building its own Hazardous Materials Unit to be housed in Fire Station 2 which is located west of Alameda and north of Vernon/Pacific Avenue. The new unit is expected to be in operation in September 1992.

Schools

The Alameda Corridor traverses the jurisdictions of the Los Angeles and Compton Unified School Districts and borders the western edge of the Lynwood Unified School District. As shown in Table 5-38 and Figure 5-31, there are altogether two adult education centers, 10 elementary, 1 junior high and 1 senior high schools located within the one-fourth mile study area. (Unless otherwise specified, elementary levels range from grades 1-6, junior high levels from 7-9, and senior high levels from 10-12.)

TABLE 5-37
FIRE STATIONS SERVING ALAMEDA CORRIDOR

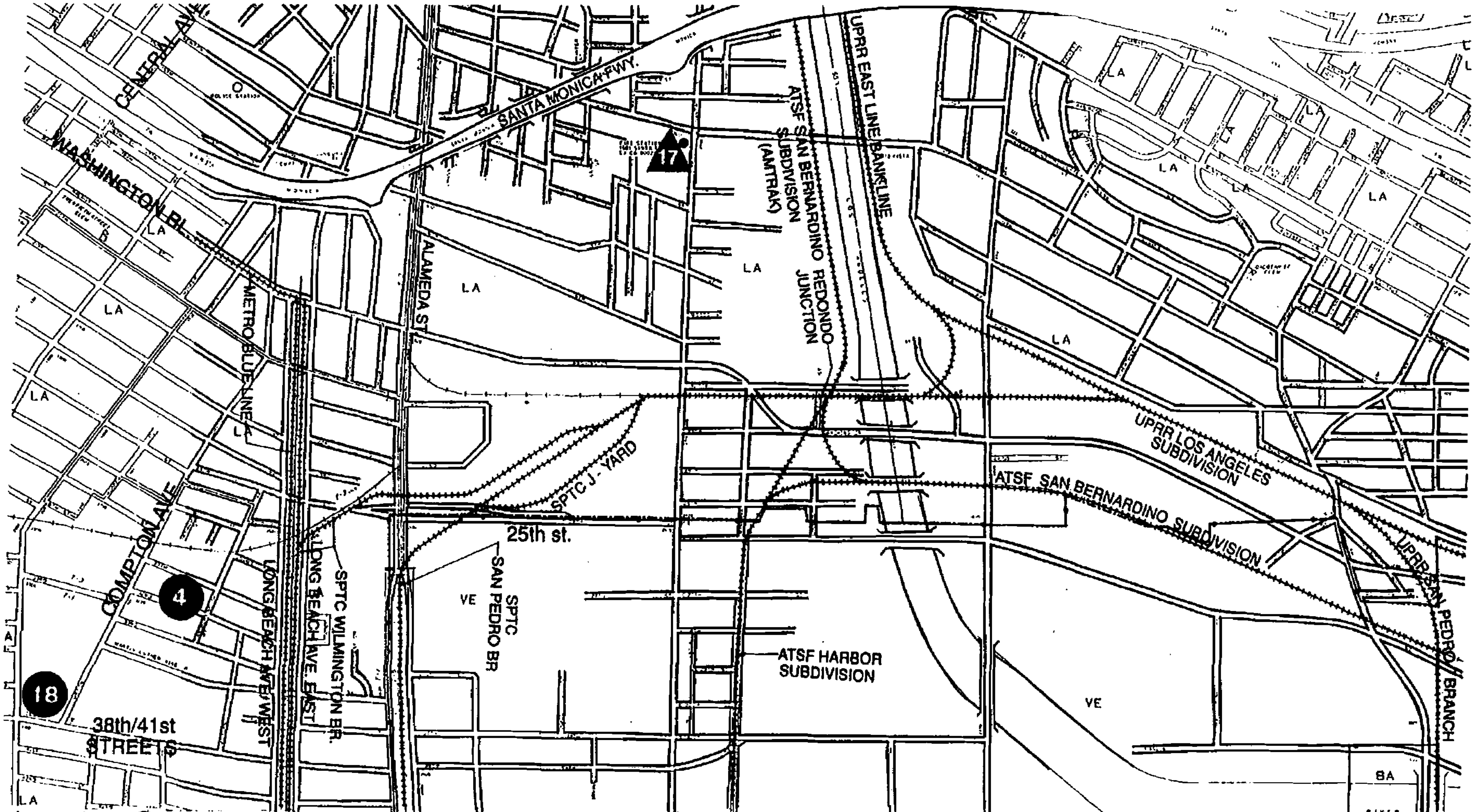
STATION	SEGMENT	ADDRESS	LOCAL JURISDICTION	STATION OPERATED BY	EQUIPMENT
Station 17	A	1601 S. Santa Fe Ave	Los Angeles City	Los Angeles City Fire Department	Task Force, EMS, HMDU
Station 3*	B1	2800 Soto St	Vernon	Vernon Fire Department	Engine (2), Truck, Light, Car
Station 2*	B1	4301 Santa Fe Ave	Vernon	Vernon Fire Department	Engine, Rescue Ambulance
Station 164	B2	6301 S. Santa Fe Ave	Huntington Park	Los Angeles County Fire Department	Engine, Squad, Truck, Utility
Station 1	C	3161 Imperial Hwy	Lynwood	Lynwood Fire Department	Engine Co, Rescue Squad, Snorkle Truck (Aerial Platform)
Station 16	C	8614 S. Holmes	Los Angeles County	Los Angeles County Fire Department	Engine, Squad
Station 1	C	201 S. Acacia	Compton	Compton Fire Department	Engine Company
Station 105	D	18915 S. Santa Fe Ave	Carson	Los Angeles County Fire Department	Engine, Deluge, Engine, Hazardous Materials Unit
Station 127	D	2049 E. 223rd St	Carson	Los Angeles County Fire Department	Engine, Truck, Utility

Notes:
* Assistance coming from Station 1 include Battalion Chief & 1 Truck Co
EMS : Emergency Medical Service
HMDU : Hazardous Material Decontamination Unit

Source:
- Los Angeles County Fire Department, Directory of Administrative Sites, 1989
- Los Angeles City Fire Department, Fire Station Directory (9/90)
- Phone conversation with personnel from Vernon and Compton Fire Departments (October 1991)

Schools with service (attendance) areas spanning the corridor are listed in Table 5-39. Service area boundaries of these 5 elementary, 6 junior high and 5 senior high schools of the Los Angeles and Compton Unified School Districts are shown in Figure 5-32, Figure 5-33 and Figure 5-34, respectively.

There are "option areas" along the corridor where students may choose which school they wish to attend. Seventh and eighth-graders living in the "option area" generally bounded by 25th Street to the north, De Soto Street to the east, 51st Street to the south and Alameda Street to



Legend ● : School ■ : Park ▲ : Fire Station

Note: # Indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992.

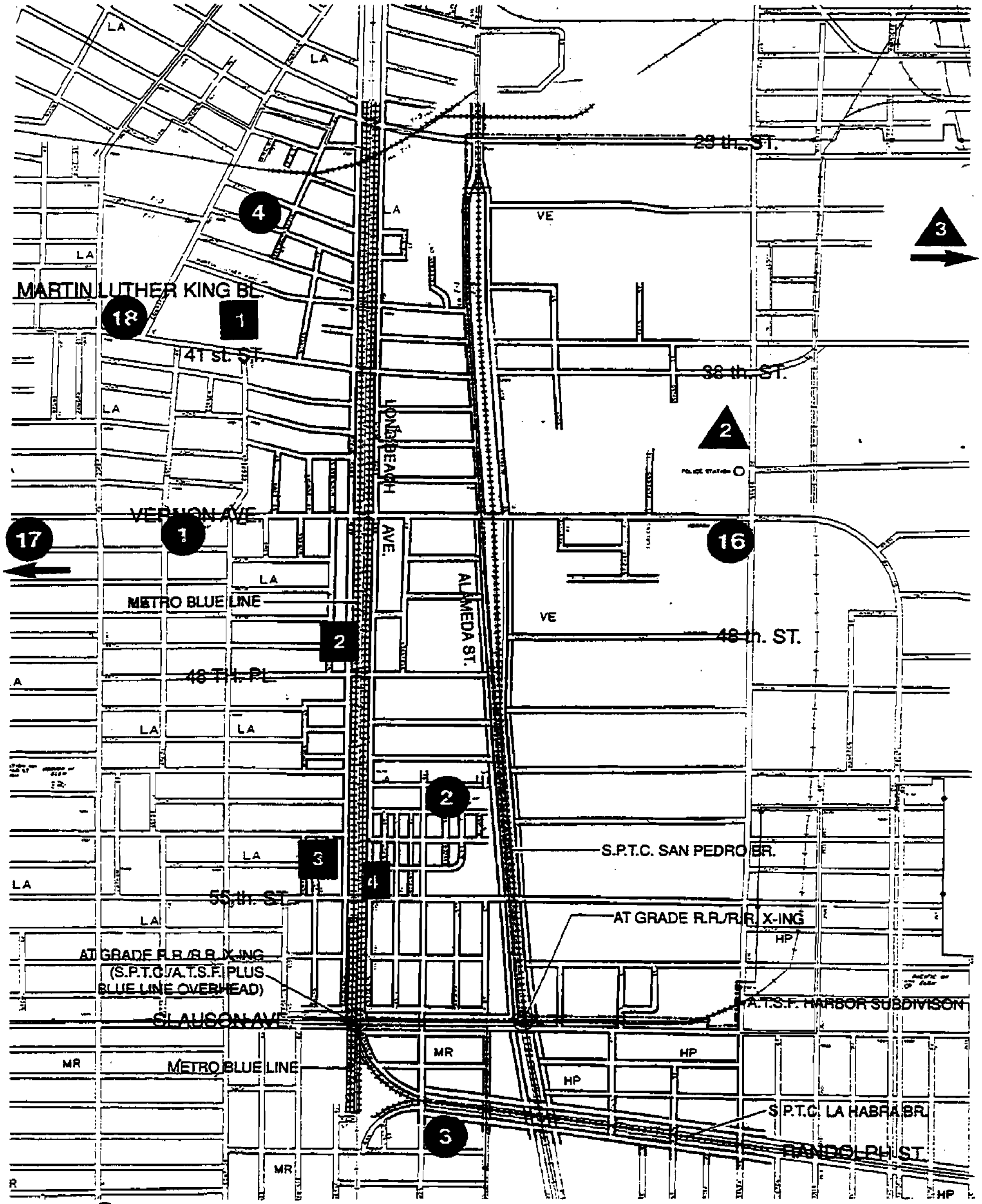
Sheet 1 of 9

0 600 1,200 1,800
Graphic Scale in Feet

FIGURE 5-31

Community Facilities
Alameda Corridor - Segment A

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

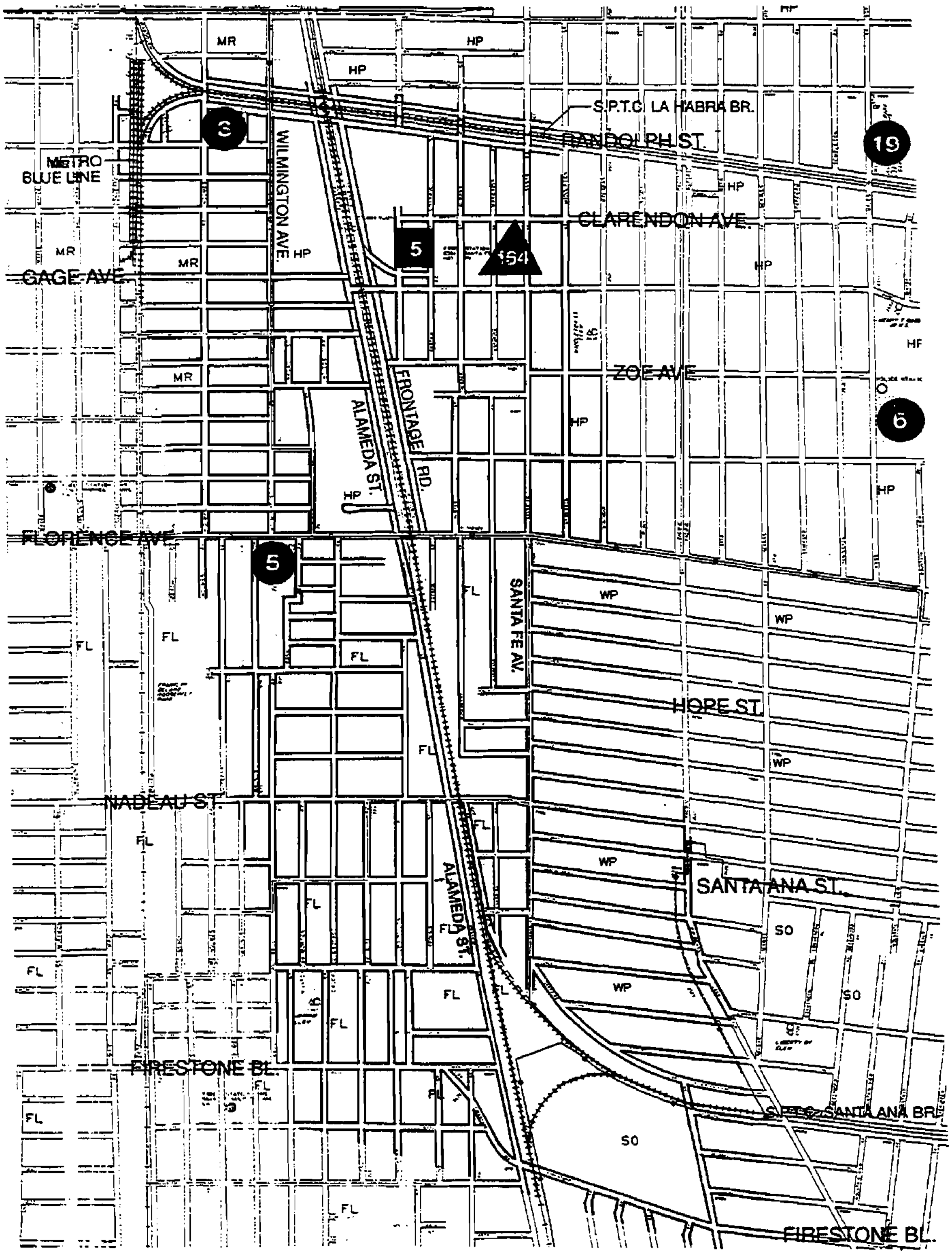


Legend ● : School ■ : Park ▲ : Fire Station

Note: # indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992. Sheet 2 of 9

FIGURE 5-31	Community Facilities Alameda Corridor - Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

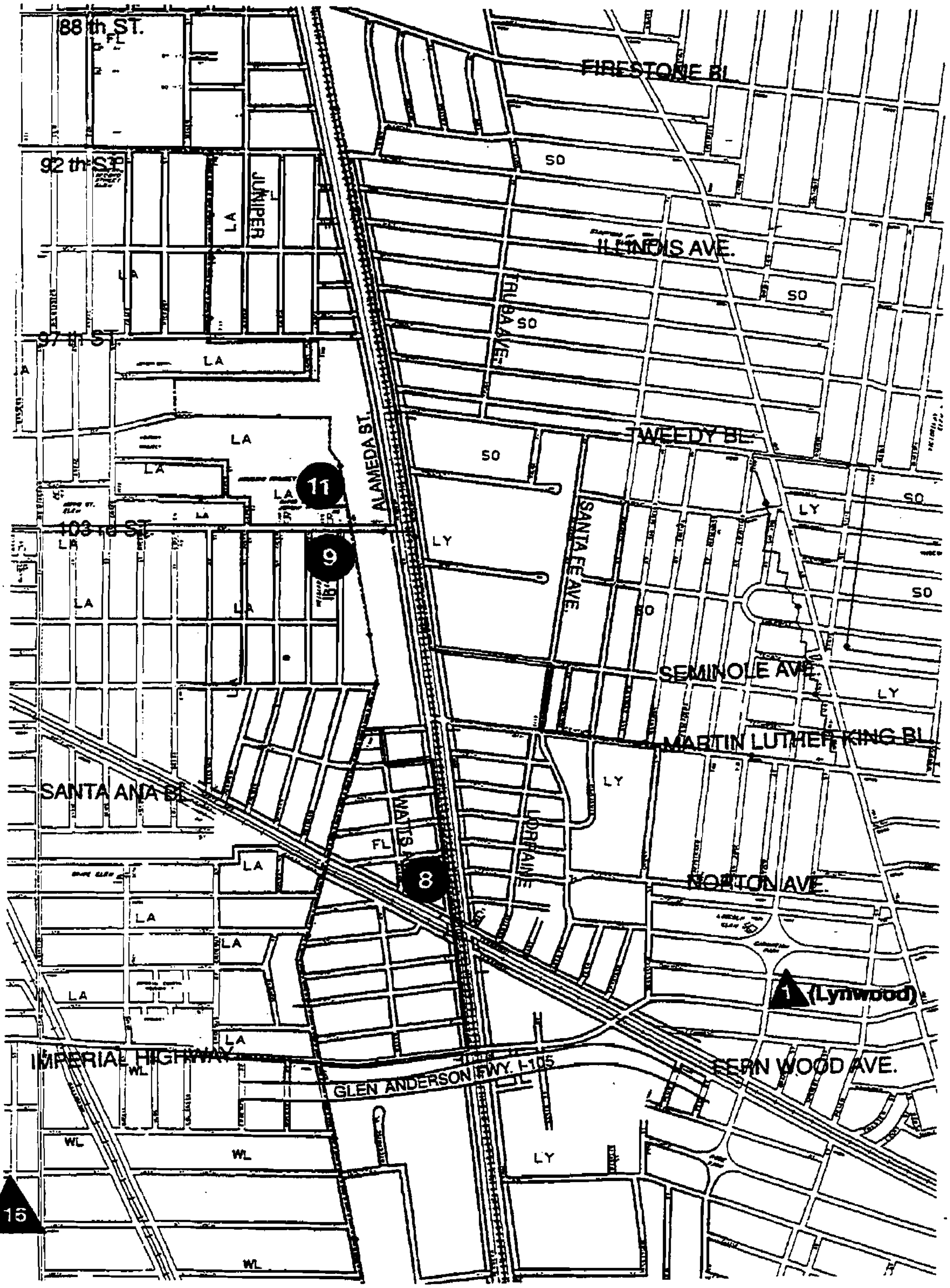


Legend ● : School ■ : Park ▲ : Fire Station

Note: # indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992. Sheet 3 of 9

FIGURE 5-31	Community Facilities Alameda Corridor - Segment B2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



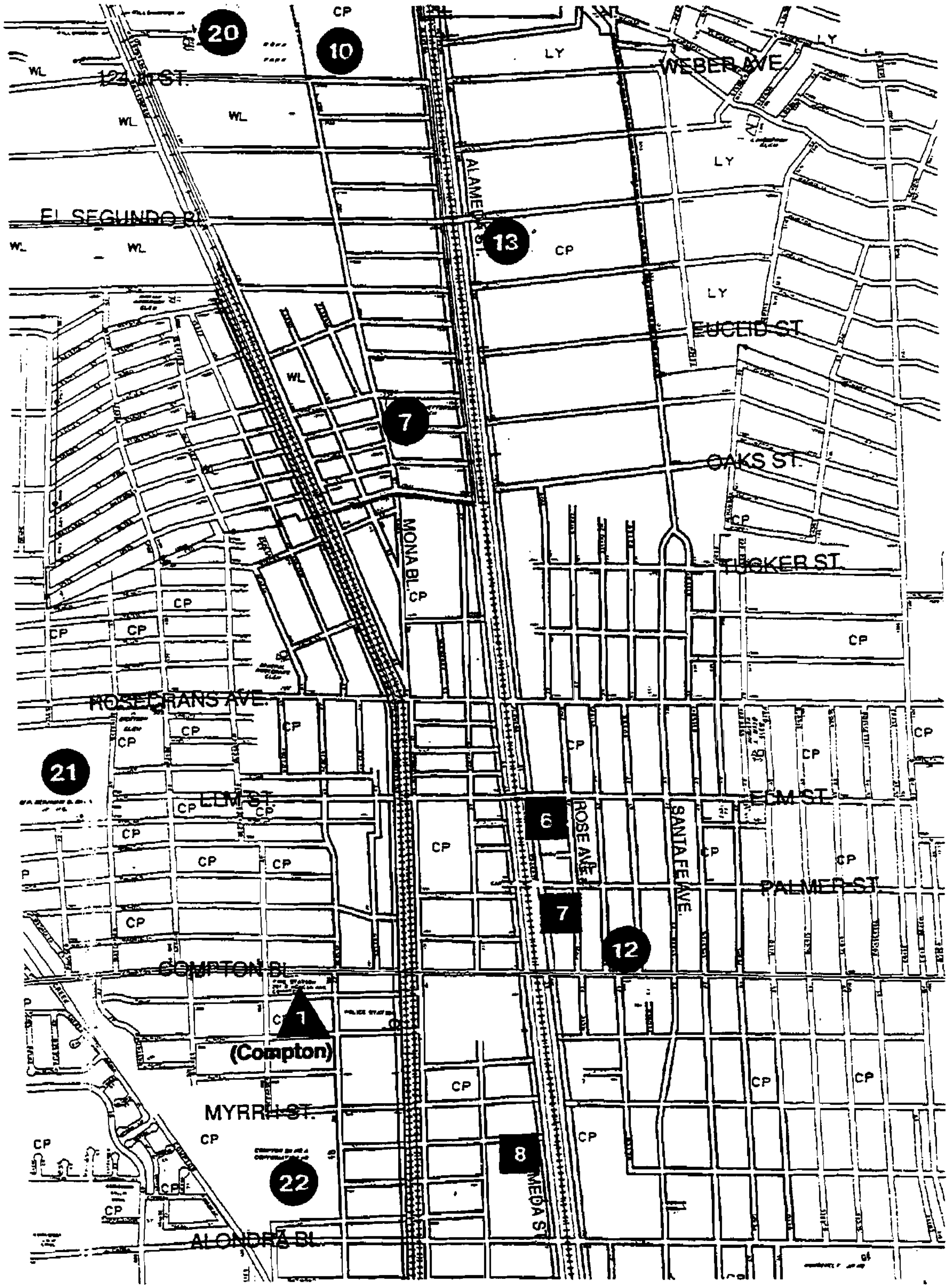
Legend ●: School ■: Park ▲: Fire Station

Note: # indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992. Sheet 4 of 9

0 600 1,200 1,800

FIGURE 5-31	**Community Facilities Alameda Corridor - Segment C1**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Legend ● : School ■ : Park ▲ : Fire Station

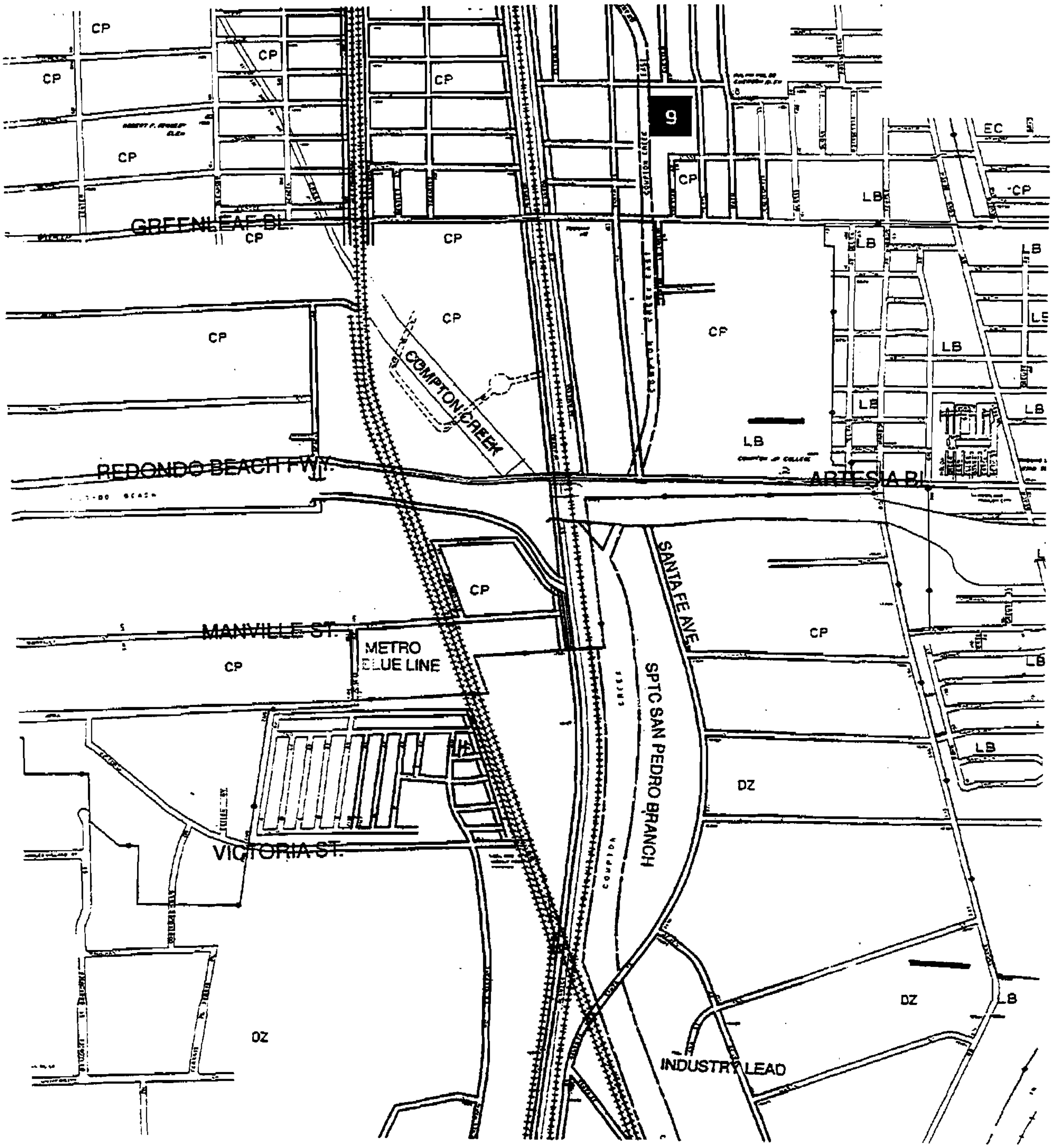
Note: # indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992.

Sheet 5 of 9

0 600 1,200 1,800
Graphic Scale in Feet

FIGURE 5-31	**Community Facilities Alameda Corridor - Segment C2**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



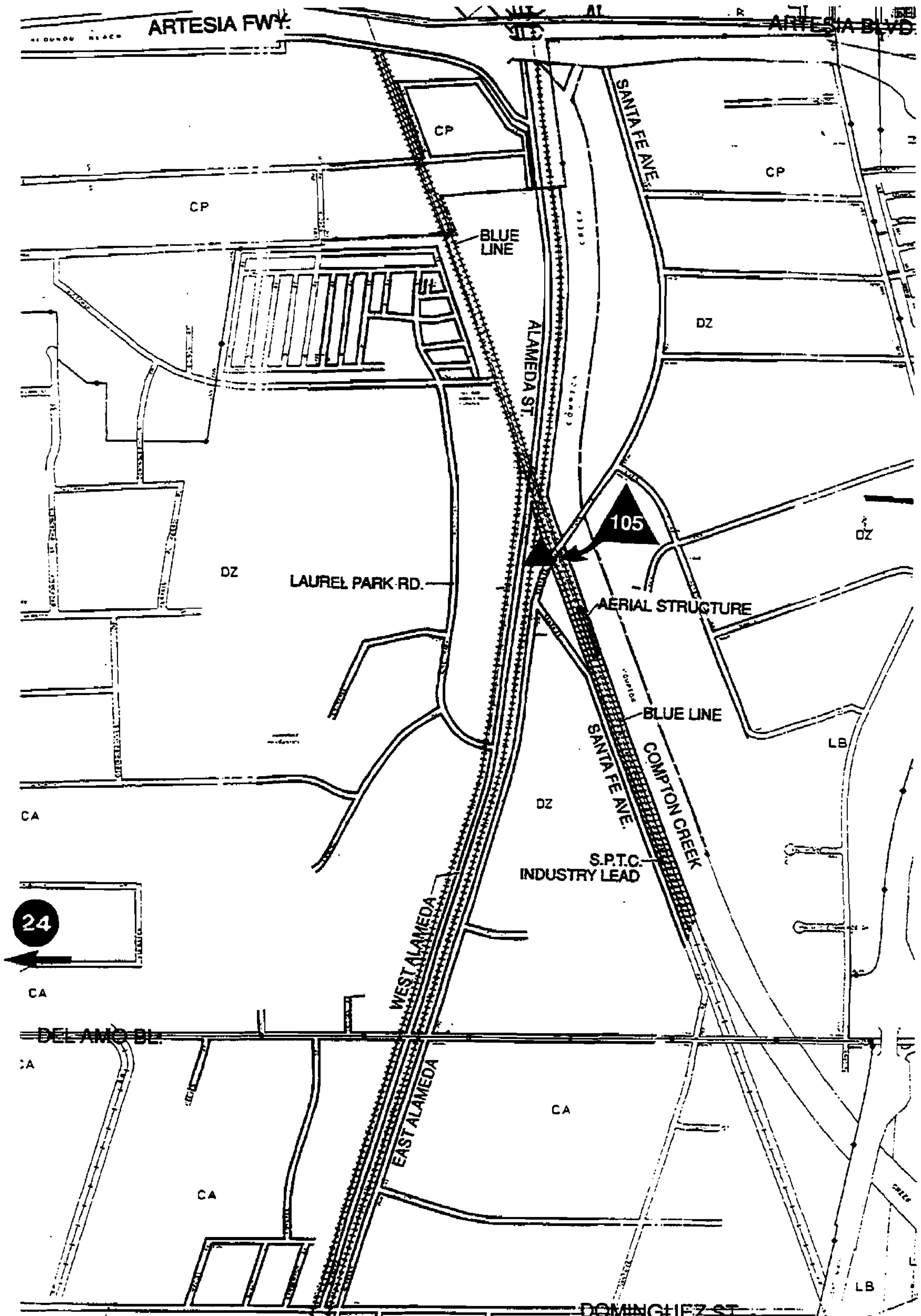
Legend ● : School ■ : Park ▲: Fire Station

Note: # indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992. Sheet 6 of 9

0 600 1,200 1,800
Graphic Scale in Feet

FIGURE 5-31	**Community Facilities** **Alameda Corridor - Segment C3**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



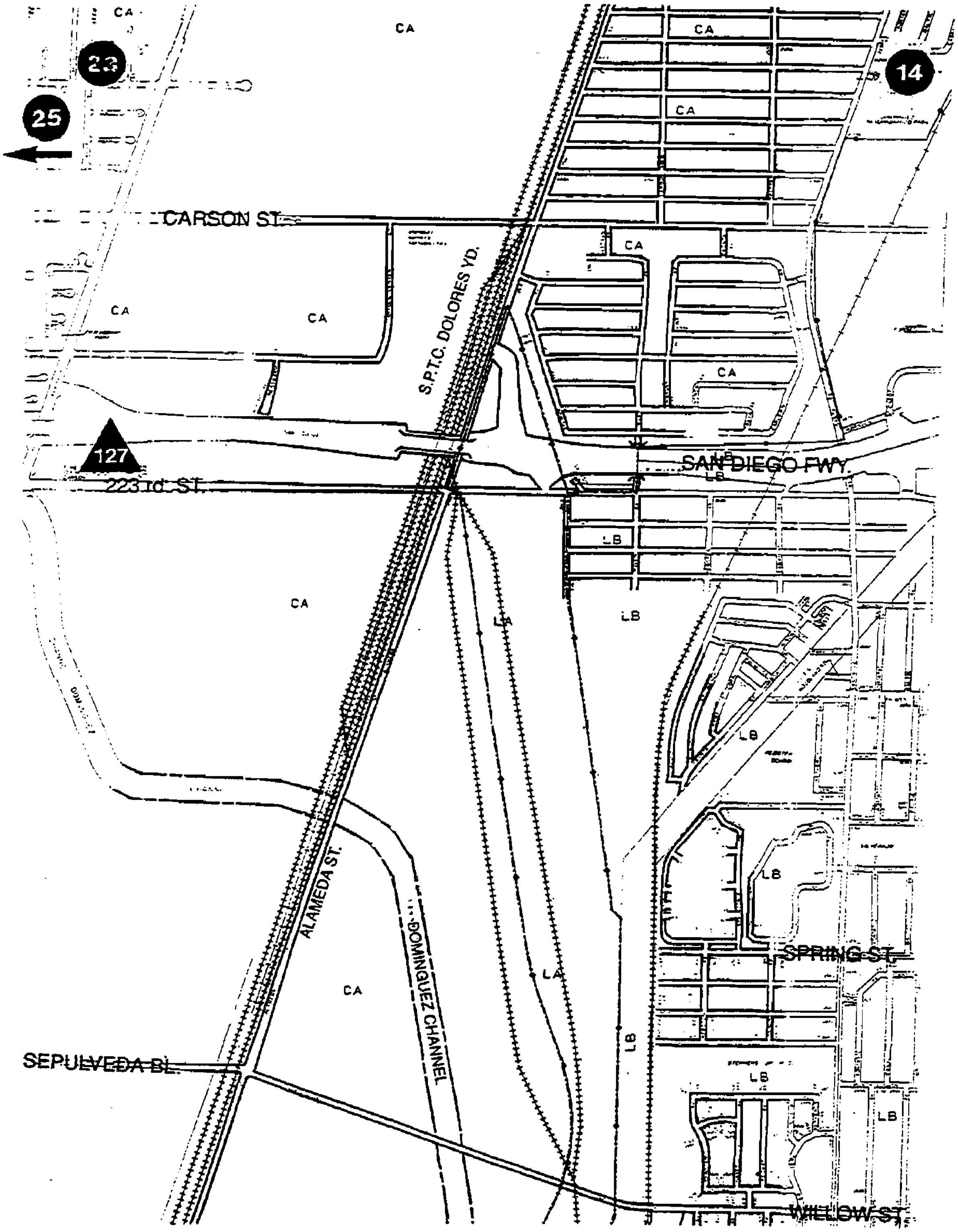
Legend ●: School ■: Park ▲: Fire Station

Note: # indicates the order in which the facility was listed in the tables.

Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992. Sheet 7 of 9

FIGURE 5-31	Community Facilities Alameda Corridor - Segment D1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



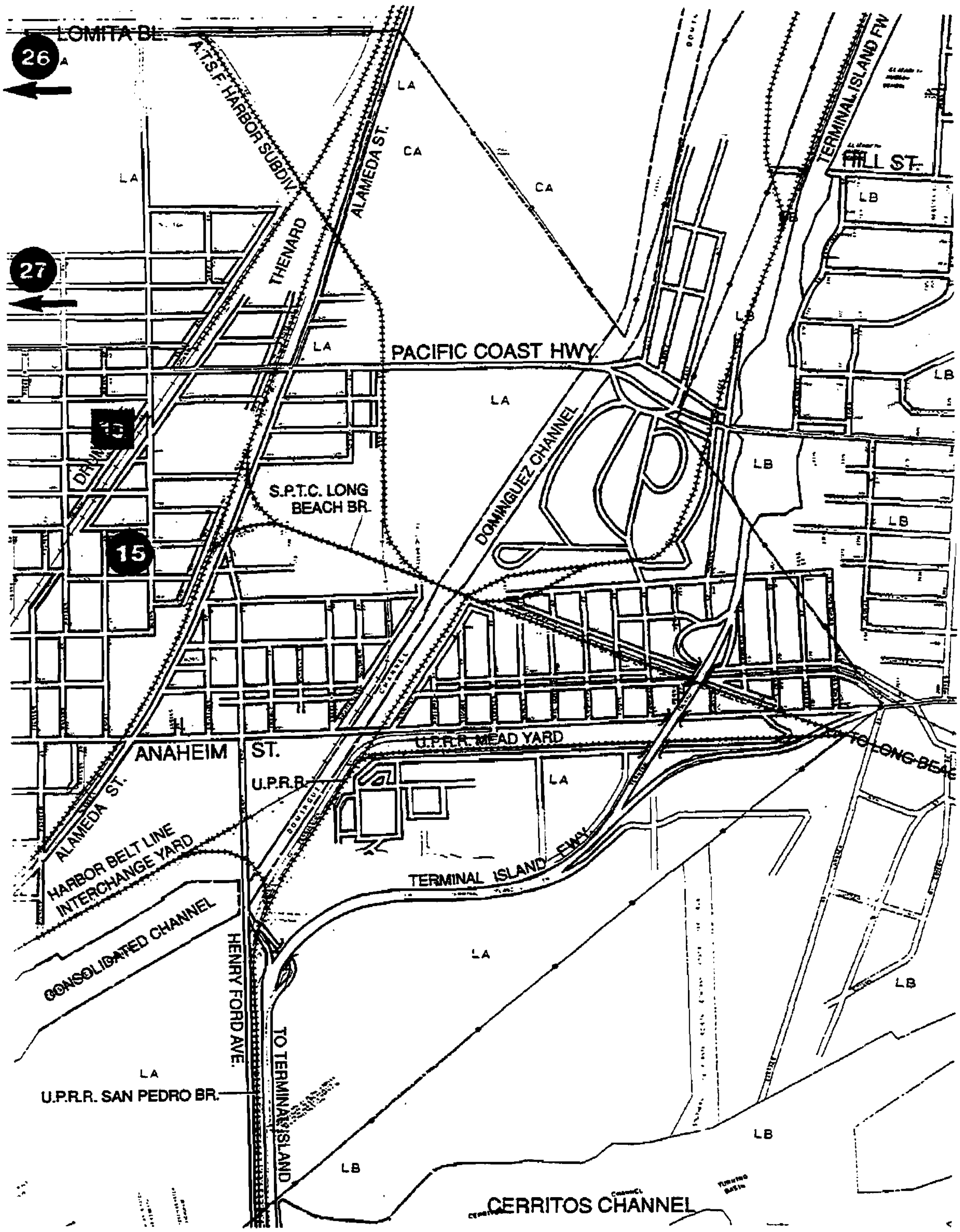
Legend ● : School ■ : Park ▲ : Fire Station

Note: # indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992. Sheet 8 of 9

0 600 1,200 1,800
Graphic Scale in Feet

FIGURE 5-31	Community Facilities Alameda Corridor - Segment D2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Legend ●: School ■: Park ▲: Fire Station

Note: # indicates the order in which the facility was listed in the tables.
Fire stations are shown with their own station numbers.

Source: Myra L. Frank & Associates, Inc., 1992. Sheet 9 of 9

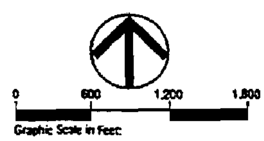


FIGURE 5-31	Community Facilities Alameda Corridor - Segment D3	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

TABLE 5-38
SCHOOLS WITHIN ONE-FOURTH MILE OF ALAMEDA CORRIDOR

No.	NAME	SEGMENT	ADDRESS	LOCAL JURISDICTION	SCHOOL DISTRICT
1	Ascot Avenue Elementary School	B1	1447 E. 45Th St	Los Angeles City	LAUSD
2	Holmes Avenue Elementary School	B1	5108 Holmes	Los Angeles City	LAUSD
3	Lilian Street Elementary School	B1	5909 Lilian St	Los Angeles County	LAUSD
4	Nevin Avenue Elementary School	B1	1569 E. 32nd St	Los Angeles City	LAUSD
5	Florence Avenue Elementary School	B2	7211 Bell Ave	Los Angeles County	LAUSD
6	Miles Avenue Elementary School	B2	6720 Miles Avenue	Los Angeles County	LAUSD
7	Jefferson Elementary School	C	2508 E. 133rd St	Los Angeles County	Compton USD
8	Ritter Elementary School	C	11108 Watts Ave	Los Angeles County	LAUSD
9	Weigand Avenue Elementary School	C	10401 Weigand Ave	Los Angeles City	LAUSD
10	Bunche Middle School	C	12388 Mona Blvd	Compton	Compton USD
11	Jordan High School	C	2265 E. 103rd St	Los Angeles City	LAUSD
12	Adult Basic Education Center	C	515 E. Compton blvd	Compton	Compton USD
13	Exceptional Adult Education Center	C	310 E. El Segundo	Compton	Compton USD
14	Dominguez Elementary School	D	21250 Santa Fe ave	Carson	LAUSD
15	Wilmington Park Elementary School	D	1140 Mahar Ave	Los Angeles City	LAUSD

Source: Los Angeles Unified School District, 1992.
Compton and Lynwood Unified School Districts, 1992.

the west can attend either Carver or Gage Junior High School. Ninth to twelve-graders living in this "option area" have a choice between Huntington Park and Jefferson High School.

Junior high school students living in the "option area" generally bounded by the Santa Monica Freeway (I-10) to the north, Los Angeles River to the east, 25th Street to the south and Alameda Street to the west have a choice between Carver and Hollenbeck Junior High School. High school students in the same "option area" can choose to attend either Jefferson or Roosevelt High School.

In Carson, junior high school students living in the "option area" generally bounded by Watson Center Road (and extension) to the north, the SPTC railroad tracks to the east, Sepulveda Boulevard to the south and Dolores, 231st Street and Avalon Boulevard to the west can attend either Carnegie or Wilmington Junior High School.

There are approximately 268 students currently attending Vernon City Elementary School. According to the office manager, roughly 30% of these students come from the west side of Alameda, in particular the area generally bounded by 41st Pl, Alameda St, E. 48th Pl and Long Beach Avenue. The majority of these students currently walk across Alameda to attend school.

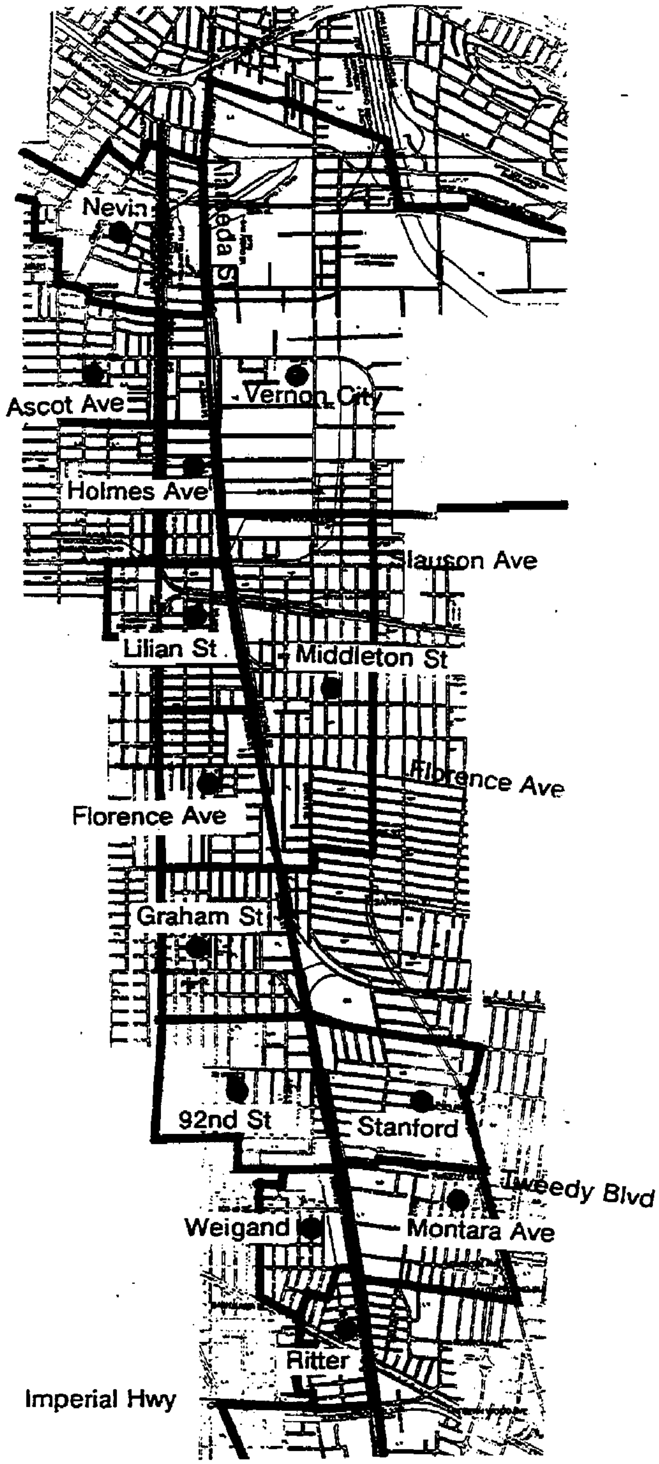
TABLE 5-39
SCHOOLS WITH SERVICE AREAS SPANNING ALAMEDA CORRIDOR

No.	NAME	SEGMENT	ADDRESS	LOCAL JURISDICTION	SCHOOL DISTRICT
15	Vernon City Elementary School	B1	2360 E. Vernon Ave	Vernon	LAUSD
16	Carver Junior High School*	B1	4410 McKinley Ave	Los Angeles City	LAUSD
17	Jefferson High School*	B1	1319 E. 41st St	Los Angeles City	LAUSD
18	Huntington Park High School	B2	6020 Miles Ave	Huntington Park	LAUSD
7	Jefferson Elementary School	C	2508 E. 133rd St	Los Angeles County	Compton USD
19	Martin L. King Elementary School	C	2270 E. 122nd St	Compton	Compton USD
10	Bunche Middle School	C	12388 Mona Blvd	Compton	Compton USD
20	Davis Middle School	C	621 W. Poplar St	Compton	Compton USD
21	Compton High School	C	601 S. Acacia	Compton	Compton USD
11	Jordan High School	C	2265 E. 103rd St	Los Angeles City	LAUSD
22	Del Amo Elementary School	D	21228 Water St	Carson	LAUSD
15	Wilmington Park Elementary School	D	1140 Mahar Ave	Los Angeles City	LAUSD
23	Curtiss Junior High School	D	1254 E. Helmick St	Carson	LAUSD
24	Carnegie Junior High School	D	21820 Bonita St	Carson	LAUSD
25	Wilmington Junior High School	D	1700 Gulf Ave	Los Angeles City	LAUSD
26	Banning High School	D	1527 Lakme Ave	Los Angeles City	LAUSD

Note:
* School (with service area completely on one side of Alameda) which may receive students from option areas across Alameda.

Source: Los Angeles and Compton Unified School Districts, 1992.

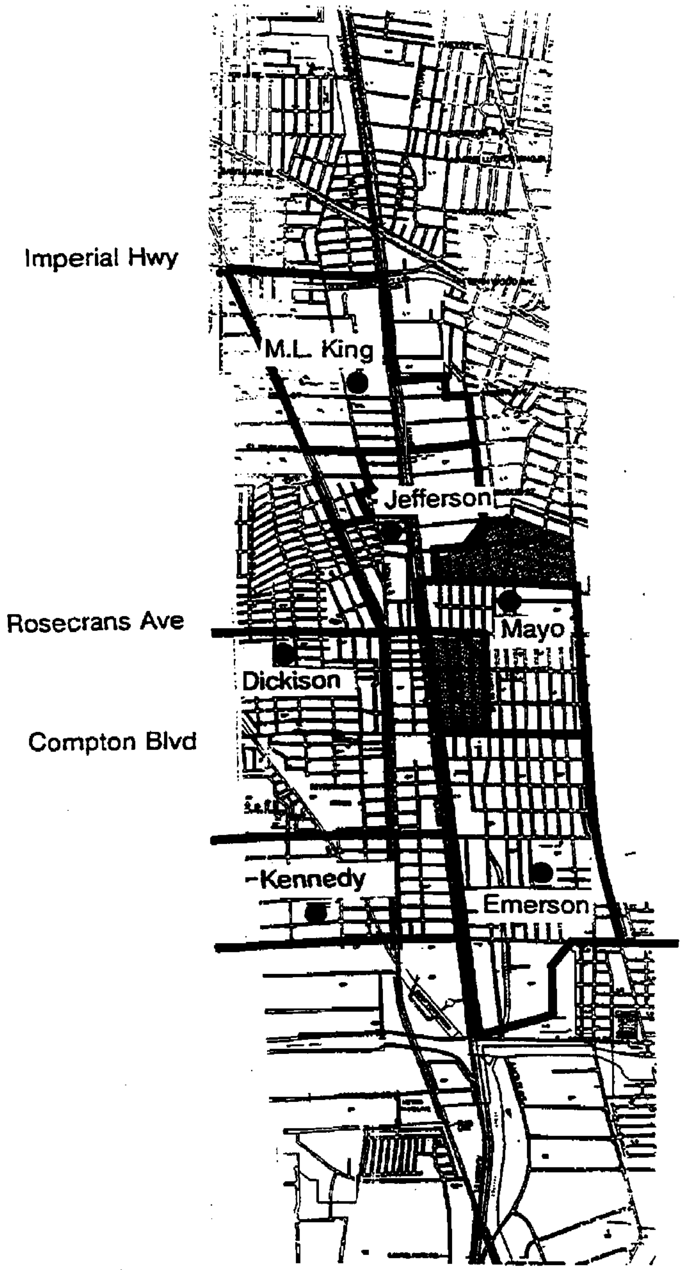
According to Compton Unified School District transportation personnel, school arrangements in Compton are made in such a way that students can avoid walking across Alameda. Service (attendance) boundaries officially delineated by the Compton Unified School District (as shown in previous figures) therefore may not completely reflect actual conditions. Except for less than a dozen students who choose to walk across Alameda (along Alondra) to attend Roosevelt Middle School, virtually no other students cross Alameda on foot. All students would either attend schools on the same side of Alameda or be bussed to school further away. School bus service in the district includes transportation of students with disabilities, those in special academic programs and those transferred to another school to level out attendance in the more heavily populated areas.



Sheet 1 of 3

Source: Los Angeles and Compton Unified School Districts, 1992.

FIGURE 5-32	Alameda Corridor Elementary School Service Areas	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



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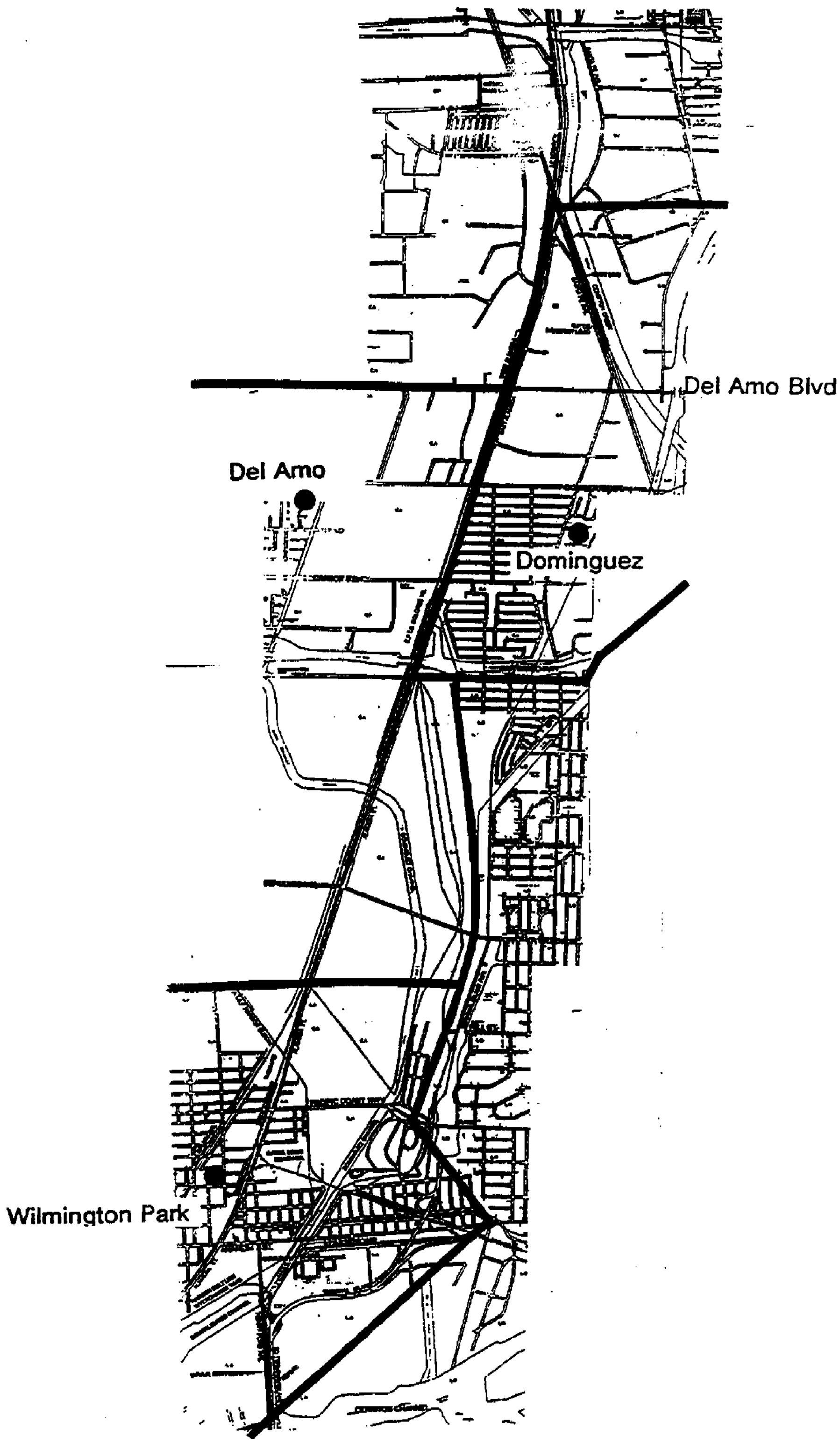
Students bussed to west of Alameda

No Scale

Source: Los Angeles and Compton Unified School Districts, 1992.

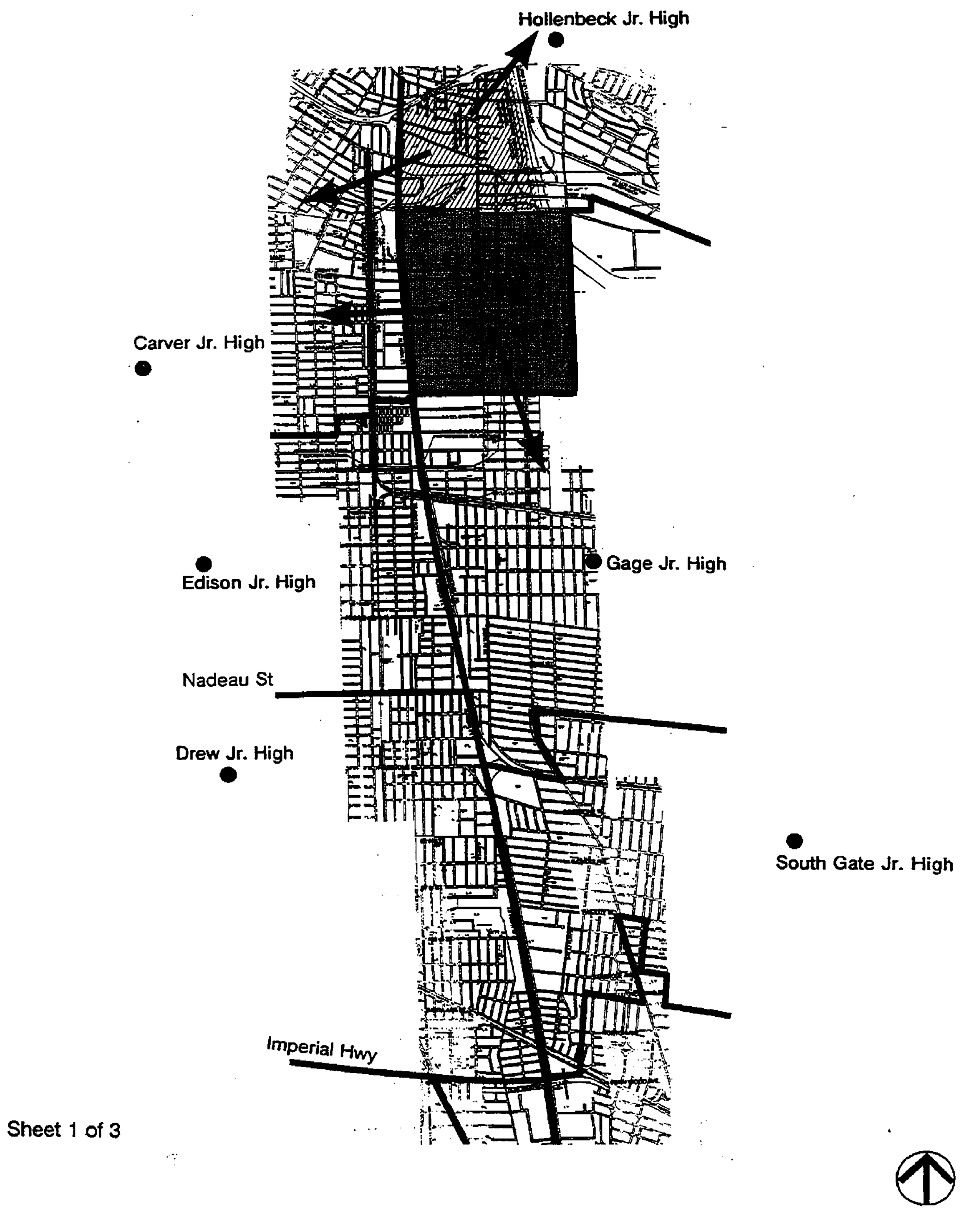
FIGURE 5-32	**Alameda Corridor Elementary School Service Areas (Cont)**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Sheet 3 of 3

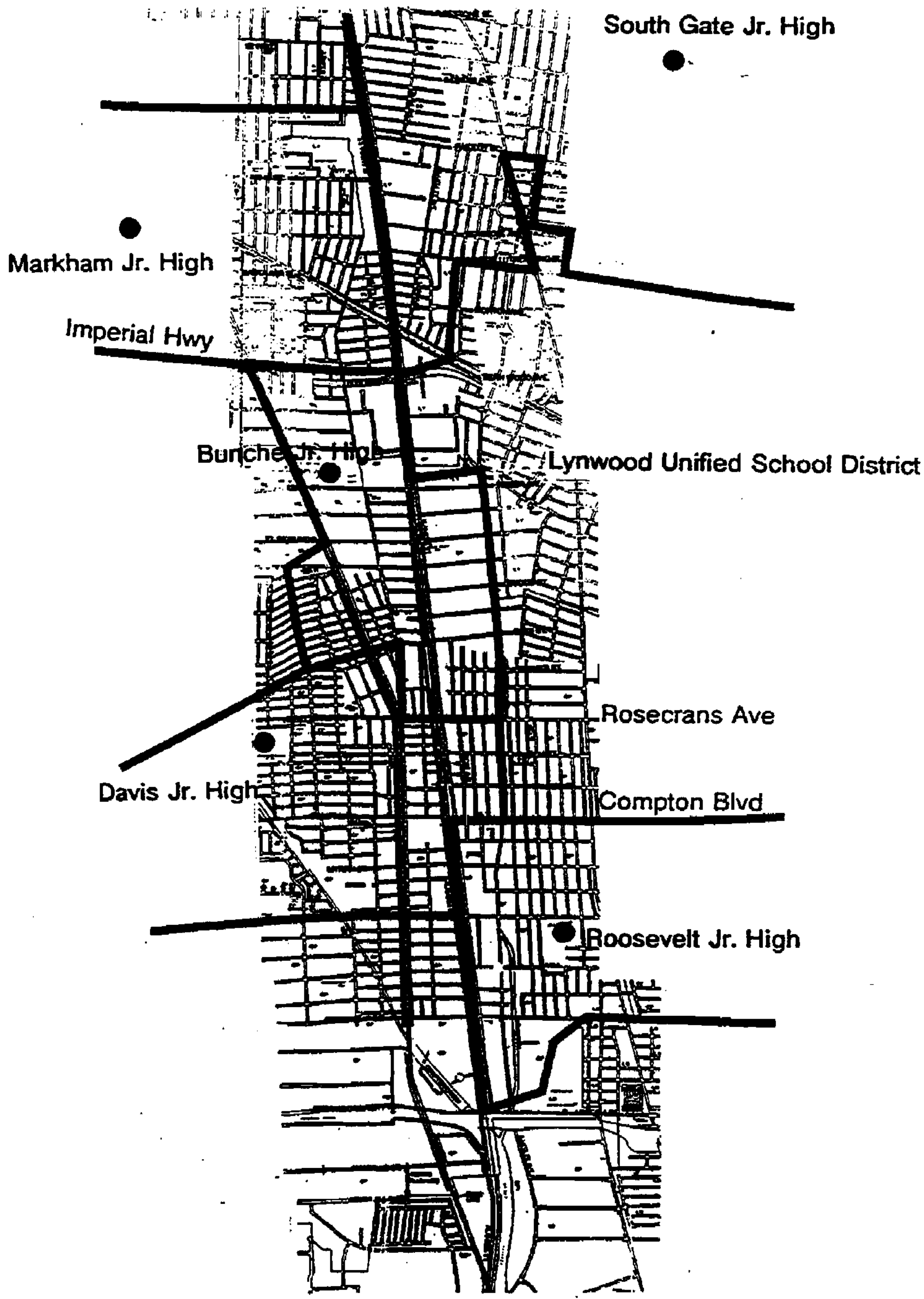
Source: Los Angeles and Compton Unified School Districts, 1992.

FIGURE		
FIGURE 5-32	**Alameda Corridor Elementary School Service Areas (Cont)**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Los Angeles and Compton Unified School Districts, 1992.

FIGURE 5-33	Alameda Corridor Junior High School Service Areas	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



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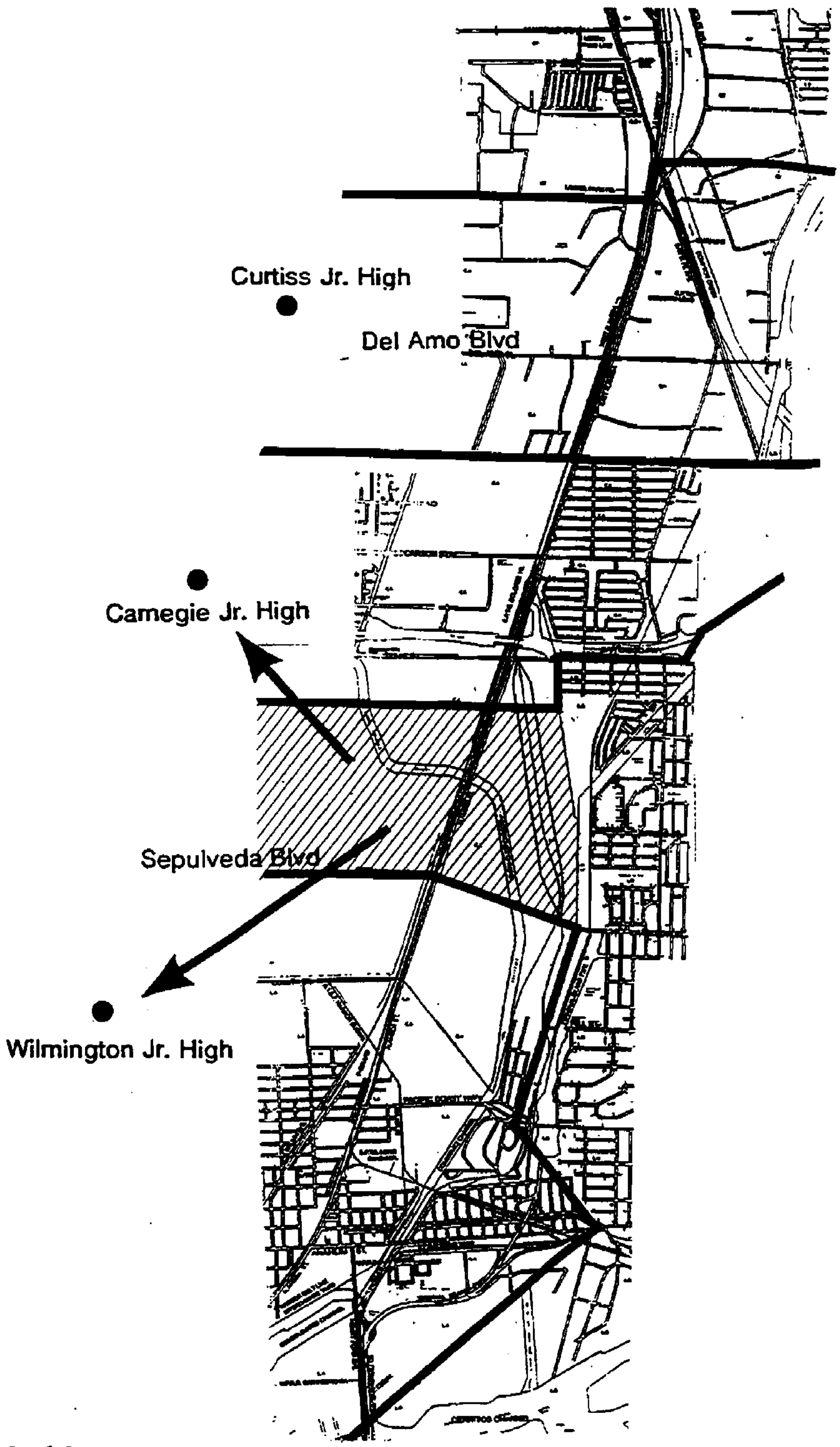
No Scale

Source: Los Angeles and Compton Unified School Districts, 1992.

FIGURE 5-33	Alameda Corridor Junior High School Service Areas (Cont)	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



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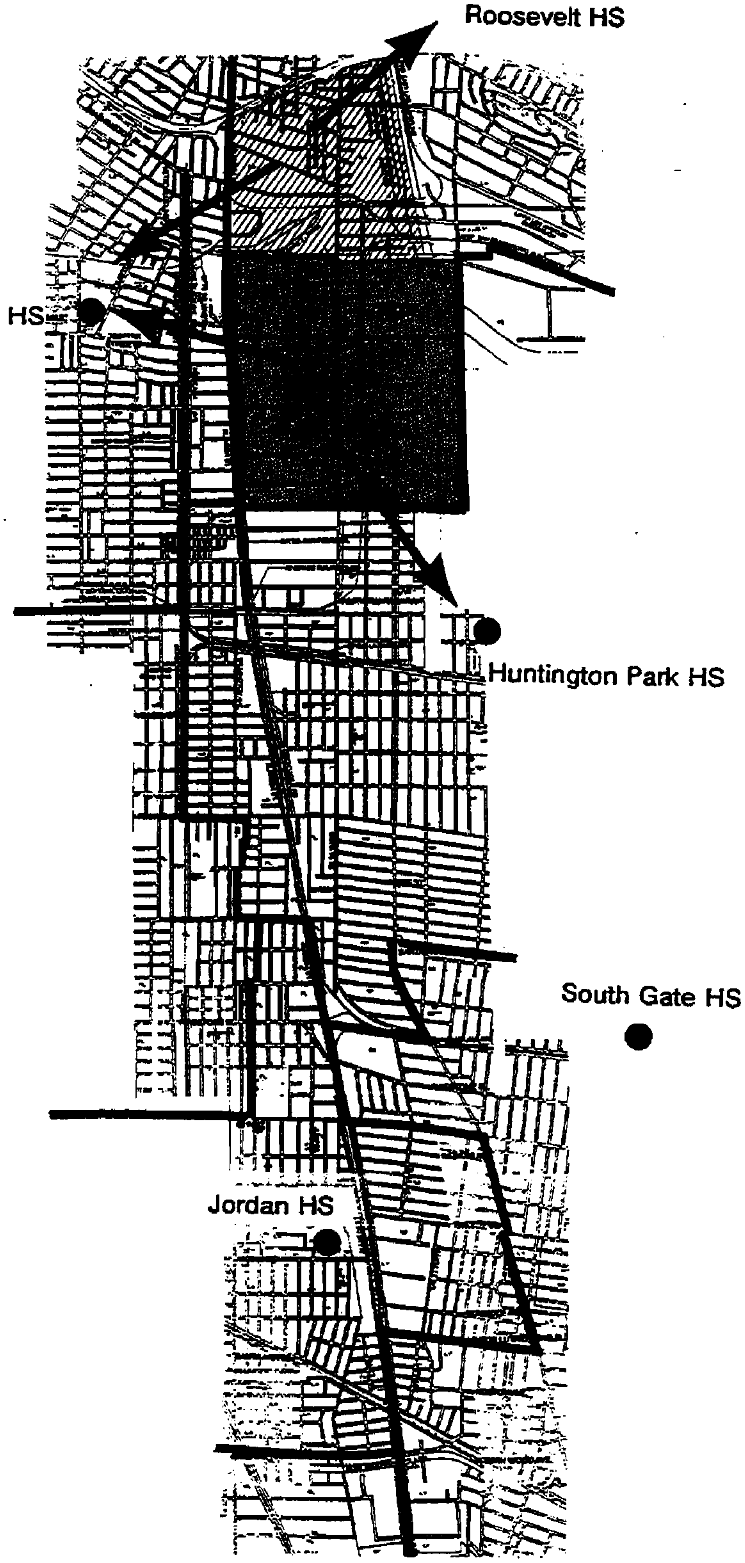
No Scale

Source: Los Angeles and Compton Unified School Districts, 1992.

FIGURE 5-33	Alameda Corridor Junior High School Service Areas (Cont)	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

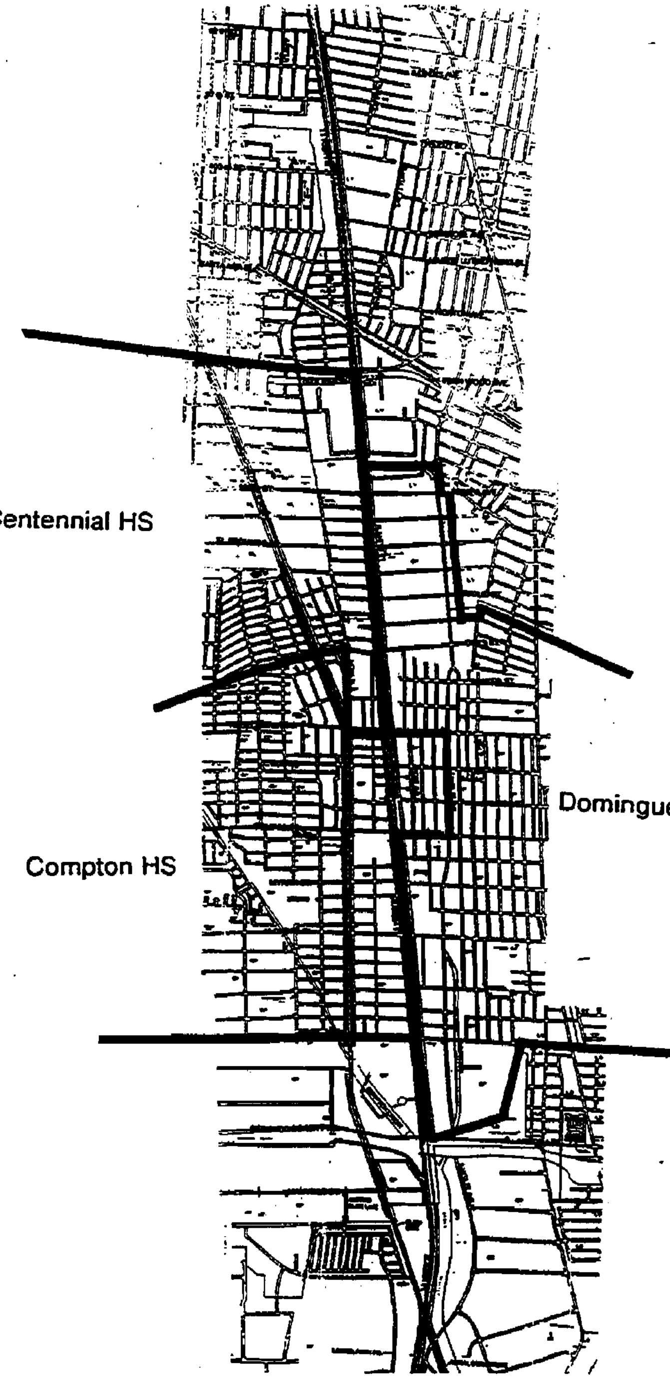


Sheet 1 of 3

No Scale

Source: Los Angeles and Compton Unified School Districts, 1992.

FIGURE 5-34	Alameda Corridor Senior High School Service Areas	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

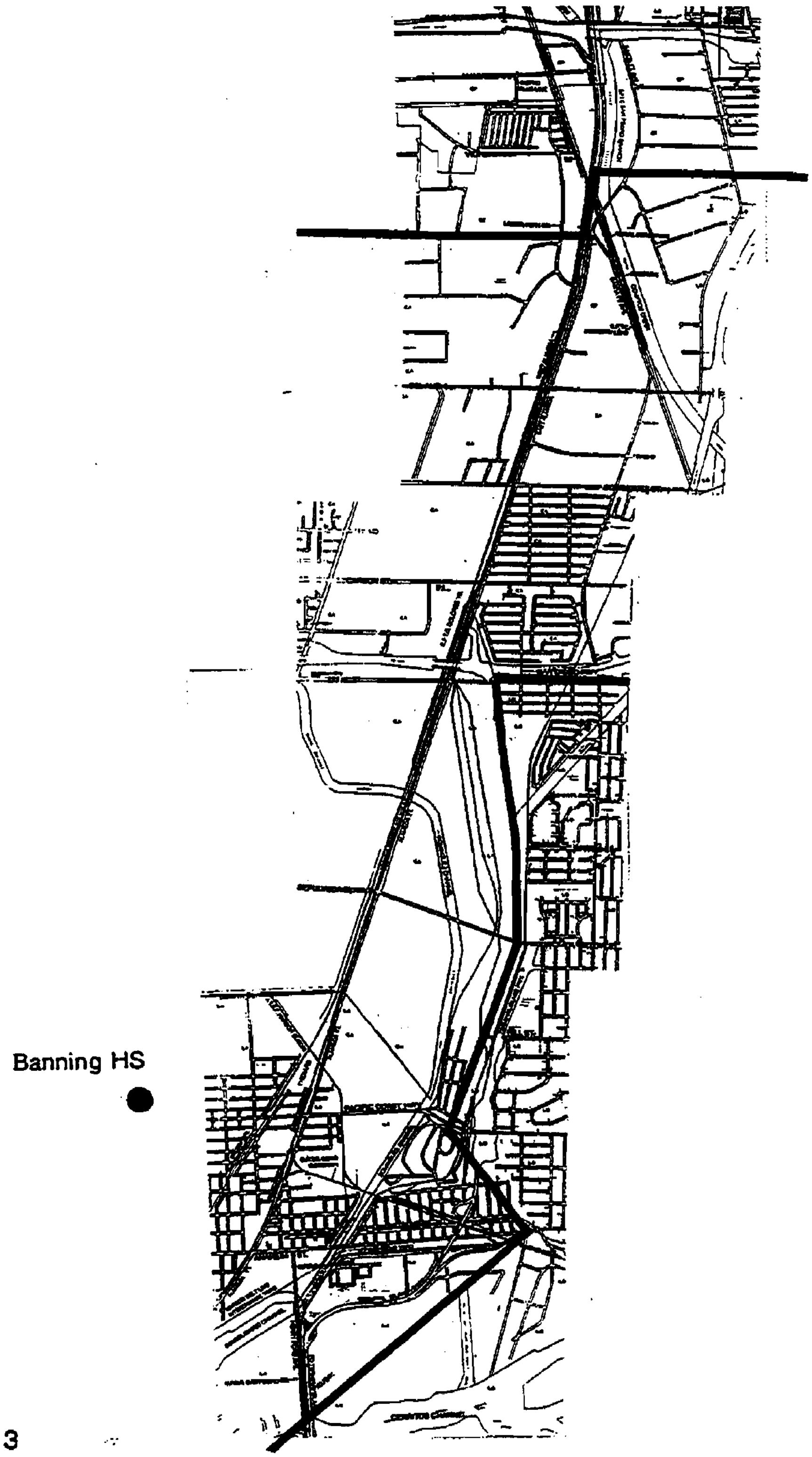


Sheet 2 of 3

Source: Los Angeles and Compton Unified School Districts, 1992.

No Scale

FIGURE 5-34	**Alameda Corridor Senior High School Service Areas (Cont)**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Los Angeles and Compton Unified School Districts, 1992.

No Scale

FIGURE 5-34	Alameda Corridor Senior High School Service Areas (Cont)	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

At present, there are no students walking across Alameda to attend Davis Middle School, although the school's official boundaries show an extension on the east side of Alameda. Students bussed in from the east side of Alameda actually come from the eastern end of the city, about five to seven miles away from the school. Bunche Middle School also receives no students from areas immediately east of Alameda, despite its corridor-straddling service boundaries. Although the areas immediately east of Alameda between south of Imperial Highway and Compton are designated to Bunche and Davis Middle Schools, students living in these areas actually attend Whaley Middle School which is located approximately 2.5 miles east of Alameda.

From a practical point of view, Alameda Street with its heavy traffic volume has redefined boundaries of schools within the Compton Unified School District. Students living in areas east of Alameda would attend Dominguez High School while those living in areas west of Alameda would attend Compton and Centennial High School. Students living on the east side of Alameda in areas designated to Martin Luther King and Jefferson Elementary Schools are bussed to Riles and Lincoln elementary schools which are located on the west side of Alameda.

Private schools located within a quarter mile of the corridor are identified in Table 5-40.

TABLE 5-40
PRIVATE SCHOOLS WITHIN ONE-FOURTH MILE OF THE CORRIDOR

SCHOOL/OWNER'S NAME	ADDRESS	SEGMENT	LOCAL JURISDICTION
Greater Holy St John Mission	5536 Morgan Ave	B1	Los Angeles City
Aloysius School	2023 Nadeau St	B2	Los Angeles City
Archdiocese of Education And We	600 Palmer St	C	Compton
Archdiocese of Education And We	601 Palmer St	C	Compton
Light of the World Church	113 Rosecrans Ave	C	Compton
Warren Henry A & Verna M	1215 Willowbrook Ave	C	Compton
Holmes Charlotte R & Billi	825 Chester Ave	C	Compton
Church Development Fund Inc	225 Santa Fe Ave	C	Compton
Davey James Trs	18931 Laurel Park Rd	D	Carson

Source: TRW Database, 1990.

Other Community Facilities

There are no library branches, city halls or post offices located within one-fourth mile of the corridor.

Churches

There are approximately 40 churches (including store front churches) located within one-fourth mile of the corridor. Names and addresses of these churches are listed in Table 5-41.

Hospitals

There are no hospitals located within 1,300 feet of the corridor. Situated at 3100 Susana Road, approximately one-half mile east of Alameda (south of Artesia) is the Dominguez Valley Hospital. More than one mile west of Alameda (north of El Segundo) is the Martin Luther King General Hospital which is located at 12021 S. Wilmington Avenue.

Parks

Parks and recreational facilities along the corridor are provided by the Departments of Park and Recreation from the following jurisdictions: Los Angeles City, Huntington Park, Lynwood, South Gate, Compton, Carson and the Los Angeles County (see Figure 5-31). In lieu of a separately established Department of Park and Recreation, the City of Vernon has set up mutual agreements whereby its residents can use the neighboring cities' park facilities for an annual fee. Table 5-42 lists names and locations of all parks and recreational facilities within one-fourth mile of the corridor.

In addition there are two playgrounds that would be fronting the proposed alignment: the playground in the Pueblo Del Rio Housing Project which is located east of Long Beach Avenue between 54th and 55th Street; and the playground which is located in the Compton Unified School District administration quarter (southwest corner of Alameda and Indigo).

5.5.2 Construction Impacts

Impacts to public services during the construction period would include traffic obstructions and detours affecting police, fire and paramedic vehicles, reduced access to and potential disruption of service/operation of community facilities. Construction impacts are not generally considered significant because they are temporary in nature. However, when the construction period becomes protracted, the impacts can be substantial.

General increase in traffic and street closures resulting from construction activities could result in longer police, fire and paramedic response times. Fire and paramedic response time could be significantly delayed if the emergency response teams do not have easy access to the nearest major cross street or Alameda. Fire protection service would be further impeded in instances where direct access to buildings is obstructed by construction activities or where the buildings are located on streets being closed by the project.

TABLE 5-41
CHURCHES WITHIN ONE-FOURTH MILE OF THE CORRIDOR

SEGMENT	NAME	ADDRESS	CITY
B1	California Harvest Tabernacle	1744 055 St	Los Angeles
B1	Roman Catholic Archbishop	5518 Duarte St	Los Angeles
B1	Benitez Jose And Lidia E	1674 050 Pl	Los Angeles
B1	Kacev Emmanuel And Rotem	1679 033 St	Los Angeles
B2	Roman Catholic Archbishop	2023 Nadeau St	Los Angeles
B2	Archdiocese Of L A Education	2037 Nadeau St	Los Angeles
B2	Bartlett Marion H	7950 Marbrisa Av	Huntington Park
C	Church Of Christ Holmes Av	13204 Mona Bl	Compton
C	First Pan American Foursqu	12726 Mona Bl	Willowbrook
C	Soriano Gildardo	903 Willowbrook Av	Compton
C	Compton Congregation Of	408 Culver Av	Compton
C	So Cal Assn Of 7 Day Adventist	415 Tamarind Av	Compton
C	Warren James And Katie	2163 095 St	Los Angeles
C	Laurel St Baptist Church	9626 Laurel St	Los Angeles
C	Good Hope Baptist Church	9606 Juniper St	Los Angeles
C	Los Angeles Greater Holy G	9615 Kalmia St	Los Angeles
C	Greater St Rest M B C	2404 Santa Ana Bl	Los Angeles
C	New Christian Community Church	2542 Santa Ana Bl	Los Angeles
C	Iglesia Crusada De La Fe	128 Alondra Bl	Compton
C	Church Of God Of Prophecy	218 Poplay St	Compton
C	Greater Union Missionary B	714 Tamarind Av	Compton
C	African Methodist Episcopa	1005 Rose Av	Compton
C	International Church Of Fo	400 Palmer St	Compton
C	Archdiocese Of L A Educ An	409 Palmer St	Compton
C	Archdiocese Of L A Educ An	405 Willow Av	Compton
C	Roman Catholic Archbishop	510 Palmer St	Compton
C	Roman Catholic Archbishop	500 Palmer St	Compton
C	Come And See Missionary	147 Rosecrans Av	Compton
C	East Oaks Investments	526 Oaks St	Compton
C	American Baptist Churches	506 Laurel St	Compton
C	Martin Samuel & Mary	411 Santa Fe Av	Compton
C	Mount Pilgrim Missionary B	400 Santa Fe Av	Compton
C	Community Chapel Church Of	1305 Willowbrook Av	Compton
C	Olive Branch Baptist Churc	2318 103 St	Los Angeles
C	Jehovahs Witnesses L A Gra	2326 103 St	Los Angeles
D	Yago Antonio And Leonida E	2645 Monroe	Long Beach
D	Ulrich Earl W	1520 Pacific Coast Hy	Wilmington
D	Apostolic Assembly Of The	1523 Robidoux St	Wilmington
D	Apostolic Assembly Of The	1508 Robidoux St	Wilmington
D	Archdiocese Of L A Educ An	1123 Mahar Av	Wilmington

Source: TRW Database, 1991.

TABLE 5-42
PARKS WITHIN ONE-FOURTH MILE OF THE CORRIDOR

No.	NAME	ADDRESS	SEGMENT	LOCAL JURISDICTION	OPERATED BY	FACILITIES
1	Ross Snyder Recreation Center	1501 E. 41st St	B1	Los Angeles City	Los Angeles City Dept of Park & Recreation	11 acres of park land featuring picnic area, an outdoor gym and other community buildings.
2	Fred Roberts Recreation Center	4700 Honduras St	B1	Los Angeles City	Los Angeles City Dept of Park & Recreation	3-acre neighborhood park with picnic area, football field and several basketball courts
3	Slauson Recreation Center	5306 S. Compton	B1	Los Angeles City	Los Angeles City Dept of Park & Recreation	3.6 acres of landscaped park land including picnic area, an outdoor gym, and other community facilities.
4	Playground in Pueblo Del Rio Housing Project	East of Long Beach Ave, between 54th and 55th St	B1	Los Angeles City	Los Angeles Housing Authority	n/a
5	West Side Park	2000 Gage Ave	B2	Huntington Park	Huntington Park Dept of Parks & Recreation	Small neighborhood park featuring picnic area, children's playground & basket ball courts
6	Compton Neighborhood Center	600 N. Alameda (between Elm & Compton)	C	Compton	Compton Dept of Parks & Recreation (currently housing the Parks & Recreation Administration Office)	Indoor facilities include auditorium, meeting and banquet halls
7	Wilson Park	123 N. Rose Ave	C	Compton	Compton Dept of Parks & Recreation	3.9 acres of park land with kitchen, auditorium, tennis courts and children's playground.
8	Playground in the Compton Unified School District administration quarter	West of Alameda, between Indigo and Alondra	C	Compton	Compton Unified School District	Open play area
9	South Park	Corner of Caldwell and Mayo (1 block south of Alondra)	C	Compton	Compton Dept of Parks & Recreation	4.8-acre neighborhood park with picnic facilities and children's playground
10	East Wilmington Green Belt Park	"M" St to Sanford, on Drumm Ave	D	Wilmington, Los Angeles	Los Angeles City Dept of Park & Recreation	5 acres of landscaped park land, including picnic and child's play area.

Source: Los Angeles City, Huntington Park and Compton Departments of Parks and Recreation, 1992.

Access to some facilities could be impaired during the construction period. Temporary street closures, temporary elimination of on-street parking and generally increased traffic congestion would impair auto access to some schools, churches and parks. Temporary closure of crosswalks or sidewalks could impair pedestrian access to some service facilities. Construction of the bridge or grade-separated crossings would generally discourage pedestrian access to facilities across Alameda. Relocation of utility lines may further disrupt the operation of these facilities.

Facilities most affected include those located on Alameda Street (or Long Beach Avenue) which do not have additional exit/entrance on the side streets. Jordan High School and Ritter Elementary School would experience the most inconvenience during the construction period. Wilson Park would be subjected to inconveniences and disruption caused by construction of the corridor and the Compton overpass. Noise generated by construction activities could significantly affect operation of schools and parks located on the alignment.

Should Alternative 1.0 be implemented, community facilities on or near Alameda would be subjected to construction activities that would extend over an estimated two year period at a given location. Under alternatives 2.1A, 2.1S and 2.2, the construction period is estimated to be three to four years at a given location.

5.5.3 Operational Impacts

By the year 2020, economic activity originating at the Ports of Los Angeles and Long Beach will result in upwards of 100 freight train movements per peak day, arriving at and leaving from the ports, and traveling through Southern California. These train movements would operate either on independently owned tracks of the three common carriers (No Build Alternative), or they would use a consolidated facility proposed for the Alameda Corridor. Each of these options would have implications for the provision of public services. The purpose of the following impact discussion is to identify the effects on public services that would occur under the No Build alternative and each of the build alternatives.

Several meetings were held in March and April of 1992 with representatives from local police and fire jurisdictions to discuss potential impacts the consolidated corridor may have on emergency services along Alameda. Concerns and suggestions raised by the representatives have been incorporated into the following discussions on law enforcement and fire services.

<u>Corridor Accessibility</u>

Table 5-43 shows existing street crossings of the Alameda Corridor and the disposition of those crossings under each of the project alternatives. The table identifies streets that allow vehicles to cross either west Alameda Street or east Alameda Street, which currently exists as a frontage road on the east side of the SPTC tracks. In those instances where a particular cross street permits a complete crossing over either Alameda or the east frontage road, an "X" is shown in the table. Where only a "T" intersection occurs, that is so indicated in the table. The table is organized according to the project segments that have been used for analysis purposes throughout this document.

TABLE 5-43
EXISTING AND FUTURE CROSS STREETS BY ALTERNATIVE

SEGMENT A	EXISTING CROSS STREETS INTERSECTING WITH		INTERSECTIONS BY ALTERNATIVE			
			ALT 1.0		ALT 2.1A/2.1S	
	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD
15th St	X	-- (no FR)	X	-- (no FR)	X	-- (no FR)
16th St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
Washington	X	-- (no FR)	X	-- (no FR)	X	-- (no FR)
20th St	X	-- (no FR)	X	-- (no FR)	X	-- (no FR)
21st St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
22nd St	X	-- (no FR)	X	-- (no FR)	X	-- (no FR)
24th/25th St	X	-- (no FR)	X	X	X	-- (no FR)
Raw Score	5X, 2T	0X, 0T	5X, 2T	1X, 0T	5X, 2T	0X, 0T
SEGMENT TOTAL	6		7		6	

Source: Myra L. Frank & Associates, Inc., 1992.

TABLE 5-43 (CONT'D)
EXISTING AND FUTURE CROSS STREETS BY ALTERNATIVE

SEGMENT B1	EXISTING CROSS STREETS INTERSECTING WITH			INTERSECTIONS BY ALTERNATIVE				
				ALT 1.0		ALT 2.1A/2.1S		ALT 2.2
	LONG BEACH AVE	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	LONG BEACH AVE
24th/25th St	T	X	X	X	X	X	-- (no FR)	X
27th St	T	--	T	--	-- (no FR)	--	-- (no FR)	--
32nd St	T	--	--	--	--	--	-- (no FR)	T
33rd St	T	--	--	--	--	--	-- (no FR)	T
Ross St	--	--	T	--	T	T	-- (no FR)	--
M.L.King	X	T	--	T	--	T	-- (no FR)	T
40th Pl/37th St	T	T	T	T	T	T	-- (no FR)	T
41st/38th St	X	X	X	X	-- (no FR)	X	-- (no FR)	X
41st Pl	T	T	--	T	-- (no FR)	T	-- (no FR)	T
42nd St	T	T	--	T	-- (no FR)	T	-- (no FR)	T
43rd St	T	T	--	T	-- (no FR)	T	-- (no FR)	T
Vernon Ave	X	X	X	X	-- (no FR)	X	-- (no FR)	X
45th St	--	T	--	T	-- (no FR)	T	-- (no FR)	--
46th St	--	T	--	T	-- (no FR)	T	-- (no FR)	--
47th St	T	--	--	--	-- (no FR)	--	-- (no FR)	T
48th St	--	T	T	T	-- (no FR)	T	-- (no FR)	--
48th Pl	X	T	--	T	-- (no FR)	T	-- (no FR)	X
49th St	T	T	T	T	-- (no FR)	T	-- (no FR)	T
50th St	T	T	--	T	-- (no FR)	T	-- (no FR)	T
50th Pl	T	--	--	--	-- (no FR)	--	-- (no FR)	T
51st St	T	T	T	T	-- (no FR)	T	-- (no FR)	T
52nd St	T	T	T	T	-- (no FR)	T	-- (no FR)	T
53rd St	T	T	--	T	-- (no FR)	T	-- (no FR)	T
54th St	T	--	--	--	-- (no FR)	--	-- (no FR)	T
55th St	X	X	X	T	-- (no FR)	T	T	X
57th St	T	--	T	T	-- (no FR)	T	-- (no FR)	T
Slauson Ave	X	X	X	X	-- (no FR)	X	-- (no FR)	X
Randolph St	T	X	X	T	-- (no FR)	T	-- (no FR)	T
Raw Score	6X, 18T	6X, 14T	6X, 8T	4X, 17T	1X, 2T	4X, 18T	0X, 1T	6X, 18T
SEGMENT TOTAL	15	23		13.5		12.5		15

Source: Myra L. Frank & Associates, Inc., 1992.

TABLE 5-43 (CONT'D)
EXISTING AND FUTURE CROSS STREETS BY ALTERNATIVE

SEGMENT B2	EXISTING CROSS STREETS INTERSECTING WITH		INTERSECTIONS BY ALTERNATIVE			
			ALT 1.0		ALT 2.1A/2.1S	
	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD
Gage Ave	X	X	X	-- (no FR)	X	-- (no FR)
64th St	T	--	T	-- (no FR)	T	-- (no FR)
65th St	T	--	T	-- (no FR)	T	-- (no FR)
Zoe Ave	--	T	T	-- (no FR)	T	-- (no FR)
67th St	T	--	T	-- (no FR)	T	-- (no FR)
Saturn Ave	--	T	T	-- (no FR)	T	-- (no FR)
Florence Ave	X	X	X	-- (no FR)	X	-- (no FR)
74th St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
76th St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
Nadeau St	X	X	X	-- (no FR)	X	-- (no FR)
Center St	--	T	--	-- (no FR)	--	-- (no FR)
Short St	--	T	--	-- (no FR)	--	-- (no FR)
83rd St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
85th St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
Manchester Ave	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
Firestone Blvd	X	-- (no FR)	X	-- (no FR)	X	-- (no FR)
Raw Score	4X + 8T	3X + 4T	4X + 10T	0	4X + 10T	0
SEGMENT TOTAL	13		9		9	

Source: Myra L. Frank & Associates, Inc., 1992.

TABLE 5-43 (CONT'D)
EXISTING AND FUTURE CROSS STREETS BY ALTERNATIVE

SEGMENT C	EXISTING CROSS STREETS INTERSECTING WITH		INTERSECTIONS BY ALTERNATIVE			
			ALT 1.0		ALT 2.1A/2.1S	
	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD
88th St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
89th St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
90th St	T	-- (no FR)	T	-- (no FR)	T	-- (no FR)
92nd/Southern	X	X	X	X	X	X
Iowa Ave	--	T	--	T	--	T
93rd St	T	--	T	--	T	--
Illinois Ave	--	T	--	T	--	T
94th St	T	--	T	--	T	--
Ohio Ave	--	T	--	T	--	T
95th St	T	--	T	--	T	--
Kansas Ave	--	T	--	T	--	T
96th St	T	--	-- (cul-de-sac)	--	T	--
Missouri Ave	--	T	--	T	--	T
96th Pl	T	--	-- (cul-de-sac)	--	T	--
97th St	T	--	T	--	T	--
Indiana Ave	--	T	--	T	--	T
Nebraska Ave	--	T	--	T	--	T
Tweedy Blvd	T	X	T	X	T	X
Wisconsin	--	T	--	T	--	T
Sequoia	--	T	--	T	--	T
103rd St	T	--	T	--	T	--
Seminole Ave	--	T	--	T	T	T
M.L.King Blvd	T	X	--	T	T	X
108th St	T	T	T	T	T	T
109th St	T	T	T	T	T	T
110th St	T	T	T	T	T	T
111th St	T	T	T	T	T	T
Norton Ave	--	T	--	T	T	T
112th St	--	T	--	T	--	T

TABLE 5-43 (CONT'D)
EXISTING AND FUTURE CROSS STREETS BY ALTERNATIVE

SEGMENT C	EXISTING CROSS STREETS INTERSECTING WITH		INTERSECTIONS BY ALTERNATIVE			
			ALT 1.0		ALT 2.1A/2.1S	
	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD
Santa Ana/Fernwood	X	X	T	T	T	T
114th St	T	--	T	--	T	--
115th St	T	--	T	--	T	--
115th Pl	T	--	T	--	-- (cul-de-sac)	--
Imperial Hwy	X	X	X	X	X	-- (no FR)
Lynwood Rd	T	X	--	T	T	T
Industry Way	T	--	T	--	T	--
Butler Ave	--	T	--	T	--	T
Dixon St	--	T	--	T	T	-- (no FR)
Weber St	X	X	X	X	T	-- (no FR)
125th St	T	--	T	--	T	-- (no FR)
126th St	T	--	T	--	T	-- (no FR)
Banning St	--	T	--	T	T	-- (no FR)
127th St	T	--	T	--	T	-- (no FR)
El Segundo Blvd	X	X	X	X	X	-- (no FR)
129th St	T	--	T	--	T	-- (no FR)
130th St	T	--	T	--	T	-- (no FR)
Carlin St	--	T	--	T	T	-- (no FR)
131st St	T	--	T	--	T	-- (no FR)
132nd St	T	--	T	--	T	-- (no FR)
Euclid St	--	T	--	T	T	-- (no FR)
133rd St	T	--	T	--	T	-- (no FR)
Pine Ave	T	X	--	T	T	-- (no FR)
134th St	X	--	T	--	T	-- (no FR)
135th St	T	--	T	--	T	-- (no FR)
Oris St	T	--	T	--	T	-- (no FR)
Oaks St	--	T	--	T	T	-- (no FR)
Mealy St	T	--	T	--	T	-- (no FR)

TABLE 5-43 (CONT'D)
EXISTING AND FUTURE CROSS STREETS BY ALTERNATIVE

SEGMENT C	EXISTING CROSS STREETS INTERSECTING WITH		INTERSECTIONS BY ALTERNATIVE			
			ALT 1.0		ALT 2.1A/2.1S	
	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD
Rosecrans Ave	X	X	X	X	X	-- (no FR)
Spruce St	T	--	T	--	T	-- (no FR)
Maple St	T	--	T	--	T	-- (no FR)
Cedar St	T	--	T	--	T	-- (no FR)
Elm St	X	X	T	T	T	-- (no FR)
Poplar St	T	--	T	--	T	-- (no FR)
Arbutus St	T	--	T	--	T	-- (no FR)
Palmer St	T	X	T	T	T	-- (no FR)
Compton Blvd	X	X	X	X	X	-- (no FR)
Laurel St	--	T	--	T	T	-- (no FR)
Myrhh St	T	T	T	T	T	T
Indigo St	T	--	T	--	T	--
Alondra Blvd	X	X	X	X	X	X
Raymond St	T	--	T	--	T	--
Reeve St	T	--	T	--	T	--
Tichenor St	T	--	T	--	T	--
Caldwell St	T	T	T	T	T	T
Johnson St	T	T	T	T	T	T
Bennett St	T	T	T	T	T	T
Greenleaf Blvd	X	X	X	X	X	X
Auto Dr. North	T	--	T	--	T	--
Auto Dr. South	X	X	T	T	T	T
Artesia Blvd	X	X	X	X	X	X
Raw Score	13X + 49T	18X + 26T	9X + 48T	10X + 34T	8X + 61T	6X + 24T
SEGMENT TOTAL	68		60		56.5	

Source: Myra L. Frank & Associates, Inc., 1992.

TABLE 5-43 (CONT'D)
EXISTING AND FUTURE CROSS STREETS BY ALTERNATIVE

SEGMENT D	EXISTING CROSS STREETS INTERSECTING WITH		INTERSECTIONS BY ALTERNATIVE			
			ALT 1.0		ALT 2.1A/2.1S	
	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD
Manville St	T	-- (no FR)	T	-- (no FR)	same as Alt 1.0	same as Alt 1.0
Laurel Park Rd	T	--	-- (cul-de-sac)	-- (no FR)		
Vista Industria	--	T	T	-- (no FR)		
Del Amo Blvd	X	X	X	-- (no FR)		
El Presidio St	--	T	T	-- (no FR)		
Dominguez St	X	X	T	-- (no FR)		
Tyler St	T	-- (no FR)	T	-- (no FR)		
Harrison St	T	-- (no FR)	T	-- (no FR)		
Van Buren St	T	-- (no FR)	T	-- (no FR)		
Jackson St	T	-- (no FR)	T	-- (no FR)		
Monroe St	T	-- (no FR)	T	-- (no FR)		
Madison St	T	-- (no FR)	T	-- (no FR)		
Jefferson St	T	-- (no FR)	T	-- (no FR)		
Adams St	T	-- (no FR)	T	-- (no FR)		
Washington St	T	-- (no FR)	T	-- (no FR)		
Carson St	X	-- (no FR)	X	-- (no FR)		
218th Pl	T	-- (no FR)	T	-- (no FR)		
223rd St	X	-- (no FR)	X	-- (no FR)		
Sepulveda Blvd	X	-- (no FR)	X	-- (no FR)		
Pacific Coast Hwy	X	-- (no FR)	X	-- (no FR)		
Mauretania St	T	-- (no FR)	T	-- (no FR)		
M St	T	-- (no FR)	T	-- (no FR)		
Robidoux St (3)	T	-- (no FR)	T	-- (no FR)		
Henry Ford Ave	T	-- (no FR)	T	-- (no FR)		
Henry Ford Ave						
Denni St	T	-- (no FR)	cul-de-sac	-- (no FR)		
Grant St	T	-- (no FR)	T	-- (no FR)		
Opp St	X	-- (no FR)	T	-- (no FR)		
I St	X	-- (no FR)	X	-- (no FR)		
Anaheim St	X	-- (no FR)	X	-- (no FR)		
Anchorage St	T	-- (no FR)	T	-- (no FR)		
Raw Score	9X + 19T	2X + 2T	7X + 21T	0	7X + 21T	0
SEGMENT TOTAL	21.5		17.5		17.5	

Source: Myra L. Frank & Associates, Inc., 1992.

A scoring method has been developed in an attempt to compare accessibility across the corridor under different alternatives. A score of 1 is given for each complete crossing over Alameda or the east frontage road ("X"). A score of 1/2 is assigned when the cross street terminates in a "T" intersection with Alameda or the east frontage road. No score is given if an intersection does not exist. In addition to the total numerical score calculated for each alternative, scores of "X"s and "T"s are also shown aggregated separately (under each alternative) in order to show the frequency of different types of crossing opportunities that would exist under each alternative (see Table 5-44).

Under the No Build alternative, the number and location of existing street crossings are presumed to remain as they are today. It should be understood that by the year 2020, increased train volumes resulting from growth at the Ports of Los Angeles and Long Beach would produce significant delays at all crossings that would remain at grade. With the exception of the existing grade separation at Rosecrans Avenue and the proposed separations at Del Amo Boulevard and Carson Street (by others), all other crossings would remain at grade. This means that while the number of physical opportunities to cross the corridor would not be diminished under the No Build alternative, the practical ability to do so would clearly be compromised.

In contrast to the No Build alternative, all of the build alternatives would provide for complete grade separations at up to 22 locations along the corridor. This means that other than at these specific locations, existing grade crossing would be closed. The result would be an improved ability (i.e. no train delays) to cross the corridor at the designated grade separations, but fewer opportunities to do so, as compared with the No Build alternative.

As shown in Table 5-43, existing crossing points in Segment A would remain basically unchanged with the exception of 24th/25th Street. Under the depressed trainway alternatives (alternatives 2.1A and 2.1S), 24th/25th Street would become a crossing bridge. Under the at-grade trainway alternative (Alternative 1.0), 24th/25th Street would be realigned and reconstructed to cross under the tracks at a location northeast of the current intersection. Delays due to train activities would be minimized and traffic flows across Alameda on 24th/25th Street would be greatly improved. Although some motorists may be required to travel more circuitous routes, local traffic as a whole is expected to benefit from the grade separation. Thus, given the same number of crossing opportunities in Segment A, any of the proposed alternatives would be more preferable than the No Build alternative.

Compared to the No Build alternative, Alternative 1.0 would also improve accessibility on the east side of Alameda. An additional frontage road would be provided from immediately south of the 25th/Alameda intersection to north of the point where the tracks begin to curve in the northeasterly direction.

In Segment B1 the consolidated corridor would close 2 of the 6 existing grade crossings under alternatives 1.0 and 2.1A/2.1S. 55th and Randolph Street would terminate in "T" intersections with Alameda. The reduced accessibility is compensated by additional "T" intersections with Alameda that do not currently exist. In the absence of the east frontage road, Ross Street would "T" into Alameda from the east under alternatives 2.1A/2.1S and 57th Street into Alameda under all alternatives. Alternative 2.2 would maintain the same number of crossings and "T" intersection as the No Build alternative.

TABLE 5-44
CORRIDOR ACCESSIBILITY

CORRIDOR	EXISTING CROSS STREETS INTERSECTING WITH			INTERSECTIONS BY ALTERNATIVE				
				ALT 1.0		ALT 2.1A/2.1S		ALT 2.2
	LONG BEACH AVE	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	ALAMEDA ST	FRONTAGE RD	LONG BEACH AVE
Segment A	n/a	5X + 2T	0X + 0T	5X + 2T	1X + 0T	5X + 2T	0X + 0T	n/a
Segment B1	6X + 18T	6X + 14T	6X + 8T	4X + 18T	2X + 1T	4X + 19T	0X + 1T	6X + 17T
Segment B2	n/a	4X + 8T	3X + 4T	4X + 10T	0	4X + 10T	0	n/a
Segment C	n/a	13X + 49T	18X + 26T	9X + 48T	10X + 34T	8X + 61T	6X + 24T	n/a
Segment D	n/a	9X + 19T	2X + 2T	7X + 21T	0	7X + 21T	0	n/a
Raw Scores	6X + 18T	37X + 92T	29X + 40T	29X + 99T	12X + 35T	28X + 113T	6X + 25T	6X + 17T
CORRIDOR TOTAL	15	132		103		113		14.5

Source: Myra L. Frank & Associates, Inc., 1992.

The number and location of existing cross streets in Segment B2 would remain unchanged under all build alternatives. Crossing over Alameda Street would be permitted at Gage, Florence, Nadeau and Firestone Blvd. In the absence of the east frontage road, two additional "T" intersections with Alameda at Zoe and Saturn would be provided by the corridor. However, this modest improved accessibility on Alameda Street would be offset by the complete loss of the east frontage road throughout the segment, resulting in much lower total accessibility scores for all build alternatives.

Access to and from the east side of Alameda would be significantly reduced with the absence of the east frontage road throughout most of Segments B1 and B2. Implementation of the consolidated corridor would require vehicles to travel more circuitous routes than before in order to cross Alameda. The limited presence of the east frontage road may divert some traffic to smaller local streets and into residential areas.

Compared to the No Build alternative, implementation of the proposed corridor would result in the closing of 4 of the 13 existing grade crossings in Segment C. Opportunities to cross Alameda at Santa Ana Blvd, 134th St, Elm St and Auto Dr. South would no longer be available, resulting in lower accessibility scores for all build alternatives. The improved traffic flows on the remaining cross streets, however, would more than offset the loss of crossing opportunities. The project's net impact on traffic is generally expected to be beneficial, however.

In Segment C, Alternative 1.0 would also reduce the corridor's accessibility from the east. Within this portion of the corridor, Alameda would be configured as a two-way street with trainway to the east of the roadway. The at-grade railroad tracks would preclude traffic on some east streets (e.g. Lynwood and Pine) from crossing over the east frontage road to reach Alameda. Accessibility would be further limited by street closures or cul-de-sacs as in the case of 96th St, 96th Place and Martin Luther King Blvd.

Lower accessibility scores obtained under the depressed trainway alternatives are largely due to the absence of the east frontage road along a significant portion of Segment C, from south of Butler Ave to Laurel St. Under alternatives 2.1A and 2.1S, there would be fewer opportunities to cross over or "T" into the frontage road, especially from the streets east of Alameda. Vehicles entering or exiting businesses on the east side of Alameda would be required to travel more circuitous routes to reach the nearest cross street. The reduced accessibility to the east frontage road and consequently to north and southbound traffic on Alameda could divert some traffic to smaller local streets and into residential areas.

Implementation of all build alternatives would result in the closing of 2 of the 9 existing grade crossings in Segment D. Opportunity to cross over Alameda at Dominguez Street and Henry Ford at Opp Street would not be available. "T" intersections at Alameda and Laurel Park Road and Denni Street and Henry Ford Avenue would be terminated in cul-de-sacs. However, two other "T" intersections with Alameda would be created at Vista Industria and El Presidion. Although the build alternatives would result in fewer opportunities to cross the corridor, they would provide the facilities to accommodate increased vehicular traffic. The net impact on through traffic crossing Alameda is expected to be beneficial.

Effects on Law Enforcement

- Emergency Response

Under the No Build Alternative, increasing train and traffic volumes would render at-grade crossing extremely difficult, and thus result in significant delays in police response time. The consolidated corridor, with fewer crossing opportunities but improved traffic flows, could cause delays in police response time to emergency calls across Alameda Street. Such delays would result from the necessity to travel more circuitous routes in order to reach the grade-separations. However, time lost in getting on and off the grade-separation structures may be compensated by higher operating speeds on the structures themselves. Furthermore, these grade separation structures would not adversely affect response time to calls with destinations beyond 1,000 feet of Alameda Street. Police vehicles could conveniently follow the overpass/underpass to cross Alameda. In fact, police response time in these instances would be improved by higher operating speeds on the crossing structures. Therefore, whether or not the proposed project, if it is configured as Alternative 1.0, would have an adverse effect on emergency response, and further whether that effect would be significant, would depend greatly on the specifics of the incident involved. Taking into account a random distribution of departure and destination points, the potential effects on police emergency response are not regarded as significant.

The overall Sheriff's response time in Lynwood could be generally delayed by the loss of existing cross streets. As shown in Table 5-45, the city of Lynwood would lose three of its four existing cross streets under the at-grade trainway alternative and half of its existing cross streets under the depressed trainway alternatives. Santa Ana/Fernwood and Lynwood would be closed in the future. Martin Luther King Blvd, currently a "T" intersection from the east side of Alameda, would be maintained as a cross-bridge only under alternatives with below-grade railroad tracks. Access to the west side of Alameda could only be gained via Imperial Highway under Alternative 1.0 and Imperial Highway and Martin L. King Blvd under alternatives 2.1A/2.1S. The new roadway configuration proposed under Alternative 1.0 could have a potentially significant impact on the Sheriff's emergency service in Lynwood.

In general, the consolidated corridor is not expected to result in significant impacts on the police emergency response along the corridor, and may improve it in some instances. In the case of Lynwood, increased or decreased response time could result, depending upon the origin and destination of the police vehicle. Since police vehicles would be generally patrolling their service areas, their emergency response routes are not fixed. Their response time, as a consequence, would be less affected by the new road configurations.

- Corridor Constraints

Some specific problems associated with each alternative have been identified by representatives from local police jurisdictions at a series of meetings that took place in March and April 1992. With regard to Alternative 1.0, one of the concerns raised was the potential inability to successfully pursue a suspect escaping on foot across the at-grade railroad tracks. Since the corridor would be continuously fenced, the issue raised may not become significant. Problems posed by the depressed trainway alternatives are slightly different. Police departments in this case are mostly concerned with the evacuation of people and removal of abandoned objects (e.g. stolen cars) from the trench.

TABLE 5-45
CROSS STREETS BY LOCAL JURISDICTION BY ALTERNATIVE
(EXISTING - FUTURE CROSS STREETS)

LOCAL JURISDICTION	ALT 1.0	ALT 2.1A/2.1S	ALT 2.2
Unincorporated areas of Los Angeles County	4 (12-8)	3 (12-9)	3 (14-11)
Los Angeles City	0 (9-9)	0 (9-9)	0 (9-9)
Vernon	1 (5-4)	1 (5-4)	0 (5-5)
Huntington Park	1 (4-3)	0 (4-4)	0 (4-4)
South Gate	1 (4-3)	0 (4-4)	0 (4-4)
Lynwood	3 (4-1)	2 (4-2)	2 (4-2)
Compton	5 (12-7)	6 (12-6)	6 (12-6)
Carson	1 (7-6)	1 (7-6)	1 (7-6)

Source: Myra L. Frank & Associates, Inc., 1992.

Effects on Fire Services

- Emergency Response

Unlike the police vehicles which would typically respond from patrolling cars, fire fighters and paramedic crews almost always originate from individual stations. Response routes to areas within their jurisdictions are therefore relatively fixed. Because of the inflexibility involved, fire emergency response time would be more sensitive to changes in road configuration than the police response time. Increased train volumes resulting from the growth at the ports of Los Angeles and Long Beach would render at-grade crossing over the corridor practically impossible. The No Build Alternative is therefore expected to result in significant delays at all at-grade crossings. Implementation of the consolidated corridor project, on the other hand, could significantly delay the fire and emergency response time in some instances (although in other instances fewer north-south signals and the presence of grade separations would avoid delay thereby reducing response time). Such delays could be due to circuitous access to grade-separations, the reduced number of crossing points and reduced accessibility to and from fire stations near the corridor.

a. Circuitous Access to and from Grade Separations

Vehicles originating from the 9 fire stations along the corridor are not expected to have difficulties reaching the nearest cross streets. Station 105, located immediately east of Alameda and the SPTF tracks in Carson, is approximately one-half mile between Artesia Blvd and Del Amo Blvd; the station's operation, therefore, would not be affected by the proposed overpasses at Artesia and Del Amo Blvd. All of the 8 other fire stations are located well beyond 1,000 feet of the corridor; their routes to the corridor would thus not be affected by the overpasses/underpasses and the new road configurations. The grade separation structures would enhance traffic flow across the busy corridor. Fire fighting crews and trucks originating from these stations could still utilize the same cross streets as they would today to cross Alameda but with much more ease and efficiency.

Significant delays may however result under Alternative 1.0 in those instances where requests for help come from within 1,000 feet of the corridor. Having crossed Alameda, fire service vehicles could then be required to travel more circuitous routes in order to reach their destinations. Actual length of the delay would depend greatly on the exact location of the call with regard to the cross streets or "T" intersections with Alameda.

b. Reduced Number of Cross Streets

The reduced number of proposed crossing opportunities are generally not expected to result in significant delays of fire response time. Access across Alameda in most cases would not be significantly reduced because the fire stations are located near a major cross street where a grade separation would be provided. Closing of some of the existing cross streets or "T" intersections, however, could send emergency vehicles through more circuitous routes and thus increase the response time. This would be minimized under alternatives 2.1A and 2.1S where the proposed cross-bridges with signalized intersections would allow traffic to turn directly into north or southbound traffic on Alameda.

The Lynwood Fire Department could experience increases in its response times due to the closing of up to three of its four existing cross streets. Under Alternative 1.0, Martin L. King, Santa Ana/Fernwood and Lynwood would become "T" intersections with the east frontage road located to the east side of the railroad tracks which in turn would be running east of Alameda Street. Emergency vehicles originating from Station 1 (located at 3161 Imperial Highway) could only reach destinations west of Alameda by crossing Imperial Highway and then following smaller local streets. Areas in the northwest corner of Lynwood City (generally bounded by 103rd Street, Alameda, 108 Street and Mona Blvd) would be particularly isolated from the city's two fire stations. Because Martin L. King Blvd would only "T" into the east frontage road (under Alternative 1.0), fire trucks would be required to travel more circuitous routes in order to reach this particular territory west of Alameda. From the intersection of Martin L. King and the east frontage road, emergency service vehicles would be required to travel approximately 1/2 mile north along the frontage road, turn around at Tweedy Blvd, then travel south again to reach destinations west of Alameda (in Lynwood City). Delays resulting under Alternative 1.0 are thus considered potentially significant.

Delays in fire response time within the City of Lynwood under alternatives 2.1A and 2.1S would be less severe than those under Alternative 1.0, though still potentially significant. With the cross-bridges at Martin L. King Blvd and 103rd Street providing access to both north and southbound traffic on Alameda, fire trucks coming from the east side of the city would have more flexibility and alternate routes in crossing Alameda to reach areas in the northwest corner of the city.

- Reduced Accessibility

Implementation of the Alameda Corridor could reduce accessibility of Fire Station 105 of the Los Angeles County Fire Department. Under existing conditions, emergency vehicles from Station 105 can exit through the station's back gate and cross the railroad tracks to respond to calls on the west side of Alameda, assuming that a train is not present. Under the No Build Alternative, while this access would not be physically removed, the ability to use it would be compromised by increased future train volumes. Implementation of the Corridor would preclude future crossings of the SPTC tracks and Alameda from the rear of the station unless special physical provisions are made. According to the Los Angeles County Fire Department personnel assigned to that station, a significant portion of the station's response is made to locations west of Alameda and in particular to two mobile home parks located across Alameda Street from the fire station. Up to one-third of present emergency calls received by Station 105 are from these mobile home parks. Compared to the option of crossing Alameda at the nearest cross street (Artesia or Del Amo Boulevard), crossing Alameda from the rear of the station reduces the response time from Station 105 to the neighboring mobile home parks by approximately 2 minutes.

- Corridor Constraints

Concerns have also been voiced regarding the depressed trainway configurations. In the case of Alternative 1.0, an incident would be handled using typical fire fighting or other emergency response procedures. With regard to the trench configuration (Alternatives 2.1A, 2.1S, & 2.2) however, problems have been envisioned that may require specialized treatment. The trench would provide at least partial containment of materials during an incident, such as a derailment. It would also make it more difficult to effect an evacuation of personnel caught in the trench at the time. This problem would be exacerbated by a limited number of locations where access into the trench would be available. Current project designs provide access into the trench at the northern and southern ends, and at one additional location, in an area north of Rosecrans Avenue, in the City of Compton. As a result, fire fighting and evacuation efforts would likely require operations both from the surface down into the trench and also from below, using the access points that have been provided. During the discussions held in March and April 1992, fire department personnel from all jurisdictions consistently voiced the need to be able to deal with an incident in the trench from a below grade position, rather than from above.

While the trench configuration poses operational problems for fire fighters, it offers the advantage of at least partial containment in the event of a train derailment, and in particular one involving a material spill. Should the spill produce fumes or gases, the level of protection offered by the trench is not as clear. Alternative 1.0 would not naturally provide containment, and therefore could expose more adjacent individuals to the adverse effects resulting from a train incident. For more detailed discussion on the risks of derailment and spills, please see Section 5.6 -- Safety and Security.

<u>Effects on Schools</u>

By the year 2020, the No Build Alternative would leave schools along the corridor with the same number of entrances but with extremely congested traffic and sharply deteriorated student safety conditions. The build alternatives, while providing the infrastructure to accommodate the increased train volumes along the corridor, may in turn create other impacts. Implementation of the consolidated corridor could in some instances result in right-of-way takes of school properties, make access to some school sites more difficult, and could have some effects on safety. Noise generated by the consolidated corridor may also disturb schools located nearby more than that generated under the No Build Alternative. Types and intensity of the impacts, however, vary among alternatives, depending on the road configurations in each alternative and their respective right-of-way requirements. Table 5-46 summarizes the impacts generated by the project alternatives on the nearby schools.

- Property Acquisition

The at-grade trainway and the sloped trench alternatives would require partial acquisition of school properties from the Los Angeles and Compton Unified School Districts. Right-of-way takes due to construction of east-west grade separations and access roads include property acquisition along the southern edge of Bunche Middle School and the northeast corner of Florence Avenue Elementary School. Right-of-way takes due to widenings of Alameda Street include property takings along the eastern edges of Ritter Elementary School and Jordan High School which are located on the west side of Alameda.

The additional right-of-way required under the sloped trench alternative (Alternative 2.1S) would be from the Ritter Elementary School located on the west side of Alameda. Total area required from the Ritter School would be approximately 6,200 square feet along the eastern edge of the school yard, and it would result in property line being set back about 15 feet from its current position. This acquisition, however, is not expected to result in any significant impacts on the schools' operation, however.

Jordan High School, located at the northwest corner of Alameda and 103rd Street, would experience partial right-of-way takings under the at-grade trainway alternative (Alternative 1.0) and the sloped trench alternative (Alternative 2.1S). The right-of-way proposed under Alternative 1.0 would cut 60 feet into the eastern portion of Jordan High School's parking lot. Additional right-of-way proposed under Alternative 2.1S would set the school property line back roughly 12 feet. Total areas of acquisition under Alternative 1 and Alternative 2.1S would be approximately 19,200 and 3,800 square feet, respectively. These property takings would only affect the eastern portion of the school's parking lot, resulting in the loss of roughly 40 parking spaces. This right-of-way taking would not impair the school's ability to operate. Whether the loss of parking is considered substantial would depend upon whether some of the spaces could be restored by a reconfiguration of the parking lot.

Construction of the grade-separated east-west crossings at Florence and Weber would result in partial property acquisition of the Florence Avenue Elementary School and the Bunche Middle School which are both located at the foot of the crossings' on- and off-ramps. As proposed under Alternative 1, Florence School would lose the tip of its northeastern corner up to 60 feet in width and 180 feet in length. The acquisition, however, would leave the nearby building intact. The Bunche Middle School would lose its southeastern corner and a narrow strip of land along its southern boundary. These partial right-of-way takes are not expected to affect the school's ability to operate.

TABLE 5-46
IMPACTS ON SCHOOLS BY ALTERNATIVE

	NAME	SEGMENT	SCHOOL DISTRICT	ALT 1.0	ALT 2.1A	ALT 2.1S	ALT 2.2
•	Lilian Street Elementary School	B1	LAUSD	none	none	none	-Increased noise
•	Florence Avenue Elementary School	B2	LAUSD	- partial right-of-way take at northeast corner of the school due to overpass on Florence	none	none	none
•	Ritter Elementary School	C	LAUSD	- Increased noise - Increased traffic	- Increased noise - Increased traffic	- increased noise - Increased traffic - partial right-of-way take along the eastern edge of school yard	- Increased noise - Increased traffic
* •	Bunche Middle School	C	Compton USD	- partial right-of-way takes at southeast corner and along southern edge of school	none	none	none
* •	Jordan Senior High School	C	LAUSD	- Increased noise - Increased traffic - diminished pedestrian access across Alameda - partial right-of-way take along eastern edge of school's parking lot	- Increased noise - Improved pedestrian access	- Increased noise - Improved pedestrian access - partial right-of-way take along eastern edge of school's parking lot	- Increased noise - Improved pedestrian access

Notes:
• School within 1/4 mile of Alameda
* School with service area spanning the corridor

Source: Myra L. Frank & Associates, Inc., 1992.

- Accessibility

Although the number of physical entrances to the schools under the No Build alternative would remain the same as they are today, the ability to make an at-grade crossing, whether on foot or by car, would be seriously restricted by the increased train volumes along the corridor. While implementation of some of the build alternatives may result in more circuitous routes, and in some cases diminished access to school sites, schools would ultimately benefit from the proposed complete grade-separation of train and vehicular traffic.

Closure or reconstruction of existing cross streets into overpasses/underpasses could significantly affect pedestrian access to schools with students living across Alameda. Since arrangements have been made within the Compton Unified School District (Compton USD) so that students could avoid walking across Alameda, no impacts on pedestrian access are expected among the Compton USD schools. Pedestrian access to some schools within the Los Angeles Unified School District, on the other hand, may be adversely affected by the grade-separated crossing structures. For example, construction of the Vernon underpass as proposed under Alternative 1.0 would increase the walking distance to the Vernon City Elementary School from across Alameda. The longer distance involved in crossing the overpass could pose significant difficulties for these elementary students. It should be noted, however, that without the construction of the underpass, pedestrian access across Alameda under the No Build Alternative would be subjected to increased safety hazards from trains.

Pedestrian access to Jordan High School from east of Alameda would be impaired under Alternative 1.0. Although Tweedy Boulevard would remain open under Alternative 1.0, it would be elevated to intersect Alameda above grade. The elevated cross street at Tweedy and Alameda would require students (coming from the east side of Alameda) to walk longer distances while the at-grade trainway would preclude any crossing on the ground.

Implementation of Alternative 1.0 would make auto access to Jordan High School somewhat more difficult. While students coming from locations north of the school could easily turn into the school's parking lot, those coming from places to the east and south would be required to travel a longer distance in order to reach the school's parking lot. Students coming from east of Alameda via Tweedy would have to turn left at the Alameda/Tweedy intersection, and follow Alameda southbound until 103rd Street. However, from 103rd Street, students would not have direct access to the parking lot and therefore would have to use other local streets.

Students travelling northbound on Alameda would have two options: In the first option, they could turn left into the realigned 103rd Street. In the second option, they could continue on Alameda northbound, pass underneath the Alameda/Tweedy intersection, then turn around to get back on Alameda southbound.

Although involving some additional distance, auto access to Jordan High School under the depressed trainway alternatives would be better than that under the at-grade trainway alternative. Students travelling southbound on Alameda could conveniently turn into the school's parking lot. Those coming from east of Alameda and those travelling northbound on Alameda could make the turn at Tweedy Blvd. The additional distance required would not be significant.

impact on auto access to the school under the No Build Alternative would also be significant. Students travelling north and southbound on Alameda could easily turn into the school's parking lot. However, students coming from east of Alameda (via Tweedy or 92nd/Southern Ave) would have extreme difficulties crossing the at-grade railroad tracks that would be unremittingly occupied by freight trains.

- Safety of School Children

Under the No Build Alternative, safety of school students crossing the corridor would be seriously endangered by the increased train and traffic volumes that would co-exist at grade level. The proposed project would create a corridor that would accommodate the increased freight train activities, at the same time improve safety of students walking across Alameda. For example, while students at Jordan High School and Vernon City Elementary School may have to walk longer distances to get to school, their personal safety would be better protected on the grade separated crossings. In addition, the consolidated corridor would also provide state-of-the-art communications and control as well as greatly improved tracks and equipment. Therefore, it is expected that student safety would be generally improved under the proposed corridor.

Given the large number of trains traversing the corridor everyday, there exists the potential for incidents such as a material spill or train derailment. Should such incident occur, safety of students at schools fronting Alameda such as Jordan High School or Ritter Elementary School could be adversely affected. Under the depressed trainway alternatives, these potential risks on student safety could be reduced as damages would be better contained within the trench. Furthermore, the state-of-the-art communication and trackage would substantially improve the overall safety conditions. While the No Build option would have fewer trains, it would not have the benefits of improvements.

Construction and operation of the grade-separated crossing structures could also result in impacts on the safety of students attending schools near these structures. The overpasses/underpasses designed under Alternative 1 may bring corridor-related traffic into the neighborhoods on either side of Alameda, thereby affecting the safety of children walking to and from schools. For example, the proposed underpass at Florence Avenue could expose elementary students attending Florence School to busy traffic on and off the structure. Students attending Bunche Middle School in Compton would also experience heavier corridor-related traffic brought by the proposed overpass on Weber Street.

- Other Effects

The corridor could conceivably expose students to more noise, air pollutants and risk of toxic exposure than would the No Build alternative. Noise impacts on schools fronting the alignment such as the Ritter and Jordan schools could be considered significant. For detailed discussions on these potential impacts, please refer to section 4.4-Noise, section 4.3-Air Quality and section 5.6-Safety and Security.

Effects on Libraries, Churches and Hospitals

- Acquisition

Implementation of Alternative 1.0 would result in acquisition of the following churches: the First Pan American Foursquare Church located at 12726 Mona Blvd; the Crusada De La Fe Iglesia located at 128 Alondra Blvd; and a store front church located at 1520 Pacific Coast Highway. The corridor is not expected to result in any acquisition of libraries or hospitals.

- Accessibility

The corridor is not expected to affect direct access to local library branches or hospitals. Access to hospitals in the area (Dominguez Valley and Martin L. King General Hospital) from across Alameda would generally be improved on the grade crossing structures.

- Noise

No adverse noise impacts are anticipated with regard to libraries and hospitals. Noise effects on churches are described in Section 4.4.

Effects on Parks

- Acquisition

Of the 8 parks located within one-fourth mile of the corridor, only Wilson Park would experience partial right-of-way acquisition. Generally bounded by Palmer to the north, Rose Avenue to the east, Compton to the south and East Alameda to the west, Wilson Park is divided by a small east-west alley of approximately 30 feet in width. Under Alternative 1, Compton would be reconstructed as an overpass. Right-of-way proposed under the at-grade trainway alternative would result in the acquisition of a small area (approximately 600 square feet) of the park's southwest corner where Compton intersects East Alameda Street. Right-of-way proposed under the depressed trainway alternatives would acquire a slightly larger area. These partial right-of-way takes are minor, and are thus not expected to result in any significant impacts on the park's operation.

- Accessibility

Situated at the northeast corner of Alameda St and Compton Blvd, Wilson Park is readily accessible. Under existing conditions, patrons from the west side of Alameda could follow Compton Avenue, cross over Alameda and enter the park from Rose Avenue. Patrons travelling south on Alameda could make a left turn on Palmer Street (located north of the park) while those travelling north would have convenient, direct access to the park from the frontage road. However, by the year 2020, increasing freight train traffic under the No Build Alternative would render at-grade crossing at Compton Blvd extremely difficult, thereby significantly reducing auto and pedestrian access to the park.

Pedestrian access to the park would be impaired under Alternative 1.0 because of the longer distance required to traverse the overpass. The impact, however, is not considered significant as there is not a high demand for pedestrian access to Wilson Park from the busy industrialized areas west of Alameda. Residential areas using the park are mostly located to the east. Pedestrian access from these homes would not be reduced by the overpass.

Vehicular access to the park, on the other hand, would be improved with the consolidated corridor. Compared to the No Build Alternative, any of the build alternatives would provide patrons with fewer yet better opportunities to cross over Alameda. Although Palmer Street would no longer be accessible to southbound traffic on Alameda under Alternative 1.0, patrons would be compensated with higher operating speeds along Compton Boulevard. Alternatives 2.1A/2.1S would present more preferable choices than Alternative 1.0 since patrons travelling east on Compton Boulevard would have direct access to the park and Alameda Street.

Located in the southeast quadrant of Alameda and Elm St, the Compton Neighborhood Center is currently accessible from Elm St, East Alameda St (frontage road) and West Alameda Street. If no improvements are made, increased traffic by the year 2020 would preclude any crossings over Alameda on Elm or Palmer St, leaving the center accessible only from locations east of the tracks. Compared to the No Build Alternative, implementation of the corridor would improve overall traffic flows across Alameda, and consequently, vehicular access to the center. Patrons would not have to travel significantly longer distances to reach the center. With Elm Street terminated as a "T" intersection east of the tracks, patrons travelling on the west side of the tracks would be required to cross over at Rosecrans Ave or Compton Blvd. Since the new routes would involve little extra distance, the net effect on vehicular access to the center is considered beneficial. Closing of Elm Street, however, would significantly reduce pedestrian access across the corridor.

Alternative 2.2 would maintain the same number of crossing points along Long Beach Avenue. With the proposed trainway in the trench, Alternative 2.2 would neither create nor reduce freight train volumes at grade level. Therefore it would not affect vehicular or pedestrian access to the Fred Roberts Recreation Center and the Slauson Recreation Center.

- Noise

Increasing freight train activities and traffic volumes on Alameda could result in significant noise impacts on parks fronting the alignment. These include Wilson Park, the Slauson and Fred Roberts Recreation Centers, the Compton Neighborhood Center and the two playgrounds located in the Pueblo Del Rio Housing Project and the Compton Unified School District administration offices (see Table 5-47). Although still within the 1/4 mile study area, the Ross Snyder Recreation Center, the West Side and East Wilmington Green Belt Parks are further removed from Alameda. Their operating conditions, therefore, are not expected to be adversely affected by the corridor's operation.

Noise impacts on Wilson Park's operation could be more severe under Alternative 1.0 due to the elevated intersection at Compton Blvd and Alameda St.

- Other Effects

Parks and recreation centers fronting the proposed corridor such as the Fred Roberts and Slauson Recreation Centers, Compton Neighborhood Center and Wilson Park could be subjected to increased air pollutants. Impacts resulting under the No Build Alternative may be relatively less than those resulting under the build alternatives, although they are still considered potentially significant when compared to existing conditions. For more detailed discussions on these impacts, please refer to section 4.4-Noise, section 4.3-Air Quality and section 5.6-Safety and Security.

TABLE 5-47
IMPACTS ON PARKS AND PLAYGROUNDS BY ALTERNATIVE

FACILITY	SEGMENT	ALT 1.0	ALT 2.1A/2.1S	ALT 2.2
Slauson Recreation Center	B1	n/a	n/a	- significant noise impact
Fred Roberts Recreation Center	B1	n/a	n/a	- significant noise impact
Wilson Park	C	- partial right-of-way take - significant noise impact - limited access to park	- significant noise impact	n/a
Compton Neighborhood Center	C	- significant noise impact	- significant noise impact	n/a

Source: Myra L. Frank & Associates, Inc., 1992.

5.5.4 Mitigation Measures

Construction

Efforts should be made to reduce the delays in emergency response time during construction period. Police and fire personnel should be informed in advance of the location and duration of construction activities as well as any temporary street closures due to these construction activities. An overall construction sequencing and traffic management plan should be prepared and reviewed with fire and law enforcement officials. Cross streets scheduled for grade-separation within a particular jurisdiction should be constructed one at a time to ensure that traffic flow within that jurisdiction via Alameda is not completely cut-off. Furthermore, construction activities should be scheduled for off-peak hours, nights and during the weekend to lessen the delaying impacts, subject to simultaneously accounting for potentially adverse noise impacts.

Fire emergency access to buildings adjacent to construction activities should be maintained at all times. Streets undergoing construction should have the curb lane kept open for fire and emergency purposes. Fire hydrants in construction areas should remain accessible.

Impacts on vehicular access to community facilities could be lessened with proper installation of street signs indicating alternate routes to the facility. Pedestrian access to and from the facility could be improved with construction of temporary walkways, protective canopies and fences. Construction sites which are located near a park or school should be securely fenced and shielded to protect patrons and students from debris, falling objects and construction equipment. In light of the congested traffic resulting from detours and closure of streets, cross guards should be provided where necessary to ensure the students' safety.

Construction noise would be controlled by adherence to local ordinances and by appropriate scheduling of construction activities. Temporary noise barriers may be required in some instances.

Should temporary interruption of utilities be required, management of the affected community facilities should be given advance notice of the time and duration of the shutoff.

<u>Operation</u>

- Law Enforcement

The primary difficulties noted by law enforcement officers associated with the Alameda Corridor project were two-fold. First, there would be an inability to pursue persons committing crimes who were escaping on foot across the at-grade facility (Alternative 1.0) or into the depressed trainway (alternatives 2.1A,2.1S & 2.2). Second, the potential would exist for stolen property such as automobiles to either be taken into the depressed trainway and stripped or simply driven or dropped into the trainway.

If more frequent access into the depressed trainway could be provided, this would increase the ability of law enforcement officers to maintain pursuit. However, this would also increase the number of opportunities for persons fleeing those officers to enter the depressed trainway. If additional points of access are provided, they would somehow need to be controlled to adequately prevent unauthorized access.

Surveillance of the corridor should be provided at as high a level as practicable. This should include area flood lighting that can be activated by corridor or law enforcement personnel, and possibly video cameras with recording capability at selected locations. Also an important element of corridor surveillance would be an open line of communications between personnel working in the corridor and law enforcement officials.

- Fire Services

Officials from fire departments serving jurisdictions along the corridor stated a preference for more access roads to the trench in order to respond promptly and effectively to emergency problems arising in the trench. More access roads to the trench would facilitate the evacuation of people caught down in the trench and provide better access to fire fighting equipment and personnel. In addition to the proposed access points at each end of the corridor and the one at mid-corridor, additional access points would be desirable, although the frequency of their location is subject to discussion. It has been suggested that access roads be provided at 2-mile intervals or, at least, at three additional locations along the below-grade portion of the corridor (which extends approximately 12 miles from the northern limit of the project to the vicinity of SR 91).

Access roads to the trench should be able to accommodate emergency fire equipment and should be wide enough to have at least two vehicles moving abreast. At a minimum, fire department personnel have suggested that the service road at the bottom of the trench allow for vehicles to pass one another at some locations. These details should be developed as the project proceeds into further design activities.

Fire departments along the corridor have also recommended that access to water be provided in the trench. In particular it has been suggested that a water main with hydrants be built in the trench to provide maximum fire protection for the depressed trainway. Among the options suggested is a 8" water main with hydrants every 250 feet, or at minimum, a 6" water main with hydrants every 400 feet. Additional fire hydrants could also be made available from the surface for fire fighting activities from above the trench. Both vaulted (below-grade) hydrants and hydrants built into wall niches have been suggested. Whether water mains and hydrants should be provided will be decided during subsequent project design activities with consultation from affected fire departments.

Los Angeles County Fire Station 105, located immediately adjacent to the corridor, would experience an adverse effect regarding its accessibility. Vehicles leaving the station in response to an incident (particularly one occurring west of Alameda) oftentimes use a rear gated drive that provides immediate access across the SPTC tracks. Without some special design modification, the Alameda Corridor project would remove this access point, necessitating a more circuitous route for vehicles responding to a call. Given the high frequency of calls affecting locations west of Alameda, this loss of access is regarded as potentially significant. One remedy to this problem would be to maintain access across the corridor. This option is being examined. It may be possible to provide a roadway connection, to be maintained for the sole use of Station 105, which would allow the needed access across Alameda.

Once the Alameda Corridor is in operation, access across the corridor would become more limited and circuitous, and local fire and paramedic crews could encounter some difficulties in responding to emergency calls on the other side of Alameda. In order to respond efficiently to situations such as this, the practice of automatic aid between different fire jurisdictions has been developed. This practice provides for an interconnection of communications systems among the various participating jurisdictions, and if necessary, units from one jurisdiction respond at the request of another, until such time as the first can arrive to resume control. This approach is also used in those instances where one jurisdiction requires additional equipment and personnel beyond its own capabilities. The mutual aid practice could play a larger role in the future for instances involving response to an emergency across the Alameda Corridor.

Fire service along the corridor could be improved if efforts can be made to minimize the need to cross Alameda. Fire jurisdictions could be redrawn using the consolidated corridor as a dividing line. This idea should be examined as the corridor proceeds closer to implementation.

- Schools

Efforts should be made to protect school children near Alameda Street from the potential risks associated with the corridor's operation. Students attending the Ritter and Jordan High Schools should be especially protected from the increased traffic volumes along the corridor. Should the at-grade trainway alternative be implemented, a wall should be built along the eastern edge of the Ritter School's playground and the Jordan High School's parking lot to reduce noise and traffic impacts while shielding students from other train-related risks on Alameda. Students of Lilian Elementary School would be at risk of increased noise levels from Alternative 2.2 due to increased train volumes; however, the impact may be mitigated by the construction of a soundwall along the northern edge of the school.

Vehicular access to the parking lot at Jordan High School would be improved if a second entrance to the parking lot could be provided. It would be best to have this second entrance connected to 103rd Street since that would be the shortest connection possible. Otherwise it is recommended that the second entrance be connected to a local street, rather than Alameda.

In light of the growing number of grade separation structures and the increasing traffic and train volumes along Alameda, school bus service should be considered for students living on the other side of Alameda. School's service (attendance) area boundaries could be redrawn using Alameda as the dividing line, which would better rationalize the relationship between the corridor and its surroundings.

- Libraries, Churches and Hospitals

No significant impacts are expected; therefore no mitigation measures are required.

- Parks

Parks fronting the alignment would need to be buffered from excessive noise, air pollutants and other risks generated by the corridor. Sound walls should be built along the front side of these parks to help alleviate the noise impact and protect patrons from the corridor activities.

5.6 SAFETY AND SECURITY

5.6.1 Setting

The Alameda Corridor is approximately 20 miles long and passes through portions of the City of Los Angeles, the County of Los Angeles, and the cities of Vernon, Huntington Park, South Gate, Lynwood, Compton, and Carson. The corridor is primarily industrial in character, and it has been subject to freight train movements throughout much of its history. The proportion of current land uses adjacent to the corridor are as follows: Commercial (11 percent), Industrial (56 percent), Institutional (25 percent), Open space (0 percent), Residential (4 percent) and Vacant (4 percent).

For the entire route, the population living within 500 feet of the corridor is estimated to be 7,400; within 1,000 feet, the number of residents is 26,200 (DMJM/M&N 1991). In addition to the general population exposure to freight rail operations in the Alameda Corridor, there are a number of sensitive receptors located adjacent to the corridor. These are identified in Section 5.5.

Existing and projected train volumes to and from the Ports are shown in Table 3-1. The frequency and length of trains using the corridor would be significantly greater than at the present time and, therefore, the potential for increased exposure to safety and security hazards must be considered.

Public safety hazards associated with train operations can be broken down into two groups: (1) accidents associated with population exposure to rail operations (primarily pedestrian and vehicular accidents involving trains) and (2) accidents involving the trains themselves (e.g., derailments).

Comprehensive statistics on the train accident history for the corridor in recent years are not available. However, some accident information for the area was found. For example, the California Public Utilities Commission (PUC) reported 49 train accidents in 1989 at grade crossings in Los Angeles County; these accidents resulted in 22 casualties (California Public Utilities Commission 1990; Michael Brandman Associates 1991). In addition, grade crossing accident data were obtained from the files of the PUC's Los Angeles office for seven railroad lines in the project area: Southern Pacific (SP) La Habra, SP Santa Ana, SP Puente, SP San Pedro, SP Wilmington, Union Pacific (UP) San Pedro, and Santa Fe (SF) Harbor Subdivision. Tables 5-49 through 5-50 tabulate the number of accidents, fatalities, and injuries, respectively, for these seven lines from 1985 through 1991. For example, over this period, the SP San Pedro Branch experienced a total of 25 accidents at grade crossings that produced zero fatalities and eight injuries (U.S. Environmental Protection Agency 1992).

By way of contrast, a 1991 study from another source reported that I-710 (Long Beach Freeway), which is the most commonly traveled route for port related truck movements, experiences 1.17 accidents per million vehicle miles (Michael Brandman Associates 1992). The PUC reported that for the period from 1975 to 1989, California had an average of eight train accidents per million miles (there were 226 average yearly accidents in this period; train travel averaged 28 million locomotive miles per year). (California Public Utilities Commission 1990.) Over this same period, the average casualty rate was 30 people per year (the vast majority were injured; accident fatalities were very rare). (California Public Utilities November 1, 1990.)

To protect the public from rail safety hazards, emergency facilities are located at various places along the corridor, and response routes operate both along and across the corridor. For a detailed discussion of emergency access see Section 5.5.

The potential exposure of the public to hazardous materials released from train accidents is a public fear that has been heightened by two recent, highly publicized train accidents. One occurred on July 14, 1991, when a SP train derailed at Dunsmuir in Northern California. A large amount of pesticide (metam sodium) spilled out of a tank car and contaminated 45 miles of the Sacramento River (Los Angeles Times 1991). The accident occurred when an axle snapped off a rail car while the train was moving along 14 degree curved track on steep grade. The second accident took place on July 28, 1991, when another SP train derailed in Ventura County at the coastal town of Seacliff. A total of 12 cars derailed, spilling a large amount of diluted hydrazine (dichlorodifluoromethane). Although there were no human injuries, hundreds of residents were evacuated, a ten mile segment of Highway 101 was closed, and local Amtrak train service was disrupted (Los Angeles Times 1991). The accident occurred on a 40 mile stretch without a hot box detector (a hot box detector is a device that provides warning of the presence of overheated bearings).

TABLE 5-48
GRADE CROSSING ACCIDENTS ALONG SELECTED RAILROAD LINES IN LOS ANGELES COUNTY

LINE	NUMBER OF ACCIDENTS BY YEAR							
	1985	1986	1987	1988	1989	1990	1991	TOTAL
SP La Habra Branch	9	4	1	0	0	0	0	14
SP Santa Ana Branch	1	2	0	0	0	3	0	6
SP Puente Branch	2	1	0	0	0	0	0	3
SP San Pedro Branch	8	5	2	4	0	5	1	25
SP Wilmington Branch	5	11	3	3	1	3	1	27
UP San Pedro Branch	6	5	4	4	3	9	1	32
SF Harbor Subdivision	1	7	9	6	1	2	0	26

Source: California Public Utilities Commission, Safety Division, 1992.

TABLE 5-49
GRADE CROSSING FATALITIES ALONG SELECTED RAILROAD LINES IN LOS ANGELES COUNTY

LINE	NUMBER OF FATALITIES BY YEAR							
	1985	1986	1987	1988	1989	1990	1991	TOTAL
SP La Habra Branch	0	0	0	0	0	0	0	0
SP Santa Ana Branch	0	0	0	0	0	0	0	0
SP Puente Branch	0	3	0	0	0	0	0	3
SP San Pedro Branch	0	0	0	0	0	0	0	0
SP Wilmington Branch	0	0	0	0	1	0	0	1
UP San Pedro Branch	0	1	0	0	0	0	0	1
SF Harbor Subdivision	0	0	0	0	0	0	0	0

Source: California Public Utilities Commission, Safety Division, 1992.

TABLE 5-50
GRADE CROSSING INJURIES ALONG SELECTED RAILROAD LINES IN LOS ANGELES COUNTY

LINE	NUMBER OF INJURIES BY YEAR							
	1985	1986	1987	1988	1989	1990	1991	TOTAL
SP La Habra Branch	9	2	0	0	0	0	0	11
SP Santa Ana Branch	0	1	0	0	0	2	0	3
SP Puente Branch	0	0	0	0	0	0	0	0
SP San Pedro Branch	6	0	0	0	0	2	0	8
SP Wilmington Branch	4	4	7	1	0	1	1	18
UP San Pedro Branch	0	0	2	2	1	2	1	8
SF Harbor Subdivision	0	1	1	2	0	0	0	4

Source: California Public Utilities Commission, Safety Division, 1992.

Hazardous materials are defined as any material designated "hazardous material," "hazardous substance," or "hazardous waste" under Title 49 of the Code of Federal Regulations, Section 171.8 (California Public Utilities November 1, 1991). They include toxic substances, explosives, corrosive materials, combustible materials, poisons, or radioactive materials that pose a risk to the public's health, safety or property when transported in commerce (U.S. Department of Transportation July 1991).

Nationwide, the volume of hazardous materials carried by freight rail has increased in recent years. Between 1985 and 1989, the volume of hazardous materials transported by rail in the U.S. increased by 65 percent to 1.52 million carloads annually (California State Assembly February 1991). The highest volume chemicals, according to national figures for the period 1979 through 1983, were liquified petroleum gas (LPG), caustic soda, sulfuric acid, chlorine, and fuel oil (Raj 1988). A recent study indicated that of the containers shipped through the Port of Long Beach, five to ten percent contained hazardous liquids such as fuels and chemicals (Michael Brandman Associates 1991). Approximately ten percent of freight rail cars moving through the region carry materials classified as hazardous.

Data on the frequency of train accidents involving hazardous materials were obtained from five sources: (1) the U.S. Environmental Protection Agency's (EPA) Emergency Response Notification System (ERNS), (2) the California Office of Emergency Services' (OES) California Hazardous Materials Incident Response System (CHMIRS), (3) the PUC, (4) the U.S. Department of Transportation's (DOT) Federal Railway Administration (FRA), and (5) the U.S. DOT's Research and Special Programs Administration (RSPA).

The U.S. EPA's ERNS data for fiscal year 1991 indicated 92 hazardous substance spills from railways in a region that includes Arizona, California, Hawaii, Nevada, American Samoa, Guam, and trust territories (U.S. Environmental Protection Agency, Emergency Response Network System's Annual Regional Spill Report (Fiscal Years 1983 to 1991). The data did not segregate out California, although it is reasonable to expect that a high proportion of these accidents occurred in California, based on the equally high proportion of rail miles that occur there. Other data were obtained from ERNS that permitted the tabulation of railroad spills from the SP railroad along the Alameda Corridor from 1985 through 1991. This data indicated only a handful of train movement spills per year for the corridor (U.S. Environmental Protection Agency 1992). The specific data is shown below:

Year	Number of Spills
1985	0
1986	0
1987	2
1988	0
1989	0
1990	3
1991	2

California's OES's CHMIRS logged 23 railroad related spills in 1989. CHMIRS has not achieved full compliance yet, so its data may be incomplete (mandatory reporting started in 1988). (State of California, Office of Emergency Services, Hazardous Material Division 1991.)

The FRA and PUC data are interrelated and incomplete. The FRA is the original source of the train accident data for the FRA and PUC. The FRA publishes annual reports for the nation but does not break down the statistics by states. The PUC obtains data from the FRA on California and publishes the information in its own documents; however, because the FRA system only reports accidents that cause over $5,700 in damages to railroad on-track equipment, a full picture of the true number of hazardous material accidents does not emerge (California Public Utilities Commission, Safety Division 1991). The FRA data may under count the number of accidents involving hazardous materials because of the reporting threshold. Data from 1990 for California seem to confirm this. In this year, the FRA and PUC each reported three train accidents that released hazardous materials (U.S. Department of Transportation, Federal Railroad Administration July 1991; California Public Utilities Commission, Safety Division November 1, 1990). This number is significantly less than the 92 spills in 1991 that the U.S. EPA's ERNS reported for the western United States.

Hazardous material rail incident data were obtained from the U.S. DOT's RSPA for California and Los Angeles County for the years 1985 through 1991. The RSPA data were more comprehensive than the U.S. DOT's FRA data for two reasons: (1) the system is specifically targeted to hazardous material spills reporting, and (2) there is no reporting threshold dollar amount. Over the seven year period there were 463 incidents statewide; approximately one-fourth (124) took place in Los Angeles County. The number of incidents in Los Angeles County over the period averaged slightly less than 20 per year (U.S. Department of Transportation March 9, 1992). Table 5-51 tabulates the data.

TABLE 5-51
RAIL INCIDENTS INVOLVING HAZARDOUS MATERIALS

YEAR	INCIDENTS		
	CALIFORNIA	LOS ANGELES COUNTY	PERCENTAGE IN LOS ANGELES COUNTY
1985	81	18	22%
1986	54	18	33%
1987	56	16	29%
1988	51	17	33%
1989	60	19	32%
1990	67	16	24%
1991	94	20	21%
Total	463	124	27%

Source: U.S. Department of Transportation, Research and Special Programs Administration, 1992.

Some definition can also be provided on the types and causes of train accidents. According to one study prepared for the FRA in 1983, derailments account for 73 percent of all accidents involving hazardous materials. Collisions of all kinds account for another 20 percent (Little 1983). Approximately 75 percent of releases are minor and cause minimal property damage. Among the more severe incidents, the vast majority were caused by three chemical groups: flammable gases, flammable liquids, and corrosives (Little 1983).

Data from 1983 revealed that seven percent of derailed tank cars from main line derailment/collision accidents released their contents; this release rate has improved since 1978, when 25 percent of the cars leaked (Raj 1988).

Train accidents occur for a variety of reasons. The PUC reported that for the period 1983 through 1989, the leading causes of train accidents were as follows: track, roadbed, and structure (36 percent); human factors (27 percent); miscellaneous (20 percent); and mechanical failures (17 percent). (California Public Utilities Commission November 1, 1991.)

In 1990, the most common causes nationwide for train accidents involving hazardous materials were as follows (a total of 90 cars were involved): mechanical and electrical failures involving "truck components" (19) and "axles and journal bearings" (18); track, roadbed, and structures involving "frogs, switches, and track appliances" (12) and "rail and joint bar defects" (5); and "collisions with highway user at crossing site" (5). (U.S. Department of Transportation, Federal Railroad administration July 1991.) Of the 90 cars involved, 73 derailed. (U.S. Department of Transportation, Federal Railroad administration July 1991.)

Data on rail accidents in general, and rail accidents involving releases of hazardous substances in particular, are incomplete. It may reasonably be concluded that the frequency of such accidents is low, but at the same time the risk to public health resulting from any one accident could be significant. The actual potential risk is a function of the details pertaining to the specific accident (e.g., the number of cars derailed, type of cars derailed, materials being carried).

5.6.2 Construction Impacts

The potential for construction impacts on public safety is of concern due to the proximity of people to the construction sites. For example, people may intrude into the construction areas and be injured by construction equipment, trains operating in the corridor or trains running on temporary shoe-flies. Children are of special concern and, therefore, areas in the immediate vicinity of schools, and the normal pedestrian routes to those schools, must be considered areas of above-normal exposure. See Section 5.5 for a detailed listing of schools adjacent to the corridor.

There are also safety issues associated with detouring traffic and negotiating vehicles through construction areas. Access of emergency vehicles (e.g., fire, police) through the project area could also be compromised during construction activities. Section 5.5 provides a more detailed description of the construction effects on emergency vehicles.

Construction activities may also produce accidents involving pipelines and utility lines which could release hazardous materials. These lines (e.g., electricity, natural gas, sewer, water) may be ruptured during construction activities. Construction activities may also expose contaminated soil and groundwater. The risk of exposure to hazardous materials from contaminated soil or groundwater are discussed in Section 4.1 and Section 4.2.

5.6.3 Operational Impacts

There are a number of safety issues which would typically face the general public and rail operators from daily rail operations. These issues include the potential for accidents between vehicles and trains at grade crossings, accidents involving pedestrians and trains, and exposure to injury or hazardous materials as a result of train accidents.

One of the most important safety issues is automobile and train conflicts. These will be eliminated by the creation of grade separations along the corridor. The consolidation project will produce a net environmental benefit on this issue.

A major issue of concern to the public is the potential for train derailments and spills. The risk of upset involving hazardous materials is especially important. Empirical research has shown that the greatest public fear related to railroad operations is the possibility of hazardous material accidents. One study found that the public regards the seriousness of this hazard at a level similar to the hazards associated with nuclear technology (California Public Utilities Commission November 1, 1990).

There should be a greatly reduced potential for accidents with the consolidated corridor. For example, there are at least five infrastructure improvements that will reduce accident probability: (1) grade separations, (2) integrated series of safety detectors, (3) right-of-way fencing and focused security protection, (4) state-of-the-art track structure, and (5) complete signalization of the corridor. The at-grade alignment (Alternative 1) could pose more risk than the trench alternatives (Alternatives 2.1 and 2.2) since a release of hazardous materials would not be as contained. On the other hand, an accident in a trench could trap and concentrate airborne chemicals at the accident site, thereby creating more harm to train and response personnel. There may also be some increased risk along the Vernon Diversion in Segment B-1, since that segment has more residential land uses adjacent to the corridor. Overall, it may reasonably be concluded that the frequency of safety and security accidents is not high; however, the risk to the public resulting from any one accident must be considered potentially significant.

5.6.4 Mitigation Measures

<u>Construction</u>

Standard construction safety practices would be employed to protect the public from harm during the construction process. For a description of the various steps involved in constructing the proposed project, see Chapter 3. It may be necessary construct temporary trackage within the corridor while portions of the permanent trainway are completed or it may also be prudent to route train traffic to a parallel facility (such as the SP Wilmington Branch) while the corridor is being built. In either event, close coordination and pre-planning would be maintained with the railroads, the California Utilities Commission, local jurisdictions, and special service agencies. (fire and police). All reasonable and prudent efforts will be made to protect the public during the construction process.

Operation

The project will include a variety of mitigation measures to reduce the impacts associated with safety and security. Mitigation measures have been broken down into four categories: (1) federal laws and regulations, (2) state laws and regulations, (3) carrier operating procedures, and (4) infrastructure improvements. They are discussed below.

- Federal laws and regulations

The Federal Railroad Safety Act (FRSA) of 1970 (P.L. 91-458) provides for federal regulation of rail safety practices (California State Assembly August 15, 1991). The U.S. DOT's Federal Railway Administration (FRA) is responsible for enforcing nationwide uniform regulations resulting from the FRSA; these regulations cover subjects relating to the operation and maintenance of trains, tracks, and equipment. The FRSA contains a rule that allows the federal government to preempt the states in regulating rail safety. The two important exemptions to the FRSA's preemption rule are when (1) there are no federal rules covering a specific subject, and when (2) there is an "essentially local safety hazard" which permits the states to establish their own rules -- as long as the state rules are not incompatible with federal law and doesn't cause undue burden on interstate commerce.

- State laws and regulations

Recent train accidents in California brought about a heightened awareness of rail safety issues. As a result, both administrative measures have been expanded and legislation has been passed to improve rail safety.

The California Public Utilities Commission (PUC) oversees safety standards and procedures for common carrier railroads (California Public Utilities Commission May 1991). The PUC is mandated to establish and enforce measures to improve railroad safety within the state. The PUC issues "orders"; there are about 20 general orders that are specifications dealing with rail safety.

As mentioned in the previous section, the PUC is preempted by the federal rules of the FRA. However, individual states can assume more responsibility by becoming certified (i.e., to carry out and enforce the federal rules of the FRA) in certain areas. The PUC has been certified in three areas: track safety, equipment safety, and operating practices. The federal Hazardous Materials Transportation Uniform Safety Act (HMTUSA) of 1990 (P.L. 101-615) allows states to participate in the enforcement of federal regulations covering hazardous material transportation. In California, the State Participation Program authorized by HMTUSA for hazardous materials was scheduled to begin in the fall of 1991. The PUC must certify its staff before participating in this program (California State Assembly August 15, 1991).

Both the PUC and the FRA have the authority to put train equipment out of service by applying the federal regulations (California State Assembly August 15, 1991). The PUC can take equipment out of service if inspections reveal deficiencies. Inspection reports are referred to the FRA, where they are prosecuted (California State Assembly August 15, 1991).

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As of August 1991, there were eight federally certified PUC inspectors authorized to issue citations for the FRA: three track inspectors, two equipment inspectors, and three operating practice inspectors (California State Assembly August 15, 1991). A recent legislative bill signed into law in 1991, AB 151 (Katz), requires the PUC to hire additional rail inspectors who are to be federally certified.

The PUC took another significant step when it adopted an order, "General Order 161 – Rules and Regulations Governing the Transportation of Hazardous Materials by Rail" in August of 1991. General Order 161 (GO 161) prescribes rules and regulations for the safe transportation of hazardous materials by rail, including notification to local emergency response agencies (California Public Utilities Commission January 15, 1991).

GO 161's rules and regulations supplement the hazardous materials regulations prescribed by the U.S. DOT in Title 49 of the Code of Federal Regulations, Parts 171-174, 178 and 179 (California Public Utilities Commission August 7, 1991). The order also implements the overall state policy of promoting railroad safety as set forth in California Public Utilities Code sections 768 and 7671-7673.

The rules within GO 161 are intended to complement the federal regulatory framework. The rules address safety concerns not addressed by the federal rules; therefore, they are not preempted by federal law.

GO 161 contains the following four rules: (1) each railroad must notify by telephone the appropriate emergency response agency (ERA) (e.g., fire department) of any incident, (2) each railroad must provide information, upon written request, on the type and quantity of hazardous materials transported and stored through an ERA's area, (3) each railroad must have an emergency preparedness plan which includes notification procedures for advising the appropriate ERA in case of an incident, procedures to mitigate a release, and training procedures to instruct personnel on dealing with incidents, and (4) radio transceivers must be on board all trains.

Other significant measures to mitigate safety and security impacts from trains were signed into law through a package of four legislative bills on October 9, 1991. These bills are SB 152 (Killea), AB 151 (Katz), AB 684 (Moore), and SB 48 (Thompson). In part, the impetus to pass these bills were the two train accidents at Dunsmuir and Seacliff in July of 1991. The provisions of these new laws are presented below.

SB 152 (Killea). This new law provides for an increased rail safety funding source. It ends the exemption of railroads from fees charged to common carrier and related businesses. Fees will now be assessed on railroad corporations with annual gross intrastate revenues of $10,000,000 or less within the uniform fee and annual fee provisions. The fees would be required to be used for rail safety. The PUC will administer the collection and expenditure of fees.

AB 151 (Katz). The bill enacts the Safe Rail Transportation Act of 1991. This law requires that the state toxic disaster contingency plan designate a lead agency to direct strategy to ameliorate the effects of a toxic disaster. A state toxic disaster contingency plan already existed, but this law required that it be revised. The lead agency will be the state Office of Emergency Services (OES).

AB 151 also requires that the PUC do the following:

1. Annually identify track sections which pose local safety hazards,
2. Propose regulations to eliminate or reduce safety hazards,
3. Dedicate sufficient resources to carry out the State Participation Program (authorized by the federal HMTUSA of 1990) for the regulation of rail transportation of hazardous materials,
4. Hire additional personnel to enforce compliance with state and federal safety regulations by railroads operating in California,
5. Establish minimum inspection standards for railroad locomotives, equipment, and facilities in Class I yards, and
6. Request appropriate federal agencies to take actions relating to hazardous materials and substances.

AB 684 (Moore). The law requires that the fees paid by railroad corporations be used by the Safety Division of the PUC for the following: (1) inspection, surveillance, and investigation of the rights-of-way, facilities, equipment, and operations of railroads and public mass transit guideways, (2) enforcing state and federal laws, regulations, orders, and directives relating to transportation of persons or commodities, (3) advising the commission on rail safety, and (4) proposing to the commission rules, regulations, orders, and other measures necessary to reduce unsafe conditions.

SB 48 (Thompson). This law requires the PUC to impose a fee on railroad corporations for the costs of regulating the carriers. The definition of hazardous materials is revised to include other commodities, including those on a new list to be published yearly by Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA). The PUC must report annually to the legislature on railroad line sites that it finds to be hazardous. The PUC must adopt regulations by January 1, 1993, to reduce potential railroad hazards, including regulations concerning the transporting of hazardous or potentially hazardous commodities and railroad equipment and training standards.

SB 48 would create the Railroad Accident Prevention and Immediate Deployment (RAPID) Force within Cal-EPA , and would require the agency to develop a state "railroad accident prevention and immediate deployment plan", in consultation with specified agencies and businesses. The RAPID force will consist of representatives of over 17 agencies. The force shall be responsible for providing immediate onsite response capability in the event of large-scale releases of toxic materials resulting from surface transportation accidents. This force shall act cooperatively and in concert with existing local emergency response units. The RAPID force will also implement the state "hazardous materials incident prevention and immediate deployment plan".

- Carrier operating procedures

In addition to federal and state rules, the railroad carriers have their own operating procedures. These carrier operating procedures can be divided into five groups: (1) employee training, (2) documentation and identification of materials, (3) special train operating procedures, (4) regulations, and (5) response to incidents. These five groups are discussed below.

1. Employee Training. Railroad employees receive training in shipping hazardous materials with the aim toward accident prevention and response management. This training is documented and reinforced by special instructions carried by all operating employees in their timetables and special instructions.

The training for handling hazardous materials shipments includes recognition of the shipments, special placement of rail cars in a train, inspection of cars, special handling of trains and cars containing hazardous materials, and documentation and identity of such shipments.

The training also includes procedures to be followed if there is an accidental release of hazardous materials, including personal safety, notification of public agencies, methods of containment, communication, and furnishing of documentation to parties responsible for public safety, containment, and clean-up.

Operating employees (i.e., trainmen, engineers, switchmen, and their supervisors) receive the training described above. Employees and supervisors of the engineering department also receive training on spill containment and clean-up. The railroads also have hazardous material specialists. These individuals conduct training for employees and public agencies, meet with shippers to resolve problems, and respond to spills and other emergencies.

2. Documentation and identification of materials. Knowledge of the materials being transported is important to prevention and response personnel. Materials are documented via three instruments: placards, manifests, and consists.

Placards are diamond-shaped cards mounted on both sides and both ends of rail cars containing hazardous materials. The card contains a commodity code and usually a symbol indicating the type of hazard (e.g., poison, explosive, flammable).

A manifest contains a synopsis of each car of hazardous material, which lists the materials make-up, the chemical characteristics, and emergency response instructions. (Shipments of all kinds, hazardous or nonhazardous, are listed on manifests and consists.) Copies of manifests are carried on the train.

A train consist provides a listing of each car and its contents. The consist includes information on the weight, destination, and any restrictions for each car. For trains carrying hazardous materials, the consist also includes placarding requirements, the United Nations (UN) number, and brief information on what to do in the case of a spill. The consist is held at the head end of the train by the conductor and, usually, the engineer. As the composition of the train changes, the consist is changed. When a train derails, the consist provides the first information for emergency responders. The responders must be able to decipher the consist's code in order to determine the appropriate response (California State Assembly August 15, 1991).

A consist is a listing of all the cars in a train. Like manifests, copies are carried onboard the train. Abbreviated precautions are found on the consist. In an emergency, the train conductor is instructed to be governed by the information in the manifests and consists and to share them with public safety agencies. Onboard trainmen are also governed by the U.S. DOT's publication, "Emergency Response Guidebook" (DOT P 5800.5). They are required to have this book in their possession while working. Each train and dispatcher's office also carry a document entitled, "B.O.E. 6000-1 -- Hazardous Materials Regulations", which describes a variety of commodities and their proper handling procedures. Manifest and consist information is also available at the railroad's operating and dispatcher headquarters and can be issued to any concerned public safety agency.

3. Special Train Operating Procedures. Shipments of hazardous materials must follow special procedures. These include limitations on the type of cars used, the maximum speed of operation, the placement of incompatible cars in proximity to each other (e.g., cars with explosives cannot be coupled to cars containing poison), and special switching instructions (e.g., certain loads are not allowed to move under their own momentum; they must be shoved to a stop). The railroads also have a responsibility to make a pre-departure inspection and a brake test when a train is assembled. The FRA inspection usually occurs after that procedure has been performed (California State Assembly August 15, 1991).

4. Regulations. The shipment of hazardous material is governed by federal law, as administered by the FRA and the U.S. Department of the Treasury's Bureau of Alcohol, Tobacco, and Firearms' Explosives Division. The Chemical Manufacturer's Association (CMA) provides instruction and guidance; it maintains a continuous toll-free telephone information service to assist public safety agencies, carriers, and shippers. All these regulations are codified in the railroad's rules, instructions, and training. In addition, specific railroads may have additional policies or regulations governing hazardous shipments.

5. Response to incidents. A response is generally initiated by the railroad company reporting an incident. Reports from the train operating crews go to the dispatching office or operations centers if such centers are close by. The dispatching office or operations center then calls the following: public safety agencies (e.g., fire, police), other public agencies (e.g., U.S. Coast Guard, California Department of Fish and Game, and the FRA), and the railroad company's hazardous material and repair forces. Clean-up contractors are usually called after the problem has been defined.

Public safety agencies, such as police and fire, are almost always the first response team to arrive. Their response is governed in large part by the information available on the hazardous materials as obtained from the dispatcher's office and the train's manifest or consist. They will generally secure the area from the public, handle evacuations if required, arrange for the removal and treatment of injured people, and attempt to control spills or fires.

The railroad response teams have three basic functions: communication, containment, and repair. The railroad company's hazardous material control officer will assist the public safety agencies through his knowledge of the hazardous materials, train cars, and capabilities of repair crews (railroad and contract). The officer will generally remain in control of the incident from the railroad's perspective until final clean-up is under way. Railroad repair crews, often with the assistance of contractors, will remove damaged equipment, repair tracks and facilities, and perform certain types of hazardous material clean-up.

Contractors are a part of many hazardous material response teams, particularly if hazards of exposure require special protective gear or the product requires special handling. Contractors also perform most of the clean-up of spill sites.

The chemical manufacturers of many products will send representatives to spill incidents to monitor clean-up and salvage operations. They are often the most experienced personnel available to advise on product characteristics.

- Infrastructure improvements

There are five infrastructure improvements to the consolidated corridor that will reduce the probability of hazardous material releases from trains:

1. The corridor would be fully grade separated, which would virtually eliminate the likelihood of crossing accidents.
2. The installation of an integrated series of safety detectors will reduce the probability of an accident caused by a mechanical defect and reduce the impact of a single-wheel derailment. The safety detectors include hot bearing, shifted load, and dragging equipment. Portions of some existing routes do not have such detectors.
3. Right-of-way fencing and focused security protection should reduce the probability of accidents or releases caused by trespassers or vandals (e.g., tampering with switches and signals, placing obstructions on the track).
4. An improved track structure should reduce the probability of derailments. The track structure will be the strongest available state-of-the-art system.
5. Complete signalization will protect against potential accidents caused by broken rails, misaligned switches, and other train movements. The consolidated corridor will be operated under centralized traffic control with a central dispatcher.

All told, the project incorporates a number of safety and security mitigation measures. The infrastructure improvements will increase the level of protection afforded the public and the environment. The expanded state effort in regulating rail safety will provide additional safety, although the recent adoption of legislation and General Order 161 still await the implementation phase. The management of this implementation will determine the effectiveness of these new California mitigation measures.

5.7 AESTHETICS

5.7.1 Introduction and Methodology

This section describes the existing visual setting of the Alameda Corridor, the effects of the four project alternatives, and mitigation measures to reduce the project impacts. The study area defined to include those areas likely to experience the visual effects of the project alternatives. Since the topography of the surrounding area is generally flat, in most instances an appropriate study area was defined to extend approximately one parcel width or 150 feet, whichever was greater, out from the corridor. There were two exceptions to this definition. The study area also includes the mobile home community located on Dominguez Hill overlooking the corridor west of Laurel Park Road and the Dominguez Seminary located on a hill west of Alameda Street at Dominguez Street. Overlooking the corridor from hilltop locations, these two sites could experience light and glare impacts during construction, and therefore the typical study area definition was expanded to include them.

Several resources were used to conduct the visual analysis. These included the project right-of-way maps, engineering maps, and aerial photographs (aerial photographs were scaled at one inch equals 50 feet). Project right-of-way limits were drawn on the aerial photographs to identify affected land uses and to gain an understanding of the resultant visual environment. A visual survey of the corridor was conducted in March 1992. Particular attention was given to the cross streets where grade separations are planned and the surrounding residential areas. Local urban design policies and guidelines were reviewed to identify goals and objectives pertinent to the project. In addition, minutes of ACTA project team meetings with local jurisdictions were reviewed for any concerns regarding the visual effects of the project. Follow-up telephone conversations were made to each of the local jurisdictions to further inquire about local urban design policies, goals, and concerns for the corridor.

5.7.2 Visual Setting

The setting section describes the visual features of the Alameda Corridor overall and by segment. The section identifies sensitive and noteworthy view sites which could be affected by the project. These sensitive sites include residential areas which could experience light and glare impacts during construction and visual intrusion from the project improvements. The setting section refers to redevelopment plans which are intended to improve the character and image of the Alameda Corridor. The section also summarizes local urban design policies and goals for the Alameda Corridor.

The Alameda Corridor is located in generally flat terrain extending from the rail yards at Pasadena Junction east of the Los Angeles River in downtown Los Angeles to the north side of the Cerritos Channel along Henry Ford Avenue, at the entrance to the ports of Los Angeles and Long Beach. The natural features of the project area include the Los Angeles River which borders the project area on the west from the northern project limits to the vicinity of 25th Street. Compton Creek extends along the east side of the corridor from SR-91 to the vicinity of where the Metro Blue Line crosses Alameda Street. The Dominguez Channel crosses Alameda Street north of Sepulveda Boulevard. The Dominguez Hills border the project area to the west of the intersection of Alameda Street and Laurel Park Road.

The visual setting of the corridor closely reflects its historic purpose, namely transporting goods shipments to and from the rail and freight yards in downtown Los Angeles and the ports of Los Angeles and Long Beach. The daily presence of trains and trucks, the adjacent heavy industrial uses, oil rigs and refineries, railroad yards and ship yards create a busy, harsh visual environment.

Alameda Corridor is crossed by major east-west streets which extend for many miles throughout the county. The corridor is also crossed by seven freeways and highways: the Santa Monica Freeway (I-10), Imperial Highway, Glen Anderson Freeway (I-105), Artesia Freeway (SR-91), San Diego Freeway (I-405), and Pacific Coast Highway (SR-1). The Terminal Island Freeway (SR-

47/103) borders the east side of Henry Ford Avenue near the southern project limits. These major roadway crossings also give the corridor a busy, heavy traffic-related visual environment.

Despite the harsh visual environment created by the industrial and transportation related uses, a community setting is also present along the corridor. The community setting is conveyed by the local community welcome signs at the cross streets off Alameda Street; the residences located either adjacent or near to the corridor; the schools; community parks; churches; and local ethnic markets along the cross streets. The occasional break from the old industrial buildings to new landscaped industrial parks reflect the changing economy, and the desire of local jurisdictions to create a more visually attractive environment. Redevelopment plans for landscaped industrial parks also convey this message.

There are several noteworthy sites located along Alameda Street which contribute positively to the character of the corridor:

West Side:

1) mural depicting the early days of the forging industry located north of Rosecrans Boulevard

2) Compton welcome sign featuring a gazebo and an Olympic logo at the Artesia Boulevard off-ramp

3) landscaped entrance to the Dominguez Seminary south of SR-91

4) landscaped entrance to the Homestead Place Industrial Park at Homestead Place

East Side:

1) Stacy Medical Building with fire truck placed on roof top at the southeast corner of Alameda Street and Vernon Avenue.

One prominent view seen from the corridor is the Los Angeles central business district skyline. The Los Angeles central business district skyline is visible from various locations along the corridor.

For purposes of defining the differences among project alternatives and for providing a more detailed visual analysis of the corridor, the project study area has been divided into segments which are described in the following sections.

<u>Segment A</u>

Segment A begins at Pasadena Junction and extends south to 24th/25th streets. Segment A includes railroad trackage that continues southerly along the east side of the Los Angeles River to the vicinity of Redondo Junction and "J" Yard, and then southerly to the vicinity of 25th Street. Segment A includes rail trackage that extends easterly from the "J" Yard/Redondo Junction area to the Union Pacific East Los Angeles Yard, located north of Washington Boulevard and east of Downey Road. This industrial area consists of railroad yards, trackage and storage facilities.

Segment A also includes the roadway along Alameda Street that extends from the vicinity of the I-10 freeway south to the vicinity of 24th/25th streets. Alameda Street from the I-10 Freeway to 24th/25th streets has a dense appearance with heavy industrial uses, truck lots, and salvage yards. In this area of the corridor, Alameda Street appears to be sandwiched in by the trains maneuvering on the east and the industrial uses abutting up against the roadway on the west.

Grade separations are planned at Washington Boulevard and Santa Fe Avenue. Both streets are bordered by industrial uses.

A grade separation is also planned at 24th/25th streets on a new alignment north of existing 24th/25th streets. The north side of the westerly extension of 24th/25th streets is defined by railroad tracks, scrap metal lots, salvage yards and heavy industrial uses. In contrast, the newer landscaped Alameda Business Center dominates the south side of the westerly extension of 24th/25th streets. Heavy industrial uses border the north and south sides of the easterly extension of 24th/25th streets, except for the Los Angeles County Department of Children's Services located at the northeast corner of Alameda and 25th streets. Figure 5-35 shows the Alameda Business Center located in the southwest corner of 24th and Alameda streets.

Segment B1

Segment B1 begins in the vicinity of 24th/25th streets and continues along Alameda Street to the vicinity of Randolph Street. Segment B1 also includes the Southern Pacific Wilmington Branch that runs along Long Beach Avenue, between 25th and Randolph streets.

The west side of Alameda Street is defined by the Alameda Business Center which continues south of 24th Street to Martin Luther King Boulevard. The area between Martin Luther King Boulevard and 41st Street is vacant land. Auto repair shops, old industrial buildings, scrap metal shops, and a large lot used for swap meets are located between 41st and Randolph streets. Several units of the Pueblo Del Rio housing project are located approximately 125 feet west of Alameda Street between the railroad tracks and 51st Street.

The east side of Alameda Street from south of 25th Street to Randolph Street includes primarily large industrial uses. A Vernon welcome sign is located at the southeast corner of Slauson Avenue and Alameda Street.

The west side of southbound Long Beach Avenue is defined by industrial uses, residences, the Fred Roberts Park and Recreation Center, the Pueblo Del Rio housing project, neighborhood grocery stores and the Slauson Recreation Center. The east side of northbound Long Beach Avenue is defined by industrial uses, vacant land, scattered single-family housing, and the Pueblo Del Rio housing project. The railroad tracks border Randolph Street. The Southern Pacific railroad tracks and the Metro Blue Line are located between the northbound and southbound lanes of Long Beach Avenue.

Alternative 1.0 includes plans to construct grade separations along realigned 41st/38th streets, Vernon Avenue, and Slauson Avenue. Alternative 2.1 imvolves at-grade bridges spanning the depressed trainway.

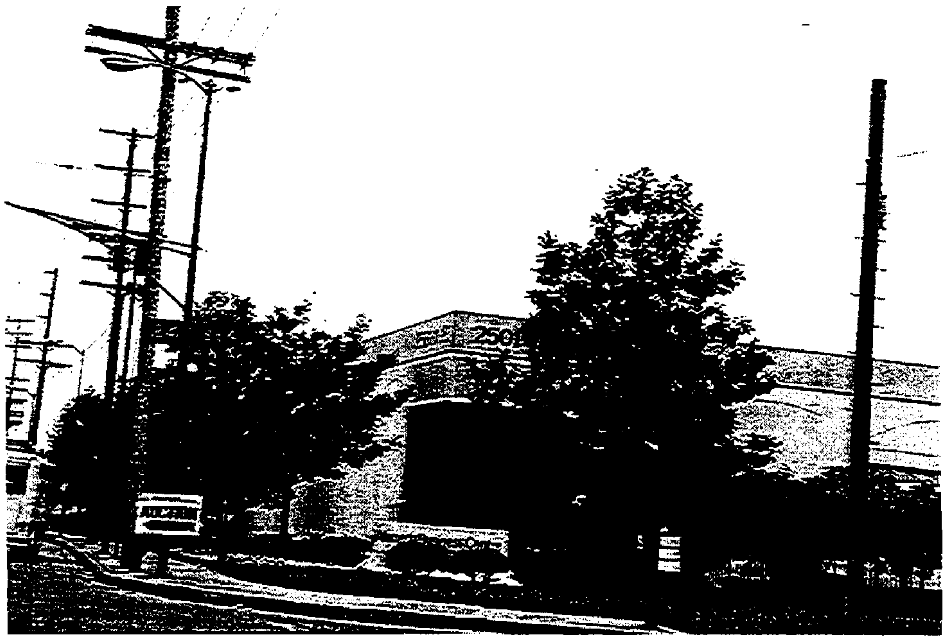


Figure 5-35: Looking southwest from Alameda Street at the Alameda Business Center located in the southwest corner of 24th and Alameda streets.

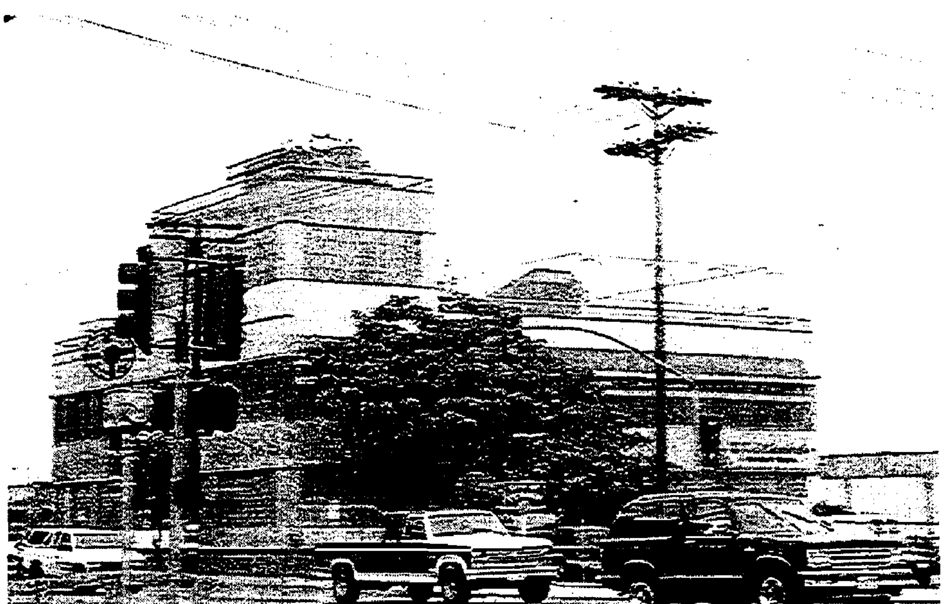


Figure 5-36: Looking east from Alameda Street at the Stacy Medical Building with the fire truck located in the southwest corner of Vernon Avenue and Alameda Street.

The westerly extension of 41st/38th streets is bordered on the north by vacant land and on the south by the regional Food Bank building and a restaurant. The north and south sides of the easterly extension of 41st/38th streets contain old industrial uses.

The westerly extension of Vernon Avenue is bordered on the north by salvage yards, housing, and a minimall and on the south by salvage yards, single-family housing, and neighborhood retail. The easterly extension of Vernon Avenue is bordered on the north by heavy industry, warehouses, and outlets and on the south by the Stacy Medical Building with a fire truck placed on the roof top, and heavy industrial uses. Figure 5-36 shows the Stacy Medical Building with fire truck located in the southwest corner of Vernon Avenue and Alameda Street.

The westerly extension of Slauson Avenue is bordered on the north and south by industrial uses. The easterly extension is bordered on the north by the Vernon welcome sign and industrial uses. The south side of the easterly extension contains heavy industrial uses and a gas station.

Segment B2

Segment B2 begins in the vicinity of Randolph Street and continues south along Alameda Street to the vicinity of Firestone Boulevard. The east and west sides of Alameda Street from Randolph Street to Firestone Boulevard are defined by industrial uses. Two exceptions are the landscaped BMW car dealership located in the northwest corner of Alameda Street and Gage Avenue, and the landscaped Huntington Park Casino located in the northwest corner of Alameda and 67th streets. Figure 5-37 shows the BMW auto dealership located in the northwest corner of Gage Avenue and Alameda Street.

Bridges are planned at Gage Avenue, Florence Avenue, Nadeau Street, and Firestone Boulevard.

The north side of the westerly extension of Gage Avenue is defined by the highly visible landscaped entrance and sign of the BMW auto dealership and a shopping mall. The south side of the westerly extension of Gage Avenue is defined by industrial uses, a LADOT bus yard, and storage yards. The easterly extension of Gage Avenue is bordered on the north by industrial uses, a playground and sports field, and multi-family housing and on the south by a Huntington Park welcome sign, warehouses, and residences.

The westerly extension of Florence Avenue is bordered on the north by neighborhood retail uses and on the south by auto repair shops, neighborhood retail uses, and a school. Residences are located directly behind the uses on the south. The easterly extension of Florence Avenue is bordered on the north and south by neighborhood retail and industrial uses.

The north side of the westerly extension of Nadeau Street is defined by a mini mall, single-family housing, a school and playground, and a church. The south side of the westerly extension of Nadeau Street is defined by a park, single-family housing and salvage yards. The easterly extension of Nadeau Street is bordered on the north by heavy industry and single family housing and on the south by a lumber yard and mobile homes.

Figure 5-37 Looking northwest from Alameda Street at the BMW auto dealership located in the northwest corner of Gage Avenue and Alameda Street.

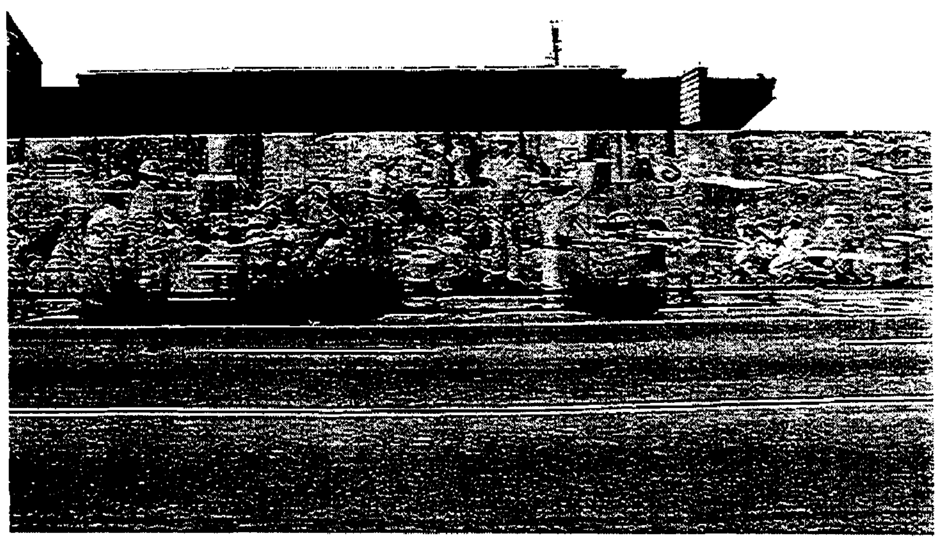


Figure 5-38 Looking west from Alameda Street at the mural depicting the early days of the forging industry located on the west side of Alameda Street north of Rosecrans Avenue.

The westerly extension of Firestone Boulevard is bordered on the north by heavy industry, and on the south by a recycling center, neighborhood retail shops and residences. The easterly extension of Firestone Boulevard is bordered on the north by industry and on the south by vacant land and single-family housing.

Segment C

Segment C begins in the vicinity of Firestone Boulevard and extends to the vicinity of SR-91. The west side of Alameda Street between Firestone Boulevard and 124th Street is bordered by large industrial buildings. The exception to these industrial uses include commercial flower gardens located between 90th and 92nd streets, the Jordan High School located north of the northwest corner of 103rd and Alameda streets, and the Ritter School located in the northeast corner of Santa Ana Boulevard and Alameda Street.

The west side of Alameda Street between 124th and Myrrh streets is bordered by industrial uses. The exceptions to these industrial uses are the shopping centers located north and south of Compton Boulevard and new multi-family housing surrounded by a block wall between Laurel and Myrrh streets. Residences are located directly to the west of the industrial uses between 124th and Oris streets.

The area located on the west side of Alameda Street between Myrrh Street and SR-91 consists of salvage yards, the Compton School District Administrative Offices, commercial flower gardens, vacant land, and landscaped auto dealerships. A small play yard is located in the southwest corner of Indigo and Alameda streets on the Compton School District grounds. The Compton welcome area featuring a gazebo and Olympic sign sculptured out of flowers is located along the embankment of the Artesia Boulevard off-ramp. The mural depicting the early days of the forging industry is located along the west side of Alameda Street north of Rosecrans Avenue. Figure 5-38 shows the mural depicting the early days of the forging industry which is located on the west side of Alameda Street north of Rosecrans Avenue.

The east side of Alameda Street between Firestone Boulevard and Oaks Street is bordered by heavy industry and salvage yards. The exceptions to the industrial uses are residences located between Southern Avenue and Tweedy Boulevard, and the vacant General Motors site located south of Tweedy Boulevard.

The east side of Alameda Street between Oaks Street to north of Rosecrans Boulevard contains vacant land. The east side of Alameda Street from north of Rosecrans Boulevard to SR-91 is bordered by industrial uses and vacant land. The exceptions to the industry are the Veterans of Foreign Wars center and Wilson Park located near Palmer Street and Compton Boulevard. Residential uses are situated east of the industry between 108th Street and Santa Ana Boulevard and between Compton Boulevard and Laurel Street.

Bridges are planned at 92nd Street/Southern Avenue, Imperial Highway, Weber Avenue, Compton Boulevard, Alondra Boulevard, Greenleaf Boulevard, and Tweedy Boulevard.

The north and south sides of the westerly extension of 92nd Street/Southern Avenue are defined by salvage yards and housing. The easterly extension of 92nd Street/Southern Avenue is bordered on the north by utilities and single family houses and on the south by single-family houses.

The north and south sides of the westerly extension of 124th Street/Weber Avenue are bordered by salvage yards and auto repair shops and multi-family housing. The easterly extension of 124th Street/Weber Avenue is bordered on the north by salvage yards, heavy industry, and single family residences and on the south by heavy industry.

The north side of the westerly extension of El Segundo Boulevard is bordered by salvage yards, a neighborhood beauty salon, and residences. The south side of the westerly extension of El Segundo Boulevard is bordered by auto repair shops and housing. The easterly extension of El Segundo Boulevard is bordered on the north by industry and mobile homes and on the south by an education center, vacant land, and storage yards.

The north side of the westerly extension of Compton Boulevard is bordered by the Compton Shopping Center site. The south side of Compton Boulevard is bordered by retail uses. The north and south sides of the easterly extension of Compton Boulevard are bordered by neighborhood retail and community services.

The westerly extension of Alondra Boulevard is bordered on the north by multi-family housing and the Los Angeles County Department of Social Services and on the south by a church and neighborhood retail uses. The easterly extension of Alondra Boulevard is bordered on the north by salvage yards, truck lots, and a gas station and on the south by the Los Angeles County Sanitation Yard and heavy industry.

The westerly extension of Greenleaf Boulevard is bordered on the north by heavy industry and multi-family housing and on the south by commercial flower gardens planted under utility poles. The easterly extension of Greenleaf Boulevard is bordered on the north by heavy industry and residences and on the south by a nursery.

Tweedy Boulevard is bordered on the north side by auto repair shops, industrial uses, and multi-family housing, and on the south side by the vacant General Motors site.

Segment D

Segment D begins in the vicinity of SR-91 to the southern project limits, at the north side of the Cerritos Channel along Henry Ford Avenue. Segment D includes railroad trackage that leaves Alameda Street and parallels the Dominguez Channel and the roadway section that extends along Alameda Street and Henry Ford Avenue.

The west side of Alameda Street between SR-91 and Laurel Park Road is defined by the visually prominent landscaped entrance to the Homestead Place Industrial Park, the landscaped entrance to the Dominguez Seminary, the Department of Water and Power (DWP) facility and a landscaped industrial park along Laurel Park Road. A mobile home park located on the Dominiguez Hills to the west overlooks Laurel Park Road. The west side of Alameda Street between Laurel Park Road and Henry Ford Avenue is defined by industrial parks; heavy industry; oil refineries, tanks, and drills; salvage yards; and railroad tracks and facilities. Residences are located west of the Henry Ford Avenue and Alameda Street junction. Figure 5-39 shows the

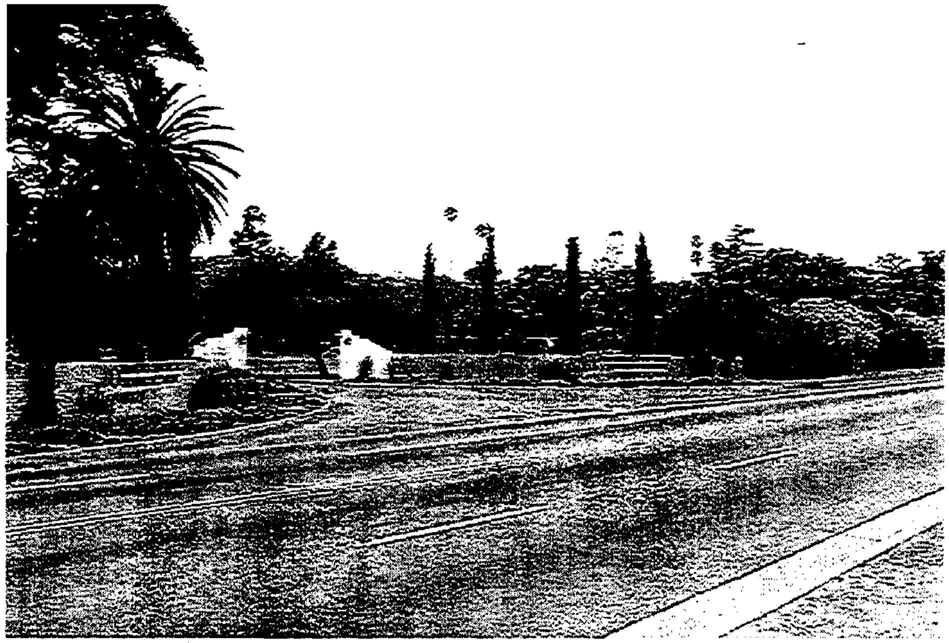


Figure 5-39 Looking northwest from Alameda Street at the landscaped entrance to Dominguez Seminary located on the west side of Alameda Street south of the Artesia Freeway.

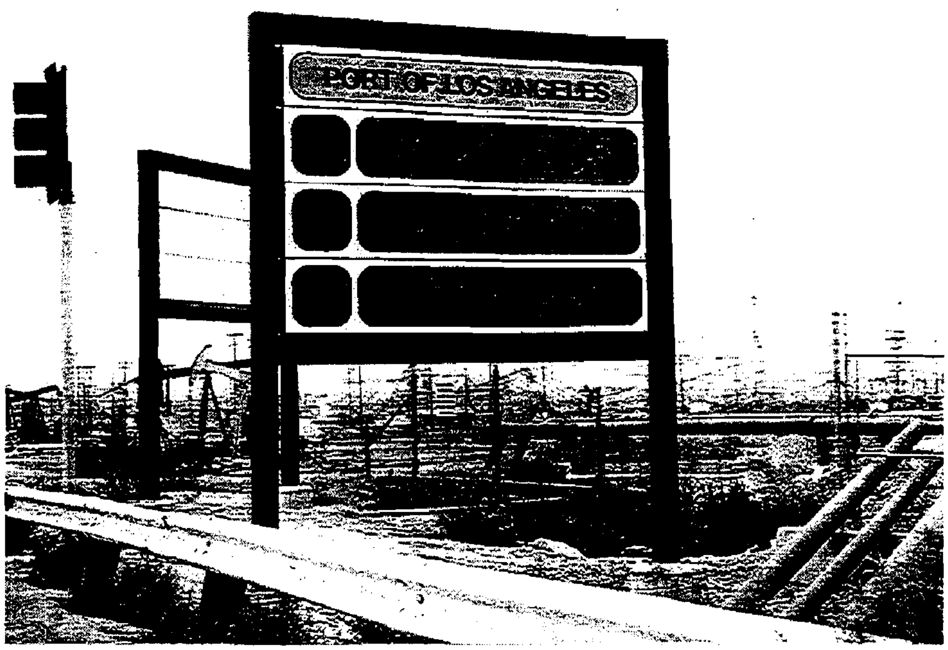


Figure 5-40 Looking south from Henry Ford Avenue at the industrial uses, oil refineries, and port related uses located near the southern terminus of the project area.

landscaped entrance to Dominguez Seminary located on the west side of Alameda Street south of the Artesia Freeway.

The east side of Alameda Street between SR-91 and Carson Street is bordered by Compton Creek, industrial parks, and industry. Single-family housing is located east of the industry between Del Amo Boulevard and Carson Street. The east side of Alameda Street from Carson Street to Henry Ford Avenue is defined by single family residences screened by a wall, heavy industrial uses, a shooting range, and oil industry related uses.

The east and west sides of Henry Ford Avenue between the Henry Ford Avenue and Alameda Street junction and the southern project limits are defined by railroad facilities, heavy industrial uses, oil refineries, salvage yards, and port related uses. Figure 5-40 shows the industrial uses, oil refineries, and port related uses located near the southern terminus of the project area.

Grade separations are planned for Sepulveda Boulevard and SR-1 and the Anaheim Street Bridge over the dominguez Channel is to be reconstructed.

The north and south sides of the westerly extension of Sepulveda Boulevard are defined by oil industry related uses. The easterly extension of Sepulveda Boulevard is bordered on the north by the landscaped frontage of the Arco Refinery Training Center and on the south by industry.

The westerly extension of SR-1 is bordered on the north and south by industrial and retail uses. The north and south sides of the easterly extension of SR-1 are defined by industrial uses. Residences are located on the north side of westerly extension of SR-1 between Watson and Drumm avenues behind a 100 foot industrial buffer. Residences are also located on the south side of the westerly extension of SR-1 between Watson and Blinn avenues behind a 100 foot industrial buffer.

The westerly extension of Anaheim Street is bordered on the north by industrial uses and on the south by parking lots. The easterly extension of Anaheim Street is bordered on the north by heavy industry and salvage yards and on the south by vacant land and parking lots.

Urban Design Goals and Issues

Several of the local jurisdictions have urban design goals and policies for areas located within the Alameda Corridor. The local jurisdictions are: Carson, Lynwood, Compton, and Huntington Park. The urban design goals and policies are discussed below. Carson does not have specific urban design goals for the area bordering the Alameda Corridor. The Scenic Highway Element of General Plan, however, states the general goal of the city is to provide parkway trees and to improve the aesthetics of the areas along the local streets. Carson has landscaping and setback requirements for salvage yards and cargo container storage facilities to ensure adequate screening of these uses. Carson does want to maintain the landscaping screening the large oil industry related uses.

Lynwood has developed urban design goals for several corridors and gateways which border the Alameda Corridor. The city corridors include the Century Freeway and Imperial Highway. Important gateways to Lynwood include the intersection of Martin Luther King, Jr.

Boulevard/Alameda Street, Lynwood/Compton border, ramps of the Imperial Highway and Martin Luther King, Jr. Boulevard.

Lynwood wants to place distinct city entrance signs at Martin Luther King, Jr. Boulevard/Alameda Street and along Alameda Street at the Lynwood/Compton border. The city desires to keep unsightly industrial land uses hidden from street view.

The Compton General Plan recognizes the commercial areas bordering Compton's major thoroughfares as very visible parts of the local environment and, thus, as critical aspects of the city's image and character. The Urban Design Element of the Compton General Plan includes the following policies which are relevant to the Alameda Corridor:

Policy 1.6 (M): work with the railroad to screen railroad right-of-way from residential neighborhoods with a combination of decorative sound walls and complementary landscaping.

Policy 1.8 (L): require commercial and industrial loading areas to be screened from street view and adjacent noncommercial and industrial uses.

Compton will establish urban design guidelines or plans for Rosecrans Boulevard, Compton Boulevard, Alondra Boulevard, and Long Beach Boulevard, particularly in the gateway areas.

The Compton General Plan identifies the area on the east side of Alameda Street between Butler Avenue and Oaks Street and the areas on the west and east sides of Alameda Street between Rosecrans Avenue and Reeve Street south of Alondra Boulevard as focus areas designated for urban design improvements. The General Plan identifies Rosecrans Avenue and Compton Boulevard as two streets designated for street scape improvements.

The Huntington Park General Plan recognizes Long Beach Avenue/Slauson Avenue, Long Beach Avenue/Randolph Street, and Wilson Avenue/Florence Avenue as city entrances needing landscape and designed entrances. The General Plan also identifies an area south of Slauson Avenue on Alameda Street as a site with design potential. The following streets located within the Alameda corridor are priority thoroughfares in the phased street tree planting program: Slauson Avenue, Saturn Avenue, Alameda Street (to accompany the railroad relocation project and include the railroad edges) and Santa Fe Avenue. Alameda Street between Slauson and Florence avenues, and Slauson Avenue, Randolph Street, Gage Avenue, Zoe Avenue, and Saturn Avenue are identified as designated landscape corridors.

5.7.3 Visual Impacts - Introduction

For purposes of this analysis a visual impact is considered to constitute a significant impact, not significant or beneficial effect. A significant impact could be adverse. A not significant impact could be minor adverse or adverse. Sites which would experience visual intrusion are sensitive land uses, particularly residences. The degree of impact depends upon the type of project improvement, the type of land use, and the distance between the project improvement and the land use. An overpass located within 150 feet of a sensitive land use would cause visual intrusion and result in a significant adverse project impact. An at-grade improvement along Alameda Street and the accompanying increase in traffic located within 25 feet of a sensitive land use would cause visual intrusion and result in a significant adverse impact. An at-grade improvement along Alameda Street or Long Beach Avenue and the accompanying increase in traffic located more than 25 feet but less than 50 feet from a sensitive land use would cause a minor adverse impact. At-grade bridge crossings are not expected to result in visual impacts to sensitive land uses.

A visual impact could occur as a result of several other types of improvements. A project improvement that takes prominent landscaping and/or structures which are an integral part of the site plan would also constitute an adverse impact, but not a significant one. A project improvement that removes landscaping which serves as a visual buffer between a sensitive land use and the corridor would constitute a minor adverse project impact. Construction activity which causes light and glare to a sensitive land use would constitute an adverse visual impact, but not a significant one. It is assumed that the light and glare impacts would extend to sensitive uses located within 150 feet of the improvement. Removal of city welcome signs is not considered to constitute a visual impact, but the signs should be replaced as they are important city identification points. A project improvement which disrupts an intact residential area and removes structures which screen the remaining residences from the roadway or trainway would constitute a significant adverse impact.

5.7.4 Visual Impacts - Alternative 1.0

This alternative would provide an at-grade trainway and roadway together with a number of east-west grade separations or overhead structures. Figure 5-41 shows an existing location along the corridor. Figure 5-42 shows a prototypical view of the proposed at-grade alternative. Figure 5-43 shows the locations where impact determinations have been made for all alternatives. The impacts are summarized in Table 5-52.

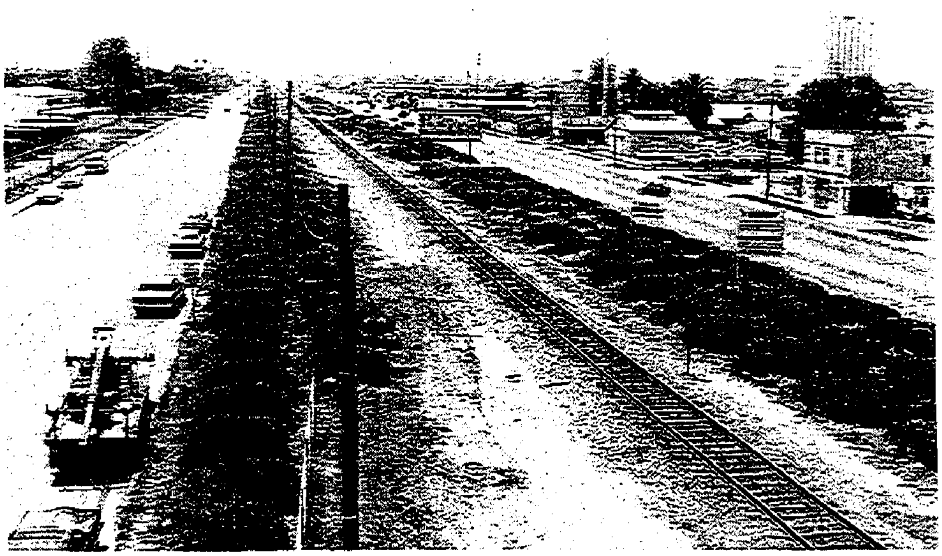
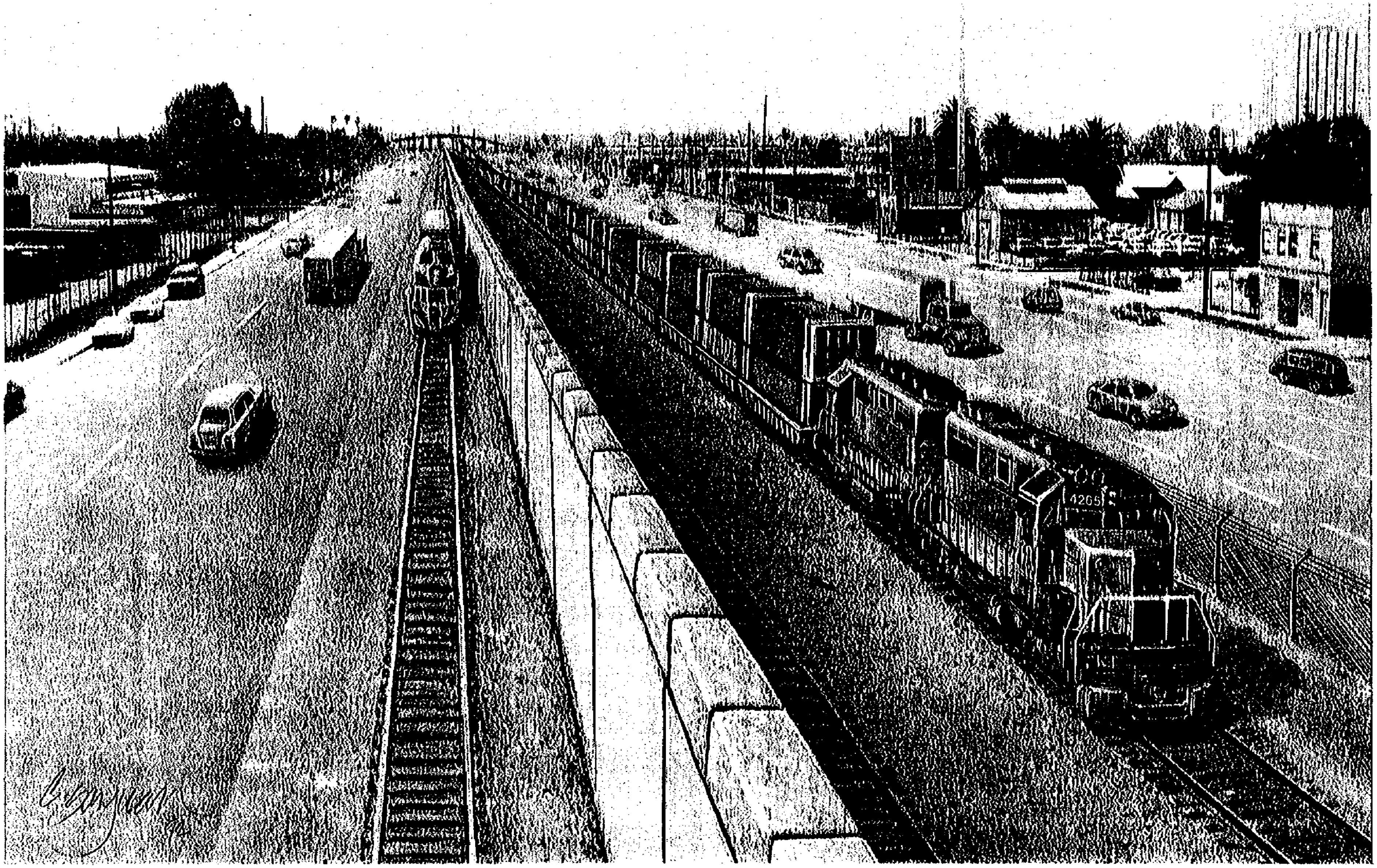


Figure 5-41: An existing location along the corridor.



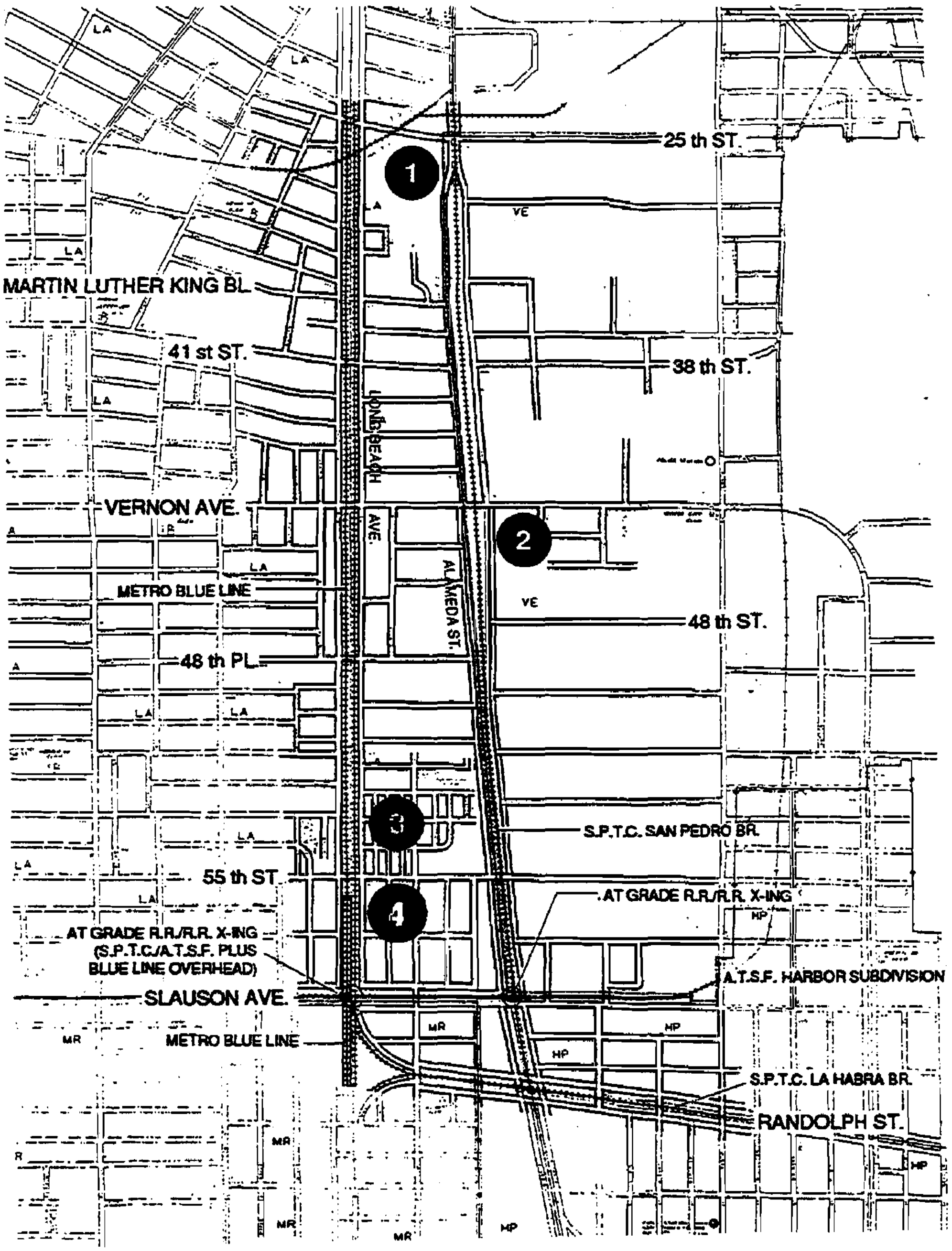
Source:

FIGURE 5-42	A prototypical view of the proposed at-grade alternative	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

TABLE 5-52 AESTHETICS - LOCATION OF IMPACTS		
Map #	**Alternative/ Segment**	**Potential Environmental Effects**
Alternative 1.0		
1	Alternative 1.0, Segment A	Construction of 24th/25th streets underpass would remove landscaping and take the entrance and part of the north side of the Alameda Business Center.
1	Alternative 1.0, Segment B1	Improvements to Alameda Street would remove landscaping from the Alameda Business Center.
2	Alternative 1.0, Segment B1	Construction of the Vernon Avenue underpass would take the Stacy Medical Building with the fire truck on roof top.
6	Alternative 1.0, Segment B2	The Gage Avenue overpass would visually intrude on residences and Westside Park.
8	Alternative 1.0, Segment B2	Construction of the Florence Avenue underpass would remove landscaping from the northwest corner of the Florence Avenue School.
9	Alternative 1.0, Segment B2	Construction of the Nadeau Street underpass and access road would visually intrude on residences south of the westerly extension.
12	Alternative 1.0, Segment C	Improvements to Alameda Street would remove landscaping from the Jordan High School parking lot.
10	Alternative 1.0, Segment C	Construction of the 92nd Street/Southern Avenue overpass would visually intrude on residences located on the south side of 92nd Street and on the north and south side of Southern Avenue.
11	Alternative 1.0, Segment C	Improvements to Tweedy Boulevard would visually intrude on residences to the north.
15	Alternative 1.0, Segment C	The 124th Street/Weber Avenue overpass would visually intrude on residences on the north and south sides of the westerly extension and on the north side of the easterly extension.
16	Alternative 1.0, Segment C	The El Segundo Boulevard overpass would visually intrude on residences on the north and south sides of the westerly extension and the mobile homes located on the north side of the easterly extension.
17	Alternative 1.0, Segment C	The Compton Boulevard overpass would remove building entrances from the shopping centers located on the south side of the boulevard. The overpass could obstruct views of the shopping centers north and south of the westerly extension.
19	Alternative 1.0, Segment C	The Greenleaf Boulevard overpass would visually intrude on the residences located in the northeast corner of Tamarind Avenue and Greenleaf Boulevard.
21	Alternative 1.0, Segment D	Improvements to Alameda Street would take landscaping from the industrial park located at Laurel Park Road.
20	Alternative 1.0, Segment D	Improvements to Alameda Street would remove landscaping from the Department of Water and Power plant located at the intersection of the Metro Blue Line tracks and Alameda Street.
22	Alternative 1.0, Segment D	Improvements to Alameda Street and construction of the Sepulveda Boulevard overpass would remove landscaping along the perimeter of the Arco Training Center.
Alternative 2.1A		
1	Alternative 2.1A, Segment B1	Right-of-way takes would remove landscaping from the Alameda Business Center.
5	Alternative 2.1A, Segment B2	Improvements to Alameda Street would remove landscaping and commercial signage from the BMW auto dealership at the northwest corner of Gage Avenue and Alameda Street.

TABLE 5-52 AESTHETICS - LOCATION OF IMPACTS		
20	Alternative 2.1A, Segment C	Improvements to Alameda Street would remove shrubbery from the Department of Water and Power plant at the intersection of the Metro Blue Line tracks and Alameda Street.
18	Alternative 2.1A, Segment C	Improvements to Alameda Street would remove part of the block wall and landscaping surrounding the multi-family housing located at the northwest corner of Myrrh and Alameda streets.
	Alternative 2.1A, Segment D	See Alternative 1, Segment D.
		Alternative 2.1S
	Alternative 2.1S, Segment B1	See Alternative 2.1A, Segment B1.
	Alternative 2.1S, Segment B2	See Alternative 2.1A, Segment B2.
7	Alternative 2.1S, Segment B2	Improvements to Alameda Street would remove landscaping from the Huntington Park Casino.
	Alternative 2.1S, Segment C	See Alternative 2.1A, Segment C.
12	Alternative 2.1S, Segment C	Improvements to Alameda Street would remove shrubbery from the Jordan High School parking lot.
13	Alternative 2.1S, Segment C	Improvements to Alameda Street would remove shrubbery from the Ritter Elementary School.
14	Alternative 2.1S, Segment C	Improvements to Alameda Street would remove shrubbery from the industrial park located north of Industrial Way to north of 124th Street.
	Alternative 2.1S, Segment D	See Alternative 2.1A, Segment D.
		Alternative 2.2
3	Alternative 2.2, Segment B1	Improvements to northbound Long Beach Avenue would remove structures and the playground from the Pueblo Del Rio housing project and place the northbound lane of Long Beach Avenue within 25 feet of some remaining units.
4	Alternative 2.2, Segment B1	Improvements to northbound Long Beach Avenue would place the roadway and increased traffic within 25 feet of several residences located on the east side of northbound Long Beach Avenue. These changes would cause visual intrusion and further separate residences on the east side of northbound Long Beach Avenue from residences and parks on the west side of southbound Long Beach Avenue.
	Alternative 2.2, Segments B2, C, and D	See either Alternative 2.1A or 2.1S in segments B2, C, and D.
Source: Myra L. Frank & Associates, Inc., 1992.		

No impact locations to the north.



See Sheet 2

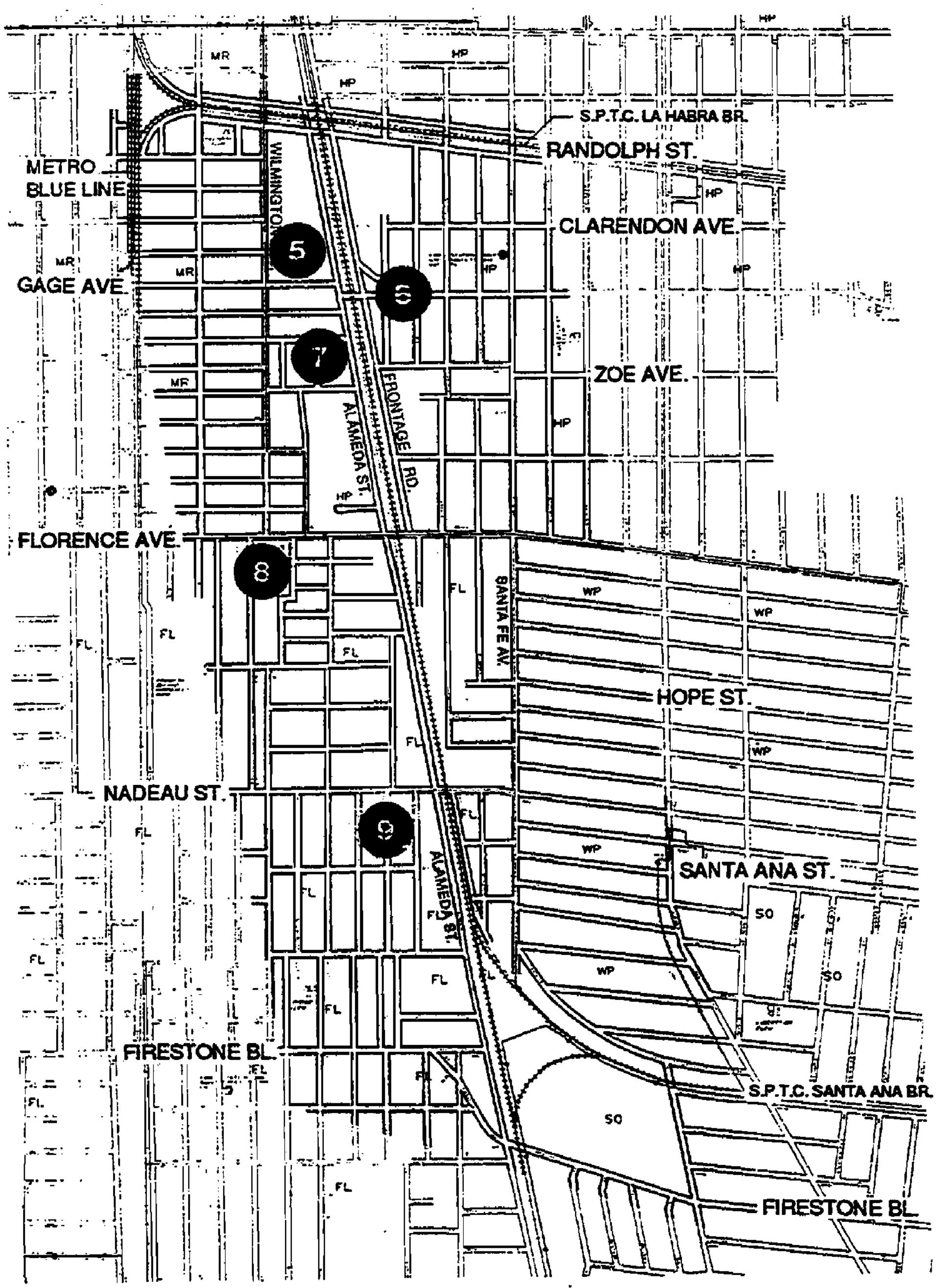
Source: Myra L. Frank & Associates, Inc., 1992

Sheet 1 of 6

No Scale

FIGURE 5-43	Aesthetics - Location of Impacts Segment B1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 1



See Sheet 3

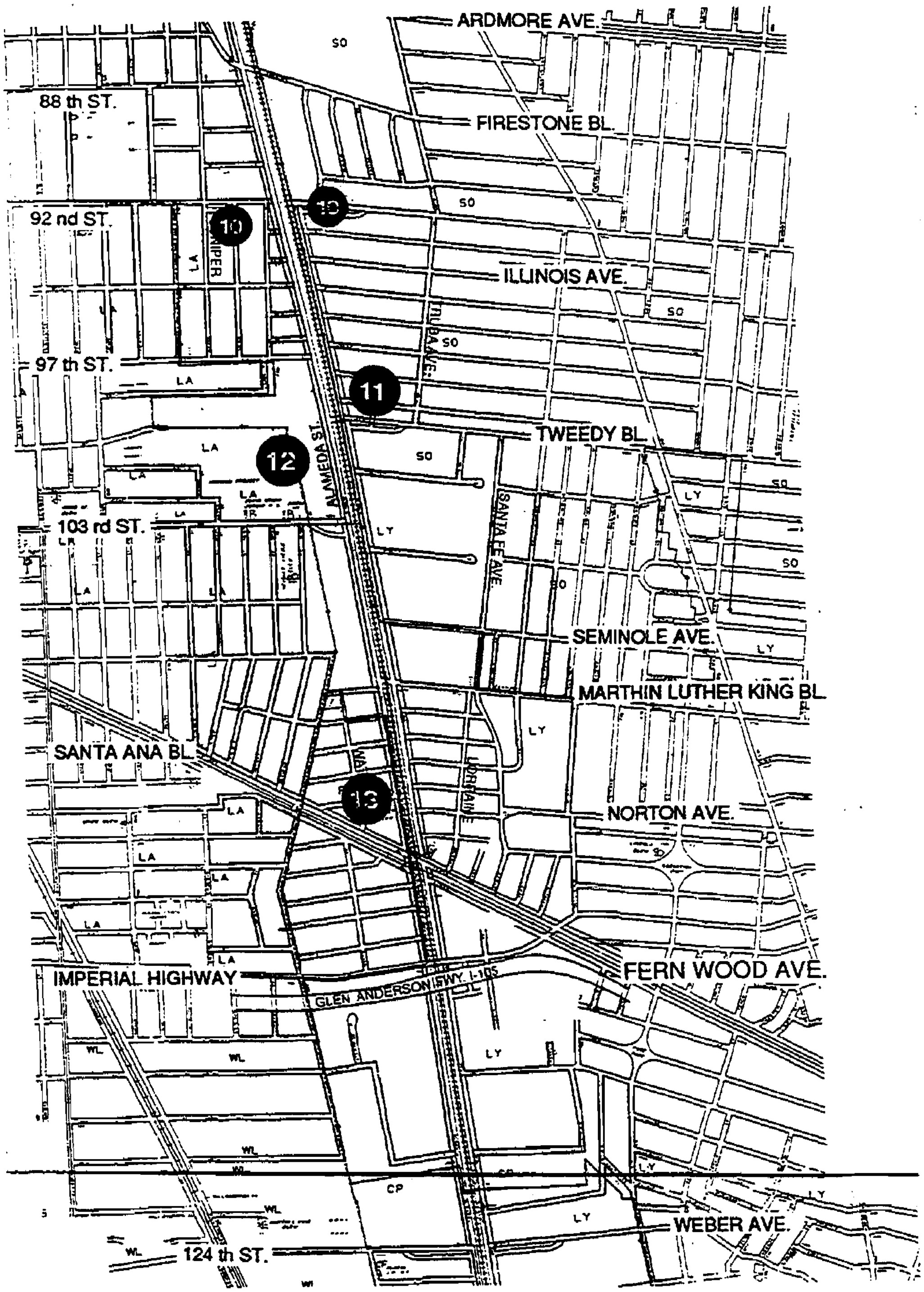
No Scale

Source: Myra L. Frank & Associates, Inc., 1992

Sheet 2 of 6

FIGURE 5-43	Aesthetics - Location of Impacts Segment B2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 2



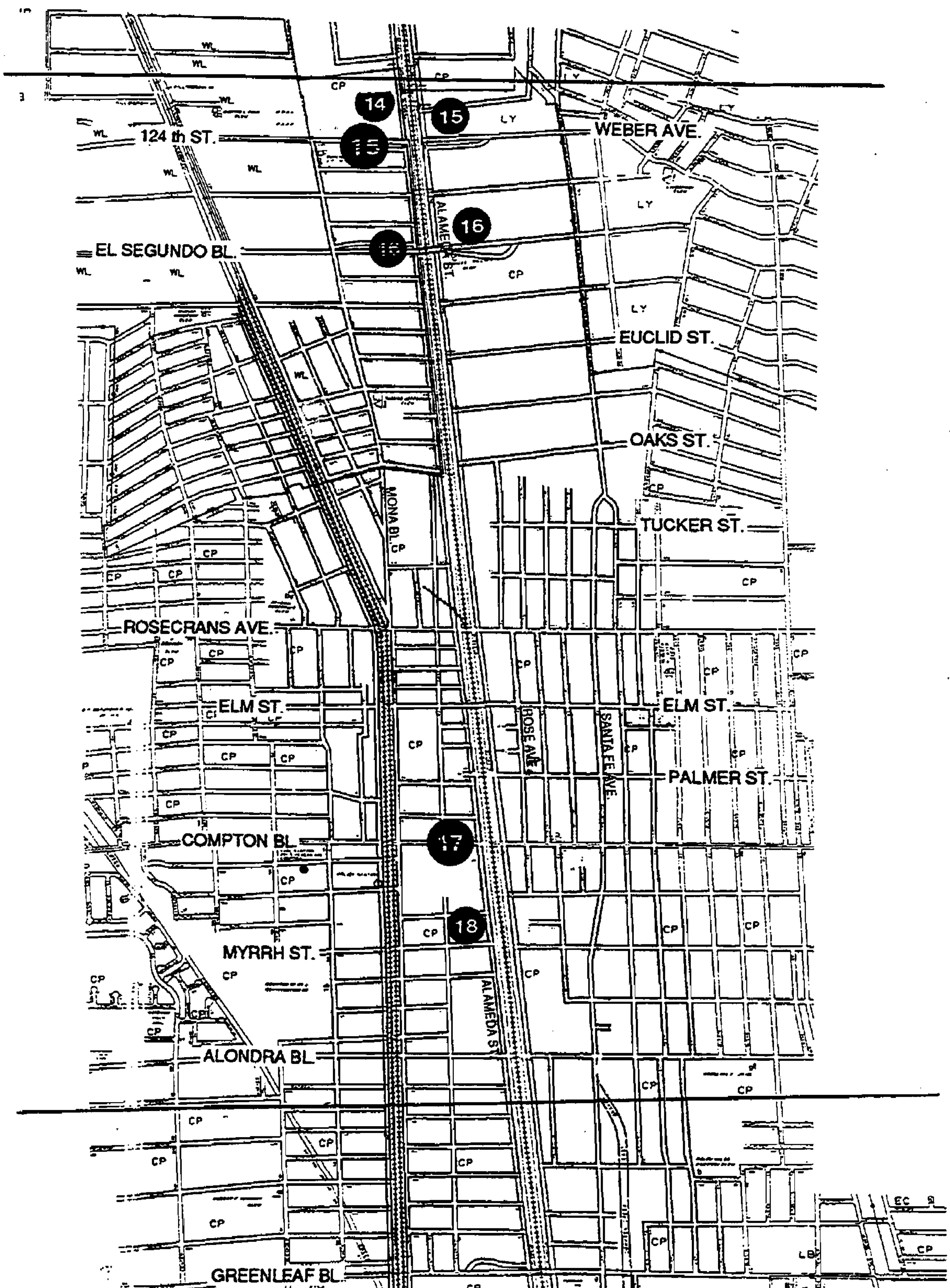
See Sheet 4

No Scale

Source: Myra L. Frank & Associates, Inc., 1992 Sheet 3 of 6

FIGURE 5-43	Aesthetics - Location of Impacts Segment C1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 3



See Sheet 5

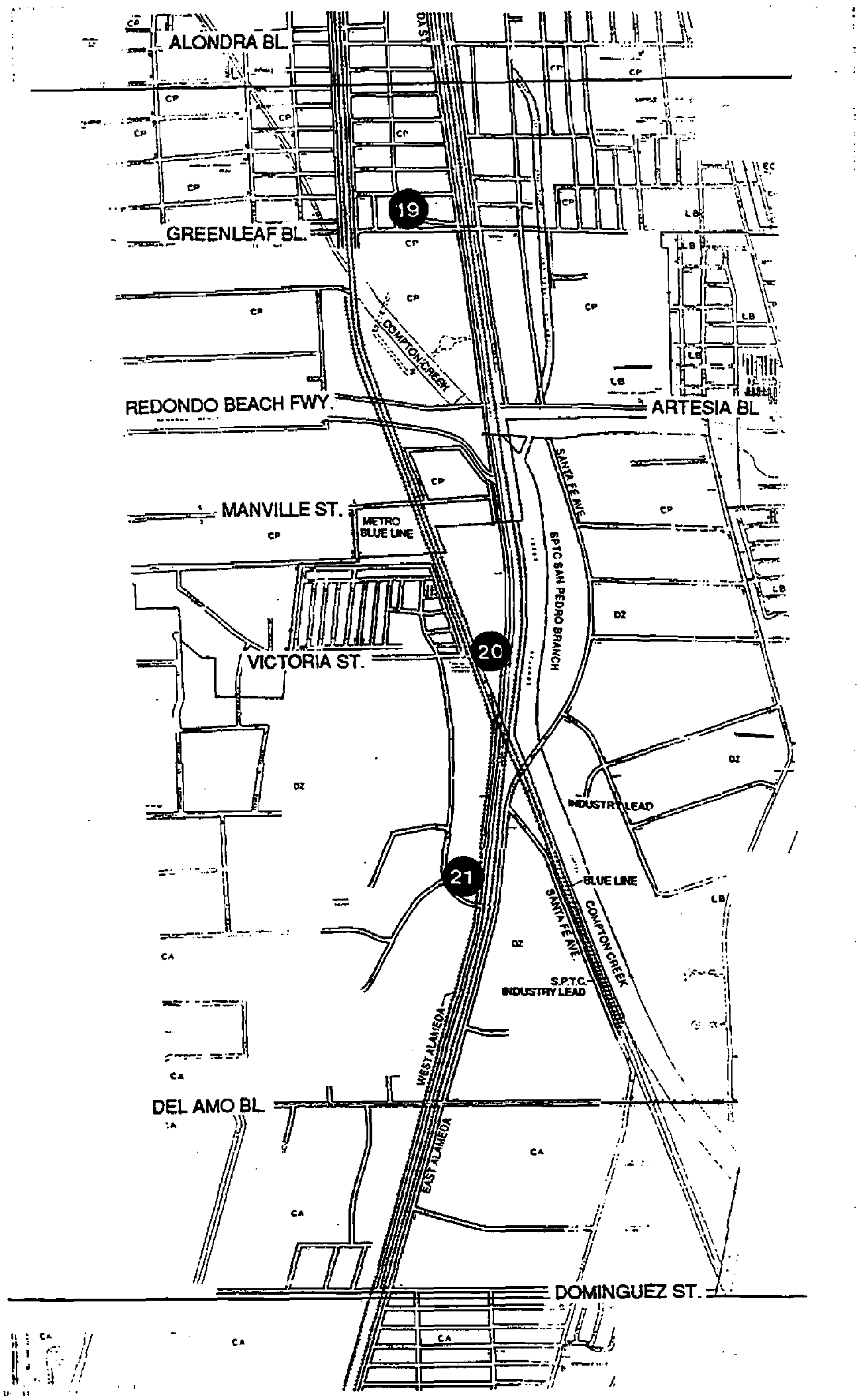
Source: Myra L. Frank & Associates, Inc., 1992

Sheet 4 of 6

No Scale

FIGURE 5-43	Aesthetics - Location of Impacts Segment C2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 4



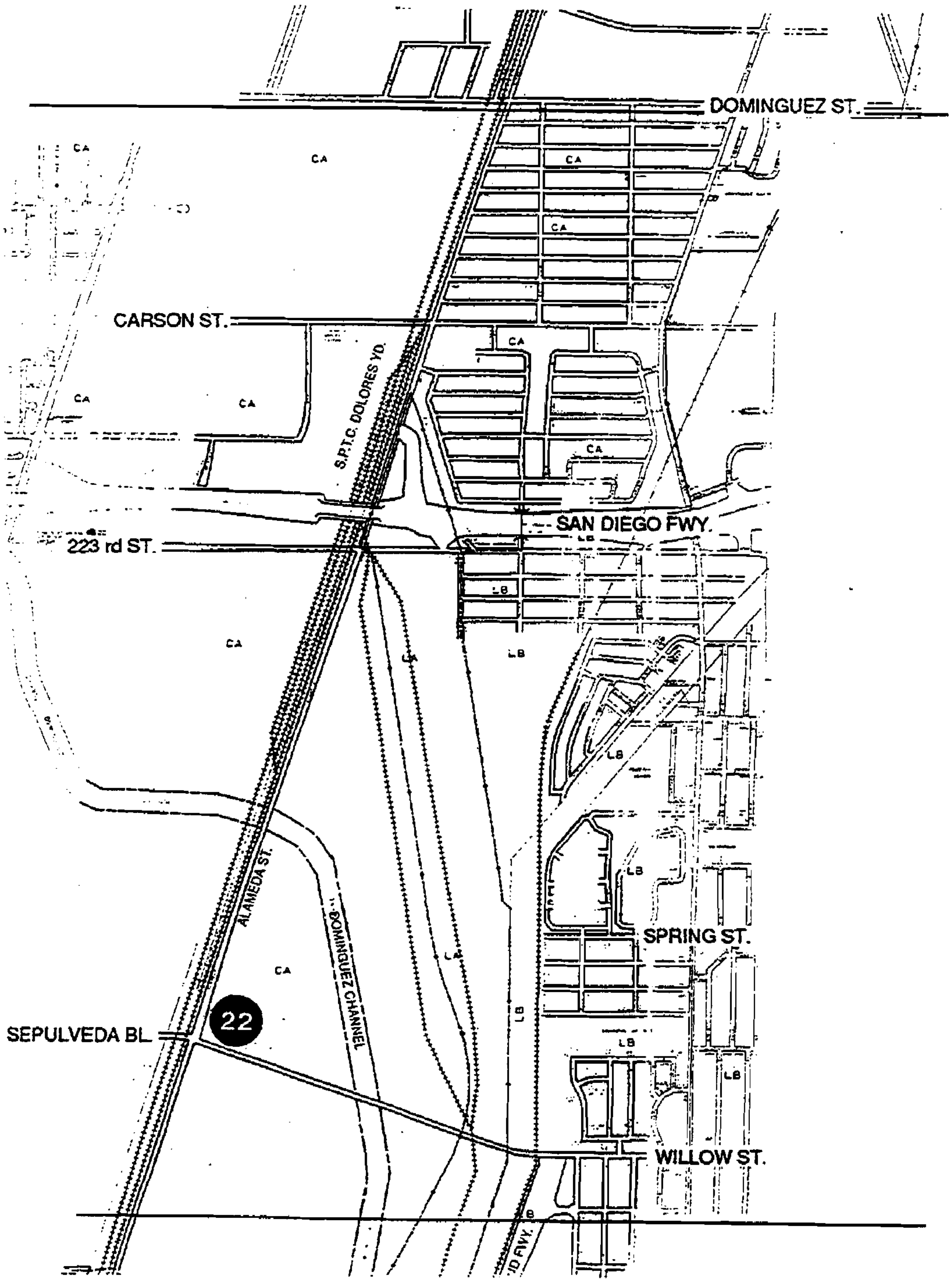
See Sheet 6

Source: Myra L. Frank & Associates, Inc., 1992 Sheet 5 of 6

No Scale

FIGURE 5-43	Aesthetics - Location of Impacts Segment C3 & D1	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

See Sheet 5



No impact locations to the south

Source: Myra L. Frank & Associates, Inc., 1992

Sheet 6 of 6

No Scale

FIGURE 5-43	Aesthetics - Location of Impacts Segment D2	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Segment A

Segment A consists of train and road improvements. The trainway improvements would occur in a heavy industrial area. Since the improvements would be largely confined to the railroad yards and trackage they would not result in visual impacts in this area of the corridor.

Roadway right-of-way takes would occur on the east side of Alameda Street between the I-10 freeway and 25th Street. This would remove parking, shrubbery, and frontage from industrial properties on the east side. Since this is an industrial area consisting primarily of heavy industry, parking lots, scrap metal lots and salvage yards, these right-of-way takes would not constitute a visual impact.

The 24th/25th streets underpass would remove the entrance and part of the north side of the Alameda Business Center located at the southwest corner of 24th and Alameda streets, and it would also remove landscaping along the perimeter of the Alameda Business Center. Since this landscaped building tends to improve the character of this segment of the corridor and the landscaping is a significant aspect of the site design, the landscape removal and obstruction to the front entrance and north side of the building would constitute an adverse effect, but this is not considered significant.

Segment B1

The corridor would be constructed as a six-lane one-way couplet with trainway in the center. The right-of-way takes along Alameda Street would for the most part remove industrial structures and take shrubbery, frontage and parking spaces from industrial properties. These takes would not result in visual impacts in this predominantly heavy industrialized area of the corridor. One site would, however, be affected: the Alameda Business Center.

The right-of-way expansion along the west side of Alameda Street would remove landscaping along the entire length of the east side of the Alameda Business Center. The landscape removal would constitute an adverse visual impact, but not a significant one.

Underpasses would be constructed at 41st/38th streets and Vernon Avenue. An overpass would be constructed at Slauson Avenue.

Right-of-way takes for the 41st/38th streets underpass would occur along the north and south sides of 41st/38th streets. The site north of 41st/38th streets is currently vacant.

Right-of-way takes for the Vernon Avenue underpass would occur along the south side of Vernon Avenue. Right-of-way expansion for the Vernon Avenue underpass would take the Stacy Medical Building with the fire truck. Removal of this visually prominent structure would constitute a significant adverse visual impact. Construction of the underpass would also remove the Vernon welcome sign.

The Slauson Avenue overpass would extend approximately 1,040 feet from the west side and 1,060 feet from the east side of Alameda Street. The highest point of the overpass would rise approximately 42 feet above Alameda Street. Right-of-way takes would occur along the south side of the westerly extension and the north and south sides of the easterly extension of Slauson

Avenue. The Slauson Avenue overpass would constitute less of a visual impact on the adjacent uses which are industrial uses, auto repair shops, and scrap metal lots. The overpass would remove the Vernon welcome sign located at the southeast corner of Slauson Avenue and Alameda Street.

Segment B2

The corridor configuration would be a one way couplet with trainway in the center from south of Randolph Street to south of Nadeau Street. Between south of Nadeau Street and Firestone Boulevard the corridor would be a two way six lane facility, with the trainway located east of the roadway. Right-of-way takes would occur along the east side of Alameda Street between Florence Avenue and 74th Street. The roadway right-of-way takes along Alameda Street would not result in visual impacts.

Underpasses would be constructed at Florence Avenue, Nadeau Street, and Firestone Boulevard. An overpasses would be constructed at Gage Avenue.

The Gage Avenue overpass would extend approximately 1,000 feet from the west side and approximately 1,020 feet from the east side of Alameda Street. The Gage Avenue overpass would rise 40 feet at the highest point above Alameda Street. Right-of-way takes would occur along the south side of the easterly and westerly extensions of Gage Avenue. The overpass would be located adjacent to a park and residences on the north side and approximately 225 feet from the residences on the south side of the easterly extension of Gage Avenue. An access road connecting Wilmington Avenue and Albany Street would be constructed along the south side of Gage Avenue. The access road would remove housing from the residential area located along the south side of the easterly extension of Gage Avenue. Regent and Cottage streets would "T" into the access road, rather than cross Gage Avenue, and thereby remove direct access to the community park located on the north side of the easterly extension of Gage Avenue. The close proximity of the overpass to the residences and park and the visual separation of the residences on the south side from the park would cause visual intrusion in this area of the corridor and would result in a significant adverse visual impact. The Gage Avenue overpass would remove the Huntington Park welcome sign in the southeast corner of Alameda Street and Gage Avenue.

Right-of-way takes would occur along the north and south side of the westerly extension and the north side of the easterly extension of Firestone Boulevard. The Firestone Boulevard underpass would not cause visual impacts in this industrialized area of the corridor.

Right-of-way takes would occur along the south side of the easterly and westerly extension of Florence Avenue. The Florence Avenue underpass would remove a landscape buffer from the northwest corner of the Florence Avenue School at the southwest corner of Florence and Bell Avenues. Since the landscaping provides a visual buffer between the street and school, the landscape removal would constitute a minor adverse visual impact.

Right-of-way takes would occur along the north and south sides of the westerly extension and north side of the easterly extension of Nadeau Street. An access road would be constructed south of the westerly extension of Nadeau Street between Alameda and Alix streets. The underpass and access road would remove housing on the south side of the westerly extension of Nadeau Street with the remaining residences exposed to the roadway. Since the residential buffer and part of the neighborhood would be removed, the Nadeau Street underpass and access road would result in visual intrusion and constitute a significant adverse visual impact to the remaining residences on the south side.

Segment C

The corridor would be configured as a two-way roadway with trainway to the east of the roadway from the vicinity of Firestone Boulevard to north of 97th Street. Ramps occur on an elevated structure from north of 97th Street to north of Seminole Avenue, to provide access to the Tweedy Boulevard interchange. The corridor is six lanes at grade from north of Seminole Avenue to Palmer Street. The roadway transitions to an overhead structure between Palmer Street and the vicinity of Myrrh Street where it returns to grade. In the vicinity of Alondra Boulevard the roadway becomes a six-lane two way facility until the vicinity of SR-91 where Segment D begins. A frontage road would be constructed on the east side of Alameda Street between Gage Avenue and SR-91.

Roadway right-of-way takes would occur only on the west side of Alameda Street between 94th and 103rd streets, and between Mealy and Spruce streets. Right-of-way takes to the west side of Alameda Street would remove minimal landscaping from the parking lot of the Jordan High School. The landscaping serves as a visual buffer and is located along the east side perimeter of the school parking lot, approximately 50 feet from the east side of Alameda Street. Removal of the landscape would constitute a minor adverse impact, but could be relocated immediately to the west of the right-of-way take.

Overpasses would be constructed at 92nd Street/Southern Avenue, Tweedy Boulevard (above grade improvements), Weber Avenue, El Segundo Boulevard, Compton Boulevard, and Greenleaf Boulevard. Underpasses would be constructed at Imperial Highway and Alondra Boulevard.

The 92nd Street/Southern Avenue overpass would extend 1,200 feet from the west side and 1,180 feet from the east side of Alameda Street. At the highest point the 92nd/Southern Avenue overpass would be 43 feet above Alameda Street. Right-of-way takes would occur along the south side of the westerly and easterly extensions of 92nd Street/Southern Avenue. Construction of the overpass would remove housing from the south side of 92nd Street/Southern Avenue. The overpass would be located immediately adjacent to the remaining housing which is currently buffered from 92nd Street/Southern Avenue by the residences to be removed by the project. Since the 92nd Street/Southern Avenue overpass would remove a residential buffer and would be located within 150 feet of the housing located on the south side of 92nd Street and on the north and south side of Southern Avenue, the overpass would result in visual intrusion and constitute a significant adverse visual impact.

Tweedy Boulevard would become an above grade structure extending 1,500 feet from the east side of Alameda Street. The structure would be 32 feet at its highest elevation which would extend the 360 feet from the east side of Alameda Street. Right-of-way takes would occur on the north and south sides of the boulevard. The above grade improvements to Tweedy Boulevard would remove 1,350 feet of industrial uses located between Nebraska Avenue and Tweedy Boulevard. These industrial uses currently act as a buffer between the residential uses north of Nebraska Avenue and the traffic along Tweedy Boulevard. As a result of the industrial takes, the above grade structure would be adjacent and would visually intrude upon the residences to the north, causing a significant adverse visual impact. The Tweedy Boulevard interchange is visually portrayed in Figure 5-44. Figure 5-45 shows the Tweedy Boulevard overcrossing as it would appear in the residential area to the east of Alameda Street.

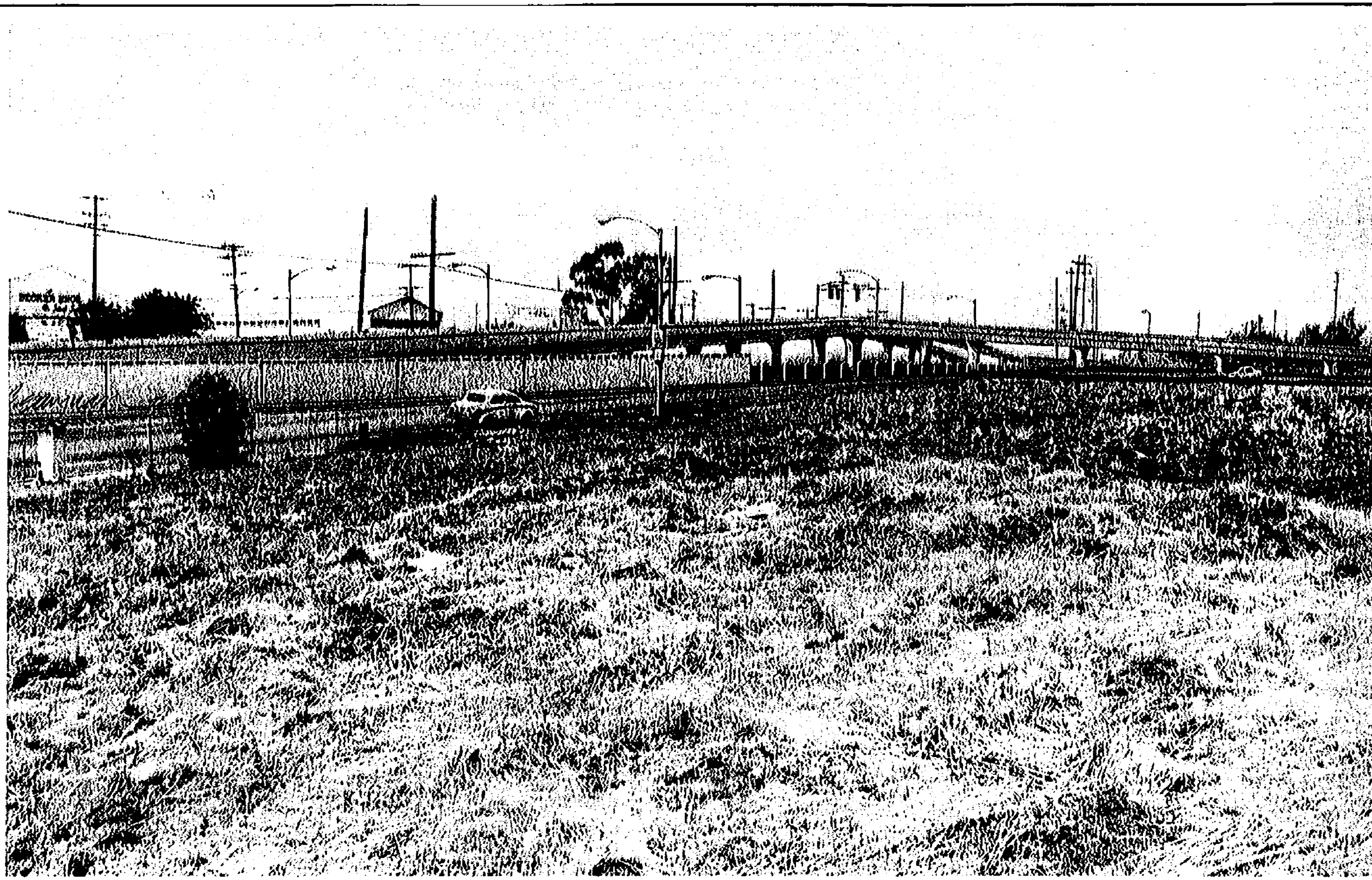
The 124th Street/Weber Avenue overpass would extend 1,000 feet from the west side and 1,000 feet from the east side of Alameda Street. At the highest point the Weber Avenue overpass would be 40 feet above Alameda Street. Right-of-way takes would occur along the north and south side of the westerly and easterly extension of 124th Street/Weber Avenue. The Weber Avenue overcrossing would remove land uses shielding multi-family housing on the north and south sides of the westerly extension and on the north side of the easterly extension of Weber Avenue. Since the overcrossing would be adjacent to the remaining housing, the structure would cause visual intrusion and would constitute a significant adverse visual impact.

The El Segundo Boulevard overpass would extend 1,000 feet from the west side and 1,000 feet from the east side of Alameda Street. At the highest point the El Segundo Boulevard overpass would be 40 feet above Alameda Street. Right of way takes would occur along the north side of the westerly extension and north and south side of the easterly extension of El Segundo Boulevard. The El Segundo Boulevard overcrossing could visually intrude upon the residences

remaining along the north and south sides of the westerly extension and the mobile homes located on the north side of the easterly extension as the structure would be immediately adjacent to the housing. The structure would cause visual intrusion to the adjacent residences and result in a significant adverse visual impact.

The Compton Boulevard overpass would extend 1,000 feet from the west side and 1,020 feet from the east side of Alameda Street. At the highest point the Compton Boulevard overpass would be 42 feet above Alameda Street. Right-of-way takes would occur along the north and south side of the westerly extension and south side of the easterly extension of Compton Boulevard. The Compton Boulevard overcrossing would take approximately 25 feet of frontage from the parking lot of the shopping center located along the north side of the westerly extension of Compton Boulevard. The overcrossing would remove approximately 25 feet of frontage including parking spaces and building entrances from the shopping centers located on the south side of Compton Boulevard. Since this is a high profile commercial area, the overpass could cause a minor adverse visual impact.

The Greenleaf Boulevard overpass would extend 940 feet from the west side and 1,400 feet from the east side of Alameda Street. At the highest point the Greenleaf Boulevard overpass would be 46 feet above the frontage road to the east of Alameda Street. Right of way takes would occur along the north side of the westerly and easterly extension of Greenleaf Boulevard. The structure would remove residences located in the northeast corner of Tamarind Avenue and Greenleaf Boulevard. The overcrossing would be visually intrusive to the remaining single-family houses located on the northeast corner of Tamarind Avenue and Greenleaf Boulevard and would result in a significant adverse visual impact in this area of the corridor.



Source:

FIGURE 5-44	A visual portrayal of the Tweedy Blvd. interchange	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Source:

FIGURE 5-45	The Tweedy Blvd. overcrossing as it would appear in the residential area to the east of Alameda Street.	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

Segment D

Segment D contains the Ports Access Demonstration Project, with certain modifications necessary to provide for the consolidated corridor.

Right-of-way takes would occur along the west side of Alameda Street between Victoria Street and Laurel Park Road and on the east and west sides from north and south of Sepulveda Boulevard. Right-of-way takes would also occur on the west side of Henry Ford Avenue north and south of Anaheim Street. Right-of-way takes would occur on the east side of Henry Ford Avenue between Opp Street and the vicinity of Terminal Island Freeway.

The right-of-way expansion along the west side of Alameda Street would take landscaping located on the north and south side of approximately 500 feet of Laurel Park Road in the industrial park at Alameda Street and Laurel Park Road. Removal of the landscape would constitute a minor adverse visual impact.

The right-of-way expansion along the west side of Alameda Street would also remove landscaping from the Department of Water and Power (DWP) facility located on the west side of Alameda Street north of the point where the Metro Blue Line crosses Alameda Street. Removal of the landscape would constitute a minor adverse visual impact.

Right-of-way takes along the east side of Alameda Street north of Sepulveda Boulevard would remove landscaping along the west side perimeter of the Arco Training Center. Right-of-way takes along the north side of the easterly extension of Sepulveda Boulevard would remove landscaping shielding the parking lot of the Arco Training Center. Since Carson wants to preserve landscaping along the perimeter of the Arco site to conceal the oil industry related uses, the landscape removal would constitute a minor adverse visual impact.

Overpasses would be constructed at Sepulveda Boulevard, SR-1, and Carson Street by others. Right-of-way takes would occur on the north and south sides of Sepulveda Boulevard, on the south side of SR-1, and on the north side of the easterly extension and the south side of Anaheim Street.

The Sepulveda Boulevard overpass would extend 1,560 feet from the west side and 1,000 feet from the east side of Alameda Street. At the highest point the overpass would by 40 feet above grade at a point 200 feet west of Alameda Street. The structure would rise 30 feet above Alameda Street. The Sepulveda Boulevard overcrossing would take a landscape buffer concealing the parking lot of the Arco Refinery Training Center located on the north side of the westerly extension and on the south side of the easterly extension of Sepulveda Boulevard. Again, since Carson wants to preserve landscaping along the perimeter of the Arco site to conceal the oil industry related uses, the landscape removal would constitute a minor adverse visual impact.

The SR-1 overpass would extend 1,160 feet from the west side and 2,200 feet from the east side of Alameda Street. The overpass would rise 36 feet above Alameda Street. At the highest point the overpass would be 38 feet above grade at a point 1,000 feet east of Alameda Street. The overpass would not result in visual impacts in this heavy industrial area of the corridor.

The Anaheim Street Bridge would be widened to six lanes and it would be raised by approximately seven feet. The bridge would return to grade before reaching Henry Ford Avenue. The bridge reconstruction would not result in visual impacts in this heavy industrial area of the corridor.

5.7.5 Visual Impacts - Alternative 2.1A

Alternative 2.1A consists of a depressed trainway providing for two main line consolidated freight rail tracks, and an at-grade drill track. There would be a six-lane roadway configured as a one way couplet of three lanes in each direction. Grade separations would be provided at grade with bridges crossing over the trainway. Alternative 2.1A has two sections. One section consists of a depressed trainway flanked by two at-grade one-way roadways and an at grade drill track. The second section consists of a depressed trainway configured essentially as the first with the exception that it would also include a frontage road separated from the main roadway. Alternative 2.1A would provide a trainway in a trench with at-grade roadways and grade separations. Figure 5-46 shows a prototypical view of the proposed depressed trainway.

Segment A

Alternative 2.1A has essentially the same trainway and roadway improvements in Segment A as Alternative 1. The differences occur at Santa Fe Avenue, at the north end of "J" Yard where the trainway descends to the southwest and goes below grade between realigned 25th Street and Alameda Street and assumes a southbound trainway alignment in the center of Alameda Street. An at-grade bridge would be constructed at 24th/25th streets.

Roadway right-of-way takes would occur on the west side of Alameda Street between I-10 and 15th Street and on the east side of Alameda Street between I-10 and Washington Boulevard. The right-of-way takes would remove parking, minor landscaping, and frontage from industrial properties located on the east side and scrap metal and salvage yards from the west side of Alameda Street. Since this is a heavy industrialized area, these takes would not constitute a visual impact.

Right-of-way takes would occur on the north side of the westerly and easterly extension of 24th/25th streets for the 24th/25th streets at-grade bridge. Since the north side of 24th/25th streets is defined by railroad tracks, scrap metal lots, salvage yards and heavy industrial uses, except for the Los Angeles County Department of Children's Services located at the northeast corner of Alameda and 25th streets, the right-of-way takes would not cause a visual impact.

Segment B1

Beginning south of 25th Street, the corridor would be configured as a depressed trainway in the center of Alameda Street flanked on either side by a three lane roadway. The roadway and drill track would be at grade. At-grade bridge crossings over the trainway would be provided at 38th/41st streets, Vernon Avenue, Slauson Avenue, and Randolph Street. All other east-west streets would be configured as "T" intersections with Alameda Street.

Roadway right-of-way takes would occur on the west side of Alameda Street between 24th and 27th streets and between 41st/38th streets and Slauson Avenue. Right-of-way takes on the east

Source:

FIGURE 5-46	**A prototypical view of the proposed depressed trainway.**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

side of Alameda Street would occur between 25th Street and the railroad tracks south of 48th Street and between 57th and Randolph streets.

Right-of-way takes would remove landscaping along the east side of the Alameda Business Center. The landscape removal would constitute an adverse effect, but not a significant one.

Segment B2

Beginning in the vicinity of Randolph Street, the corridor would continue to be configured as a depressed trainway in the center of Alameda Street flanked on either side by a three lane roadway. The roadway and drill track would be at grade. At Randolph Street the existing Southern Pacific La Habra Branch would cross over the depressed trainway in an east-west direction along the center of Randolph Street on a proposed one track bridge. At-grade bridge crossings over the trainway would be provided at Gage Avenue, Florence Avenue, Nadeau Street, and Firestone Boulevard. All other east-west streets would be configured as "T" intersections with Alameda.

Roadway right-of-way takes would occur at the following locations along the west side of Alameda Street: 1) between 63rd Street and Gage Avenue, 2) Saturn Street and Florence Avenue, 3) 77th Street to north of 81st Street, and 4) Manchester Avenue and Firestone Boulevard. Right-of-way takes would occur on the east side of Alameda Street at two locations: 1) from north of Gage to Zoe avenues, and 2) Florence Avenue to 76th Street.

Right-of-way takes along the west side of Alameda include the removal and replacement of landscaping and commercial signage from the BMW auto dealership at the northwest corner of Gage Avenue and Alameda Street. Although the signage and landscaping are integral parts of the site design, these takes would not constitute an adverse visual impact to the site, assuming replacement landscaping and signage can be provided.

Segment C

Beginning in the vicinity of Firestone Boulevard, the corridor would continue to be configured as a depressed trainway in the center of Alameda Street flanked on either side by a three lane roadway. The roadway and drill track would be at grade. A frontage road would be provided on the east side of Alameda Street from Southern Avenue to I-105 freeway and then from south of the I-105 freeway to Butler Avenue. South of Compton Avenue, in the vicinity of Laurel Street, to SR-91 the roadway transitions from a one-way couplet to a two-way six-lane roadway west of the trainway with a frontage road on the east side of the trainway. The trainway would begin to ascend at Greenleaf Boulevard and return to grade between Artesia Boulevard and the SR-91 freeway.

Right-of-way takes would occur on the west side of Alameda Street between Firestone Boulevard and 90th Street. Right-of-way takes would occur on the east side of Alameda Street between Auto Drive and Artesia Boulevard.

Right-of-way takes along the west side of Alameda Street north of Willowbrook Avenue to south of Willowbrook Avenue would remove shrubbery surrounding the DWP plant. Right-of-way takes on the east side of Alameda Street between Auto Drive and Artesia Boulevard would remove landscaping surrounding industrial uses. Since the shrubbery serves as a visual buffer screening these industrial uses, the removal of the shrubbery would constitute a minor adverse visual impact, but not a significant one.

Alternative 2.1A would remove approximately 50 feet of the northeast corner of the block wall and corner landscaping surrounding the new multi-family housing located at the northwest corner of Myrrh and Alameda streets. The landscape and block wall serve as visual buffers between the residences and Alameda Street, but also as part of the site design of this new multi-family housing development. As a result of these right-of-way takes, Alternative 2.1A would result in an adverse visual impact at this site, but not a significant one, assuming the landscaping and block wall can be replaced.

At-grade bridge crossings over the trainway would be provided at Southern Avenue, Tweedy Boulevard, 103rd Street, Martin Luther King Boulevard, Imperial Highway, El Segundo Boulevard, Compton Avenue, Alondra Boulevard, and Greenleaf Boulevard. The at-grade bridge crossings are not expected to result in visual impacts.

Segment D

Improvements associated with Alternative 2.1A in Segment D would be the same as those in Alternative 1. Consequently, the visual impacts would be the same as under Alternative 1.

5.7.6 Visual Impacts - Alternative 2.1S

Alternative 2.1S would modify the trainway trench by using sloped walls for a portion of the vertical rise. Right-of-way takes would be greater than under the other alternatives at the locations of the sloped walls. Grade separations would be provided by means of at-grade bridges over the trainway.

Segment A

Improvements associated with Alternative 2.1S in Segment A would be the same as in Alternative 2.1A. There are not expected to be any visual impacts in this heavily industrialized area of the corridor.

Segment B1

Alternative 2.1S would be configured essentially the same as under Alternative 2.1A as a depressed trainway with at-grade roadways and drill track. At-grade bridge crossings over the trainway would occur at the same locations as in Alternative 2.1A. Right-of-way takes would occur at the same location as in Alternative 2.1A. Right-of-way takes would be more extensive at the following locations as a result of the sloped trenches:

West Side: 1) Martin Luther King Boulevard to 52nd Street

East Side: 1) 27th Street to Vernon Avenue

2) north of 48th Street to Randolph Street

Segment B2

Improvements associated with Alternative 2.1S in segment B2 would be essentially the same as in Alternative 2.1A. Right-of-way takes would be more extensive because of the sloped wall trenches at the following locations:

West Side: 1) Gage Avenue to Firestone Boulevard

East Side: 1) Randolph Street to Saturn Avenue

2) L.A. County line north of Firestone to Firestone Boulevard

Right-of-way takes along the west side of Alameda Street between 65th and 67th streets would remove landscaping from the Huntington Park Casino which is a visually distinct site along the corridor. The landscape removal would constitute an adverse visual impact to the site, but not a significant one.

Segment C

Improvements associated with Alternative 2.1S in segment B2 would be essentially the same as in Alternative 2.1A. Right-of-way takes would be more extensive because of the sloped wall trenches at the following locations:

West Side: 1) opposite Tweedy Boulevard to 127th Street

2) Alondra Boulevard to Greenleaf Avenue

East Side: 1) Firestone Boulevard to Southern Avenue

2) opposite Mealy Street to opposite Arbutus Street

Right-of-way takes along the west side of Alameda Street would remove shrubbery from the following locations:

- Jordan High School parking lot: The landscaping is located along the east side perimeter of the school parking lot, approximately 50 feet from the west side of Alameda Street.

- Ritter Elementary School: northwest corner of Santa Ana Boulevard and Alameda Street

- Industrial park located from north of Industrial Way to north of 124th Street: The landscaping is located along the east side perimeter of the complex.

The shrubbery at these three locations serve as visual buffers shielding the uses from Alameda Street. Removal of the landscape would constitute a minor adverse impact, but not a significant one.

Segment D

Improvements associated with Alternative 2.1S in Segment D would be the same as those in Alternative 2.1A. Consequently, the visual impacts would be the same as under Alternative 1.

5.7.7 Visual Impacts - Alternative 2.2

Alternative 2.2 routes the trainway in a trench along the Southern Pacific Wilmington Branch, between 25th and Randolph streets rather than along Alameda. In most other respects it is essentially the same configuration as 2.1A. The trainway would be constructed to the east of one remaining Southern Pacific track, the Metro Blue Line tracks, and the southbound roadway of Long Beach Avenue. On the east side of the trainway would be the northbound lanes of Long Beach Avenue and a sidewalk.

Segment A

Alternative 2.2 would continue the depressed trainway westerly across Alameda Street, north of 24th Street, curving to the southwest and crossing beneath 24th Street to Long Beach Avenue. In all other respects, this alternative has the same configuration as Alternative 2.1A in Segment A. Alternative 2.2 is not expected to result in any visual impacts in Segment A as this is a heavily industrialized area of the corridor.

Segment B1

South of 25th Street to south of Slauson Avenue the northbound lanes of Long Beach Avenue would be located on the east side of the trainway. At Slauson Avenue the trainway would curve to the southeast to meet Randolph Street. At Wilmington Avenue the trainway would curve to the south and transition back to the center of Alameda Street. At-grade bridge crossings over the trainway along Long Beach Avenue would be constructed at 41st Street, Vernon Avenue, 48th Place, 55th Street, and Slauson Avenue. At-grade bridge crossings over the trainway along Randolph Street would be provided at Holmes and Wilmington avenues.

The right-of-way takes south of 42nd Street on the east side of the northbound Long Beach Avenue would remove structures from the Pueblo Del Rio housing project and place the northbound lane of Long Beach Avenue within 25 feet of the some remaining units. Alternative 2.2 would also place the at-grade improvements within 25 feet of several residences located along the east side of northbound Long Beach Avenue. The improvements would visually intrude upon these residences and result in a significant adverse visual impact. The closer proximity of the roadway, plus the increased train and vehicular traffic, which would further the visual separation of the residences on the east side of northbound Long Beach Avenue from the residences and Fred Roberts Park on the west side of southbound Long Beach Avenue, would result in a significant visual impact to these residences.

Alternative 2.2 would take playground area located in the northeast corner of 55th Street and northbound Long Beach Avenue on the grounds of the Pueblo Del Rio housing project. Since these improvements would remove an open space/play ground area which provides the residences with some visual relief from the adjacent traffic on Long Beach Avenue, Alternative 2.2 would result in a significant adverse visual impact at this location. The removal of the playground area and structures would also change the visual character of the housing development.

Segments B2, C, and D

Alternative 2.2 has the same configuration and, consequently, the same visual impacts as either Alternative 2.1A or 2.1S in segments B2, C, and D.

5.7.8 Construction Impacts

During construction activity, the construction sites and materials storage areas would temporarily create a disorderly appearance that would have a significant adverse visual effect on the surrounding area. In addition, construction activity that may occur at night would produce light and glare which would be intrusive to some uses.

Segment A

No sensitive uses which would experience light and glare impacts during construction were identified in Segment A during the visual analysis.

Segment B1

Light and glare during construction activity would affect residences at the following locations:

- Alameda Street: west side between the railroad tracks and 51st Street (Pueblo Del Rio housing project)
- Vernon Avenue: north and south side of the westerly and easterly extension between Long Beach Avenue and St. Charles Street
- Alameda Street: west side between 41st Street and Vernon Avenue

Segment B1 - Alternative 2.2

Light and glare during construction activity would affect residences at the following locations:

- Long Beach Avenue: east side of northbound lane and west side of southbound lane (area includes Pueblo Del Rio housing project between 51st and 55th streets)
- West side of Long Beach Avenue in vicinity of 59th Place and 60th Street west of Randolph Street

Segment B2

Light and glare during construction activity could affect residences at the following locations:

- Alameda Street: west side between Florence Avenue and south of Nadeau Street; and east side between Gage Avenue and Mortimer Street

- Florence Avenue: north and south side of the westerly and easterly extension; Residences on the north side of the easterly extension would be buffered by approximately 150 feet of industrial uses.

- Gage Avenue: north and south sides of the easterly extension

- Nadeau Street: north and south sides of the westerly and easterly extensions

- Firestone Boulevard: west of Juniper Street south of the westerly extension of Firestone Boulevard

Segment C

Light and glare during construction activity could affect residences at the following locations:

- Alameda Street: west side between Santa Ana Boulevard and 114th Street, between Mealy Street and Rosecrans Avenue; between Spruce and Arbutus streets; between 124th and Oris Streets, north side of Maple Street, 1,200 feet north of Myrrh Street to Myrrh Street, Alondra to Bennett streets where residences are bordered by approximately 150 feet of industrial storage yards; east side between Southern Avenue and Tweedy Boulevard, 126th and Carlin streets, and Rosecrans Avenue and Elm Streets; Compton Boulevard and Laurel Street.

- 92nd Street/Southern Avenue: north and south sides of 92nd Street and north and south sides of Southern Avenue

- Tweedy Boulevard: north and south side

- 124th Street/Weber Avenue: north and south sides of the westerly extension and north side of easterly extension

- El Segundo Boulevard: north and south side of the westerly extension and north side of the easterly extension

- Alondra Boulevard: north and south side of the westerly extension and north side of the easterly extension

- Greenleaf Boulevard: near the north side of the westerly and easterly extensions

Segment D

Light and glare during construction activity could affect residences at the following locations:

- Alameda Street: west side between north side of Robidoux Street and Denni Street, and mobile homes on Dominguez Hill west of Laurel Park Road; east side between Dominguez and Carson streets where housing is buffered by approximately 100 feet of low-rise industrial buildings and storage yards, and 218th and 220th Street

- SR-1: north side of westerly extension between Watson and Drumm avenues where there is a 100 foot industrial buffer; north side of westerly extension between Watson and Drumm avenues where there is a 100 foot industrial buffer; and south side of the westerly extension of SR-1 between Watson Avenue and Blinn avenues where there is a 100 foot industrial buffer

5.7.9 Specific Mitigation Measures

The following mitigation measures are proposed to reduce the significant adverse impacts of the project:

Alternative 1.0

- Segment A

  Avoid taking the entrance and north side of the Alameda Business Center and replace landscaping along the north and east sides of the Alameda Business Center. the business center is located inthe southwest corner of 24th and Alameda streets.

- Segment B1

  Replace landscaping along the east side of the Alameda Business Center

  Replace the City of Vernon welcome sign located at the southeast corner of Vernon Avenue and Alamed Street and at the southeast corner of slauson Avenue and Alameda Street

  Avoid taking the Stacy Medical Building with fire truck at the southeast corner of Alameda Street and Vernon Avenue, if feasible, or relocate fire truck to a location acceptable to the City of Vernon

- Segment B2

  Landscape or provide a landscaped embankment for the Gage Avenue overpass

  Replace landscaping at the Florence Avenue School

  Provide a visual buffer between the Nadeau Street underpass and access road and the residences located on the south side of the westerly extension of Nadeau Street

  Replace landscaping removed from the Huntington Park Casino

- Segment C

  Replace landscaping removed from Jordan High School

  Landscpae or provide a landscaped embankment for the overpasses at the following locations:

  92nd Street/Southern Avenue overpass
  Tweedy Boulevard (above-grade separation)
  124th/Weber Avenue
  El Segundo Boulevard
  Compton Boulevard
  Greenleaf Boulevard

- Segment D

  Replace landscaping removed from the following locations: (1) Industrial park at Laurel Park Road and Alameda Street; (2) Department of Water and Power north of the point where the Metro Blue Line crosses the west side of Alameda Street; (3) Arco Refinery Training Center at the northeast corner of Sepulveda Boulevard and Alameda Street.

<u>Alternative 2.1A</u>

- Segment A

  No mitigation required

- Segment B1

  Replace landscaping removed from the east side of the Alameda Business Center

- Segment B2

  Relocate the BMW dealership signage to another location close to the northwest corner of Gage Avenue and Alameda Street

- Segment C

  Replace landscaping and block wall removed from the northeast corner of the multi-family housing located at the northwest corner of Myrrh and Alameda streets

  Replace landscaping removed from the DWP site

- Segment D

  See Alternative 1.0, Segment D

Alternative 2.1S

- Segment A

  See Alternative 1.0, Segment A

- Segment B1

  No mitigation required

- Segment B2

  Replace landscaping removed from the east side perimeter of the Huntington Park Casino

- Segment C

  Replace the landscaping removed from the following locations:

  Jordan High School
  Ritter School
  Perimeter of the east side of the industrial park located on the west side of Alameda Street from north of Industrial Way to north of 124th Street

- Segment D

  Same as Alt 2.1A, Segment D

Alternative 2.2

- Segment A

  Same as Alternative 2.1 A, Segment A

- Segment B1

  Relocate the playground area at the Pueblo Del Rio housing project to another appropriate location on the property

  Provide a visual buffer between the east side of northbound Long Beach Avenue and the Pueblo Del Rio Housing Project located north of 51st Street to 55th Street.

  Provide a visual buffer between the east side of northbound Long Beach Avenue and the remaining residences located along the east side of Long Beach Avenue which would be within 25 feet of the project improvements.

- Segments B2, C, and D

  Alternative 2.2 has the same configuration in Segment B2, C, and D and consequently the same impacts and mitigation measures as under either Alternative 2.1A or 2.1S.

5.7.10 General Mitigation Measures

- Conduct construction activities during day time hours whenever possible. Shield construction lighting from residential areas.
- Screen construction sites from view in areas of particular sensitivity.
- Design soundwalls to be graffiti-resistant either with landscaping or by other means.
- Avoid obstructing views of signs to prominent redevelopment areas and industrial and commercial uses, where feasible.
- Give consideration to placing a visual buffer between the at-grade project improvements and residences located within 50 feet of the at-grade project improvements. For residences located within 25 feet of the at-grade project improvements, this approach is recommended.
- Relocate the mural depicting the early days of the forging industry to an appropriate location along Alameda Street within the corridor boundaries.
- Give consideration to the urban design goals and the redevelopment plans of the local jurisdictions as they pertain to the Alameda Corridor.
- Investigate special design and architectural treatment options during final design of overpass structures. Provide buffer landscaping at location of overpass structures.

5.8 CULTURAL RESOURCES

5.8.1 Regulatory Requirements

The following section identifies cultural resources, including both archaeological and historic/cultural resources, and describes the potential effects of the proposed project alternatives on these resources. The purpose of this discussion is to comply with California Environmental Quality Act (CEQA) regulations in regard to cultural resources.

At the present time federal funding sources for the entire project have not been identified, although federal funding has been identified for several individual grade separation projects, each of which is considered a categorical exclusion under the National Environmental Policy Act (NEPA). It is assumed that in the event future federal funding becomes available it would likely also be used for NEPA excluded additional grade separation projects. Each of the projects subject to federal funding would be evaluated as to their individual effects, and appropriate individual NEPA documentation would be prepared. If it should be determined that a federally funded project does not qualify for NEPA exclusion, then appropriate environmental impact analysis would be undertaken, an aspect of which would include cultural resources. That federal documentation (pursuant to Section 106 of the National Historic Preseervation Act) would include an identification and assessment of potential effects on cultural resources that would vary significantly from the methodology used for the following section.

Since the Alameda Corridor project as a whole is not a federal, federally-assisted, or federally licensed undertaking, only compliance with CEQA regulations is necessary in regard to cultural resources. CEQA states that "A project will normally have a significant effect on the environment if it will:... (j) Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study." (CEQA, Appendix G)

CEQA Compliance-Archaeological Resources

For the purposes of CEQA, an 'important archaeological resource' is one which:

A. Is associated with an event or person of:
   1. Recognized significance in California or American history, or
   2. Recognized scientific importance in prehistory;

B. Can provide useful information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable or archaeological research questions;

C. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;

D. Is at least 100 years old and possesses substantial stratigraphic integrity; or

E. Involves important research questions that historical research has shown can be answered only with archaeological methods." (CEQA, Appendix K)

Avoidance of archaeological resources is the most preferential option. If it is found to be an important archaeological resource and avoidance is not feasible, CEQA requires the lead agency to include an excavation plan for mitigating the effect of the project on the qualities which make the resource important. Depending on the extent of the resource, execution of the excavation plan may cause some temporary schedule delays.

If an identified archaeological resource is not an important archaeological resource CEQA requires that both the resource and the effect on it to be noted in the EIR but need not be considered further in the process.

CEQA Compliance-Historic and Cultural Resources

While CEQA is quite explicit in regards to what constitutes an important archaeological site, it is not as clear as to what constitutes "a property of historic or cultural significance to a community or ethnic or social group." Architectural resources are not specifically governed under CEQA but are generally identified as exhibiting cultural significance on behalf of the surrounding community. Acceptable CEQA documentation for historic or cultural resources generally may be limited to a documentation search of properties already having some national, state, or local landmark designation. Generally what may constitute a disruption or adverse effect on a historic resource includes such effects as significant visual obstruction to or from the resource, increase of noise levels, increase of vibration, settlement of ground under or near a structure, alteration of a structure, acquisition of property, or demolition of a structure. The level of significance for an effect is dependent upon the existing integrity and nature of contributing elements to its historic or cultural significance, and the sensitivity of the current or historic use of the resource. Once the nature of the potential effect is established, mitigation measures should be incorporated as part of the project to minimize disruption or adverse effect on these resources.

5.8.2 Setting

Archaeological Resources

- Archival Search

In order to identify previously recorded archaeological resources, an archival search was conducted for an area within one mile of this project by the University of California at Los Angeles (UCLA) Archaeological Information Center on February 7, 1992.

Based on the results of the UCLA records search, six archaeological sites and one isolated artifact have been recorded within one mile of the project. These resources would be out of any reasonable range of potential effect. In addition, two archaeological sites (CA-Lang-385 and CA-Lang-389) have been recorded in closer proximity to proposed project alternatives. CA-Lang-385 is located on the west side of Alameda, north of the Norton Street intersection, across from the main office of Jorgensen Steel Company (10651 Alameda). Recorded in 1969 by Tom King, the site was reported to have burials. Archaeological materials were removed during construction of buildings in 1961.

The other site, CA-Lang-389, is located on the Dominguez Hills overlooking Compton Creek and the Los Angeles River, 500 feet west of Alameda Street and one-half mile north of Del Amo Avenue. Recorded by Chartkoff and Gutman in 1969, the site was described as a seasonal village or camp site which had already been effectively destroyed by roads and grading activities. The previous level of disturbance significantly reduces its level of importance and sensitivity of the surrounding area.

Based on the results of the background research, the project study area is considered to be of low sensitivity to potential cultural resources remains, both of a prehistoric and historic nature. However, the area surrounding previously recorded site CA-Lang-385 may be considered sensitive.

- Phase 1 Reconnaissance

In addition to the archival search, a Phase 1 Archaeological Study was undertaken during April of 1992 by the Historical, Environmental, Archaeological, Research, Team (H.E.A.R.T.). The results of the archaeological field reconnaissance revealed no surface evidence of prehistoric or historic archaeological resources within the project study area. Even though the field survey failed to substantiate the existence of site CA=Lang-385, the fact that burials were present in addition to possible features suggests a significant resource. Therefore, the proposed project study area is considered to contain no known important pre-historic or historic archaeological resources, with the possible exception of the area in the vicinity of CA-Lang-385.

Historical/ Architectural/ Cultural Resources

In order to identify potentially significant historic, architectural, or cultural resources, previously documented resources for each of the jurisdictions were reviewed and compiled from a variety of sources. Historic resource lists, designations or organizations consulted included the National Register of Historic Places, California Historical Landmarks, State Office of Historic Preservation Statewide Database, Los Angeles County Points of Historic Interest, City of Los Angeles Historic-Cultural Monuments List, City of Huntington Park's Guide to Architecturally Significant Buildings in Huntington Park, City of South Gate Historic Surveys--Los Angeles County Preservation Planning Project (June 1983); Historical Analysis of the Hon Industries (Firestone) Plant; Age of Public Facilities Table & Map (Sources for map: Los Angeles Unified School District, Paramount Unified School District, and the City of South Gate Planning Department); Map of South Gate Historical Sites (Sources for map: Bicentennial Booklet, 1976; City of South Gate Building Department Records, 1980.);City of Lynwood Chamber of Commerce, City of Compton Community Planning and Development Department; Carson Fine Arts & Historical Commission, and the City of Long Beach Historical Landmarks List. Previously documented historic/architectural surveys included Gebhard & Winter 1985, Los Angeles Department of Planning (LADOP) Survey of Southeast Los Angeles (1991), and the Los Angeles Bureau of Engineering (LABOE) 1983 Watts Survey. The area of inquiry for the documentation was limited to a horizontal distance of 1,500 feet along either side of the proposed project alternative alignments running the full length of the Alameda Corridor limits. This distance was measured from the center line of the alternative alignment and is considered a more than adequate zone of potentially significant effect.

Within the study area, a total of 47 individual resources were identified as having been previously documented. Of these, 32 would be considered significant under CEQA as properties "of historic or cultural significance to a community or ethnic or social group." The remaining 14 resources are no longer considered significant because of demolition or loss of integrity. Table 5.8-1 shows the results of the documentation search and indicates the approximate distance of the resource to the centerline of the proposed alternative alignment. The table also includes an "evaluation" column which may be used to rank the resources according to their designated level of significance. Resources listed in this table with level of evaluation values between one to four indicate resources (1) listed on, (2) determined eligible for inclusion in, (3) appearing eligible for inclusion in, or (4) potentially eligible for inclusion in the National Register of Historic Places. A ranking of "5" indicates resources of local or regional significance; a "6" or "7" indicates that the resource is included for reference purposes only. A letter "D" following the evaluation numeral indicates that the resource is significant as a contributing part of a district including other resources. An evaluation code of "X" indicates the significant structure has been demolished since the earlier documentation.

TABLE 5-53: LIST OF HISTORIC/CULTURAL RESOURCES WITHIN 1,500 FEET OF ALTERNATIVE ALIGNMENT CENTERLINE

LOCATION OF RESOURCE	HISTORIC NAME	YEAR BUILT	EVALUATION	DESCRIPTION	ARCHITECT/ BUILDER	SOURCE OR SIGNIFICANCE	DISTANCE (feet)
E 1ST & MISSION ST, LOS ANGELES	ALISO VILLAGE	1941-53	5*	INTERNATIONAL, 2-STORY PUBLIC HOUSING	ADAMS, DAVIS, FLEWELLING, ETC./	GEBHARD & WINTER 1985	400
E 6TH ST, LOS ANGELES	SITE OF OLD SIXTH STREET BRIDGE	1898	X	WOODEN BRIDGE		LAHCM MONUMENT #54 (NOW DEMOLISHED)	NA
1565 E 46TH PL, LOS ANGELES		1886 C.	5D*	QUEEN ANNE, 1-STORY RESIDENCE		LADOP 1991 SURVEY;QUEEN ANNE/ TRANSITIONAL THEMATIC GROUP	500
1609 E 46TH PL, LOS ANGELES		1889 C.	6	VERNACULAR/ QUEEN ANNE, 1-STORY RESIDENCE		LADOP 1991 SURVEY	400
1801 E 53RD ST, LOS ANGELES	PUEBLO DEL RIO	1941-42	5*	INTERNATIONAL, 2-STORY HOUSING PROJECT	WILLIAMS, WILSON, KAUFMAN ETC./	LADOP 1991 SURVEY;GEBHARD & WINTER 1985	200
1916 E 92ND ST, LOS ANGELES		1915 C.	7	CRAFTSMAN, 1-STORY RESIDENCE		LADOP 1991 SURVEY;LABOE 1983 WATTS SURVEY;SHPO STATEWIDE DATABASE;STUCCOED SINCE WATTS SURVEY, NO LONGER SIGNIFICANT	1500
1920 E 92ND ST, LOS ANGELES	BIBLE REVIVAL CHURCH	1938	7	VERNACULAR, 1-STORY CHURCH		LADOP 1991 SURVEY;LABOE 1983 WATTS SURVEY;CONFIRMED STUCCOED SINCE 1983 WATTS SURVEY, NO LONGER SIGNIFICANT	1300
2010 E 92ND ST, LOS ANGELES	GREATER LIGHTHOUSE CHURCH OF GOD	1936 C.	7	VERNACULAR, 1-STORY CHURCH		LADOP 1991 SURVEY;LABOE 1983 WATTS SURVEY;STUCCOED SINCE 1983 WATTS SURVEY, NO LONGER SIGNIFICANT	1100
2127 E 97TH ST, LOS ANGELES		1923	7	VERNACULAR, 2-STORY RESIDENCE		LADOP 1991 SURVEY;LABOE 1983 WATTS SURVEY;SHPO STATEWIDE DATABASE;CONFIRMED STUCCOED SINCE 1983 SURVEY	1000
2056 E 103RD ST, LOS ANGELES	GREATER HOLY TEMPLE MISSION FAITH	1935 C.	5*	MISSION REVIVAL INFLUENCE, 1-STORY CHURCH		LADOP 1991 SURVEY;LABOE 1983 WATTS SURVEY	1500
2265 E 103RD ST, LOS ANGELES	DAVID STAR JORDAN HIGH SCHOOL	1936 C.	5*	PWA MODERNE, 2-STORY SCHOOL		LADOP 1991 SURVEY	600
600 N ALAMEDA ST, COMPTON	OLD CITY HALL	1890 C.	X			FORMER COMPTON STRUCTURE OF NOTE; SITE OF NOW DEMOLISHED CITY HALL IN 1972	500
18127 S ALAMEDA ST, RANCHO DOMINGUEZ, LOS ANGELES COUNTY	RANCHO DOMINGUEZ ADOBE AND MUSEUM	1826	1*	MISSION REVIVAL/ADOBE	RICCARD, GEORGE/	CALIFORNIA HISTORICAL LANDMARK NO. 152; LISTED IN THE NATIONAL REGISTER 05/28/76; GEBHARD & WINTER 1985	300
21718 S ALAMEDA ST, CARSON	DOMINGUEZ WATER AND POWER SUBSTATION	1927	4*	INDUSTRIAL/ MODERNE	/DOMINGUEZ WATER CORPORATION	POTENTIALLY ELIGIBLE FOR INCLUSION IN THE NATIONAL REGISTER	300
6220 ALBANY ST, HUNTINGTON PARK		1915 C.	5*	CRAFTSMAN, 1-STORY RESIDENCE		CITY OF HUNTINGTON PARK BUILDING OF ARCHITECTURAL SIGNIFICANCE NO. 12; STUCCOED	900

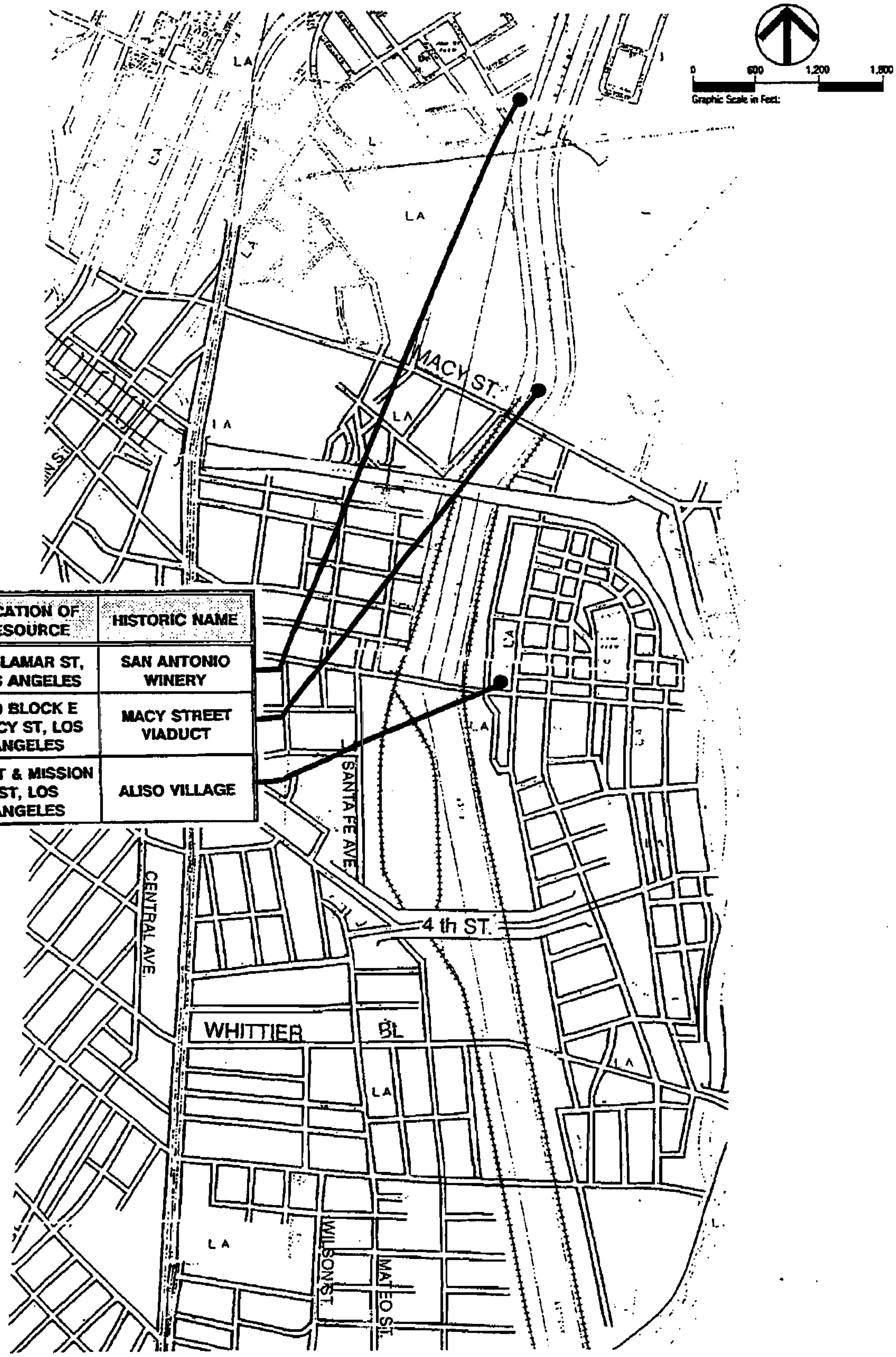
TABLE 5-53: LIST OF HISTORIC/CULTURAL RESOURCES WITHIN 1,500 FEET OF ALTERNATIVE ALIGNMENT CENTERLINE

LOCATION OF RESOURCE	HISTORIC NAME	YEAR BUILT	EVALUATION	DESCRIPTION	ARCHITECT/ BUILDER	SOURCE OR SIGNIFICANCE	DISTANCE (feet)
6535 ALBANY ST, HUNTINGTON PARK		1915 C.	5*	CRAFTSMAN, 1-STORY RESIDENCE		CITY OF HUNTINGTON PARK BUILDING OF ARCHITECTURAL SIGNIFICANCE NO. 11	700
2000 BLOCK ANAHEIM BLVD, LOS ANGELES	ANAHEIM BOULEVARD BRIDGE	1920s C.	6	BRIDGE		WORTHY OF NOTE	0
4363 ASCOT AVE, LOS ANGELES		1898 C.	5D*	QUEEN ANNE, 2-STORY COMMERCIAL		LADOP 1991 SURVEY;PART OF A QUEEN ANNE/ TRANSITIONAL THEMATIC GROUP;SHPO STATEWIDE DATABASE	1500
5739 BANDERA ST, LOS ANGELES		1886 C.	5D*	QUEEN ANNE, 1-STORY RESIDENCE		LADOP 1991 SURVEY;PART OF A QUEEN ANNE/ TRANSITIONAL THEMATIC GROUP	500
2550 BUTTE ST, LOS ANGELES	REDONDO JUNCTION ROUNDHOUSE	1913	3*	INDUSTRIAL, 1-STORY RAILROAD ROUNDHOUSE	UNIT CONST./ VAN SANT-HOUGHTON CO.	APPEARS ELIGIBLE FOR INCLUSION IN THE NATIONAL REGISTER	20
2550 BUTTE ST, LOS ANGELES	REDONDO JUNCTION TOWER	1913 C.	3*	INDUSTRIAL/ PRAIRIE, 1-STORY RAILROAD WATCHTOWER	UNIT CONST./ VAN SANT-HOUGHTON CO.	APPEARS ELIGIBLE FOR INCLUSION IN THE NATIONAL REGISTER	10
4500 S COMPTON AVE, LOS ANGELES		1895 C.	5D*	QUEEN ANNE, 1-STORY RESIDENCE		LADOP 1991 SURVEY;PART OF A QUEEN ANNE/ TRANSITIONAL THEMATIC GROUP	900
6407 COTTAGE ST, HUNTINGTON PARK		1915 C.	5*	CRAFTSMAN, 2-STORY RESIDENCE		CITY OF HUNTINGTON PARK BUILDING OF ARCHITECTURAL SIGNIFICANCE NO. 9	650
2525 FIRESTONE BLVD, SOUTH GATE	FIRESTONE RUBBER COMPANY MURALS	1959	5*	TILE ARTWORK	/ GLADDING, McBEAN & COMPANY	CITY OF SOUTH GATE HISTORICAL SITE NO. 6	1000
2525 FIRESTONE BLVD, SOUTH GATE	FIRESTONE TIRE ADMINISTRATION BLDG. AND PLANT NO. 1	1929	5*	INDUSTRIAL/SPANISH COLONIAL REVIVAL, 2-STORY TIRE MANUFACTURE	CURLETT & BEELMAN/	LOS ANGELES COUNTY - CITY OF SOUTH GATE PRESERVATION PLANNING PROJECT -STRUCTURE OF NOTE;HISTORICAL ANALYSIS OF THE HON INDUSTRIES PLANT	750
HENRY FORD & CERRITOS CHANNEL, LONG BEACH	BADGER AVENUE BRIDGE	1923-24	3*	DOUBLE DRAW BASCULE BRIDGE	/ AMERICAN BRIDGE COMPANY	APPEARS ELIGIBLE FOR INCLUSION IN THE NATIONAL REGISTER	100
9505 HICKORY ST, LOS ANGELES		1929	7	CRAFTSMAN, 1-STORY RESIDENCE		LADOP 1991 SURVEY; LABOE 1983 WATTS SURVEY; SHPO STATEWIDE DATABASE	1200
5108 HOLMES AVE, LOS ANGELES	51ST ST SCHOOL	1922	5*	SPANISH COLONIAL REVIVAL, 2-STORY SCHOOL	COSTERIS, GEORGE F./ GRIBLINGS, A. L.	LADOP 1991 SURVEY; SHPO STATEWIDE DATABASE	450
2447 ILLINOIS AVE, SOUTH GATE		1890 C.	5*	COLONIAL REVIVAL RESIDENCE		LOS ANGELES COUNTY - CITY OF SOUTH GATE PRESERVATION PLANNING PROJECT -STRUCTURE OF NOTE	500
2833 ILLINOIS AVE, SOUTH GATE	STANFORD ELEMENTARY SCHOOL	1932 C.	6			CITY OF SOUTH GATE PUBLIC FACILITIES-STRUCTURE OF NOTE	1500
10350 JUNIPER ST, LOS ANGELES		1906 C.	6	COLONIAL REVIVAL, 2-STORY RESIDENCE		LADOP 1991 SURVEY; RECORDING PURPOSES ONLY	1000
10730 JUNIPER ST, LOS ANGELES		1915 C.	5D*	COMMERCIAL VERNACULAR/ ART STONE, 1-STORY COMMERCIAL		LADOP 1991 SURVEY; WATTS ART STONE THEMATIC DISTRICT	1000

TABLE 5-53: LIST OF HISTORIC/CULTURAL RESOURCES WITHIN 1,500 FEET OF ALTERNATIVE ALIGNMENT CENTERLINE

LOCATION OF RESOURCE	HISTORIC NAME	YEAR BUILT	EVALUATION	DESCRIPTION	ARCHITECT/ BUILDER	SOURCE OR SIGNIFICANCE	DISTANCE (feet)
737 LAMAR ST, LOS ANGELES	SAN ANTONIO WINERY	1917	5*	SPANISH COLONIAL REVIVAL, 2-STORY WINERY		LADOP 1989 SURVEY; LAHCM MONUMENT #42; SHPO STATEWIDE DATABASE; THE LAST REMAINING WINERY NEAR DOWNTOWN LOS ANGELES	400
8100 BLOCK W LONG BEACH BLVD, SOUTH GATE	FIRST CHAMBER OF COMMERCE	1928	X			FORMER CITY OF SOUTH GATE HISTORICAL SITE NO. 1; NOW DEMOLISHED	1500
900 BLOCK E MACY ST, LOS ANGELES	MACY STREET VIADUCT	1926	5*	SPANISH RENAISSANCE VIADUCT/ BRIDGE		GEBHARD & WINTER 1985	0
5945 MIDDLETON ST, HUNTINGTON PARK		1860 C.	X	QUEEN ANNE, 1-STORY RESIDENCE		CITY OF HUNTINGTON PARK BUILDING OF ARCHITECTURAL SIGNIFICANCE NO. 2; STRUCTURE NOW DEMOLISHED	1500
12338 MONA BLVD, COMPTON	RALPH J.BUNCHE MIDDLE SCHOOL	1962 C.	6	CONTEMPORARY, 1-STORY SCHOOL		COMPTON - STRUCTURE OF NOTE	600
4412 MORGAN AVE, LOS ANGELES		1890 C.	6	VERNACULAR/ BOARD & BATTEN, 1-STORY RESIDENCE		LADOP 1991 SURVEY; RECORDING PURPOSES ONLY	550
101 W MYRRH ST, COMPTON	HERITAGE HOUSE	1869 C.	5*	VERNACULAR FARMHOUSE, 1-STORY	/ LOOMIS, A.R.	CALIFORNIA HISTORICAL LANDMARK NO. 664; COMPTON-STRUCTURE OF NOTE	1200
2564 NEBRASKA AVE, SOUTH GATE		1910 C.	5*	COLONIAL REVIVAL RESIDENCE		LOS ANGELES COUNTY-CITY OF SOUTH GATE PRESERVATION PLANNING PROJECT STRUCTURE OF NOTE	700
2416-2424 E OLYMPIC BLVD, LOS ANGELES	SOUTHERN CALIFORNIA GAS COMPANY COMPLEX	1919-38	2*	SPANISH COLONIAL REVIVAL/ STREAMLINE, 1 & 2-STORY GAS COMPANY	CLELAND, BOSTOC/ GAS CO.;MILLSAP, R.;PAYNE, W.	DETERMINED ELIGIBLE FOR THE NATIONAL REGISTER 08/18/1989 - LOS ANGELES WASTEWATER FACILITIES PROJECT	1200
600 E PALMER ST, COMPTON	OUR LADY OF VICTORY CATHOLIC CHURCH	1948	5*	RENAISSANCE REVIVAL, 1-STORY CHURCH		COMPTON - STRUCTURE OF NOTE	800
2416-2450 PORTER ST, LOS ANGELES	COMMERCIAL ENGINE CO. FOUNDRY/IRON WORKS	1913	2*	UTILITARIAN/ INDUSTRIAL, 1-STORY FOUNDRY/ IRON WORKS	MAAG, EDWARG; BAKER IRON WORKS/ COMMERCIAL ENGINE COMPANY	DETERMINED ELIGIBLE FOR THE NATIONAL REGISTER 08/18/1989 - LOS ANGELES WASTEWATER FACILITIES PROJECT	1200
2458 RANDOLPH ST, HUNTINGTON PARK		1880 C.	5*	QUEEN ANNE, 1-STORY RESIDENCE		CITY OF HUNTINGTON PARK BUILDING OF ARCHITECTURAL SIGNIFICANCE NO. 5	1500
2330 E SANTA ANA BLVD, LOS ANGELES	HOME FURNISHINGS CO.	1920 C.	5*	VERNACULAR/ INDUSTRIAL, 1-STORY COMMERCIAL		LADOP 1991 SURVEY;NOW ROYAL FURNITURE COMPANY	1000
6219 SANTA FE AVE, HUNTINGTON PARK		1915 C.	5*	CRAFTSMAN/ AIRPLANE BUNGALOW, 2-STORY RESIDENCE		CITY OF HUNTINGTON PARK BUILDING OF ARCHITECTURAL SIGNIFICANCE NO. 10	1300
1700-1722 S SANTA FE AVE, LOS ANGELES	SO. CAL. GAS CO. ADMINISTRATION BLDG.	1923	2*	UTILITARIAN/ INDUSTRIAL, 4-STORY OFFICES	CURLETT & BEELMAN/ FOUNDATION CO.	DETERMINED ELIGIBLE FOR THE NATIONAL REGISTER 08/18/1989 - LOS ANGELES WASTEWATER FACILITIES PROJECT	1300

Source: Myra L. Frank & Associates, Inc., 1992.



LOCATION OF RESOURCE	HISTORIC NAME
737 LAMAR ST, LOS ANGELES	SAN ANTONIO WINERY
900 BLOCK E MACY ST, LOS ANGELES	MACY STREET VIADUCT
E 1ST & MISSION ST, LOS ANGELES	ALISO VILLAGE

Source: Myra L. Frank & Associates, Inc., 1992

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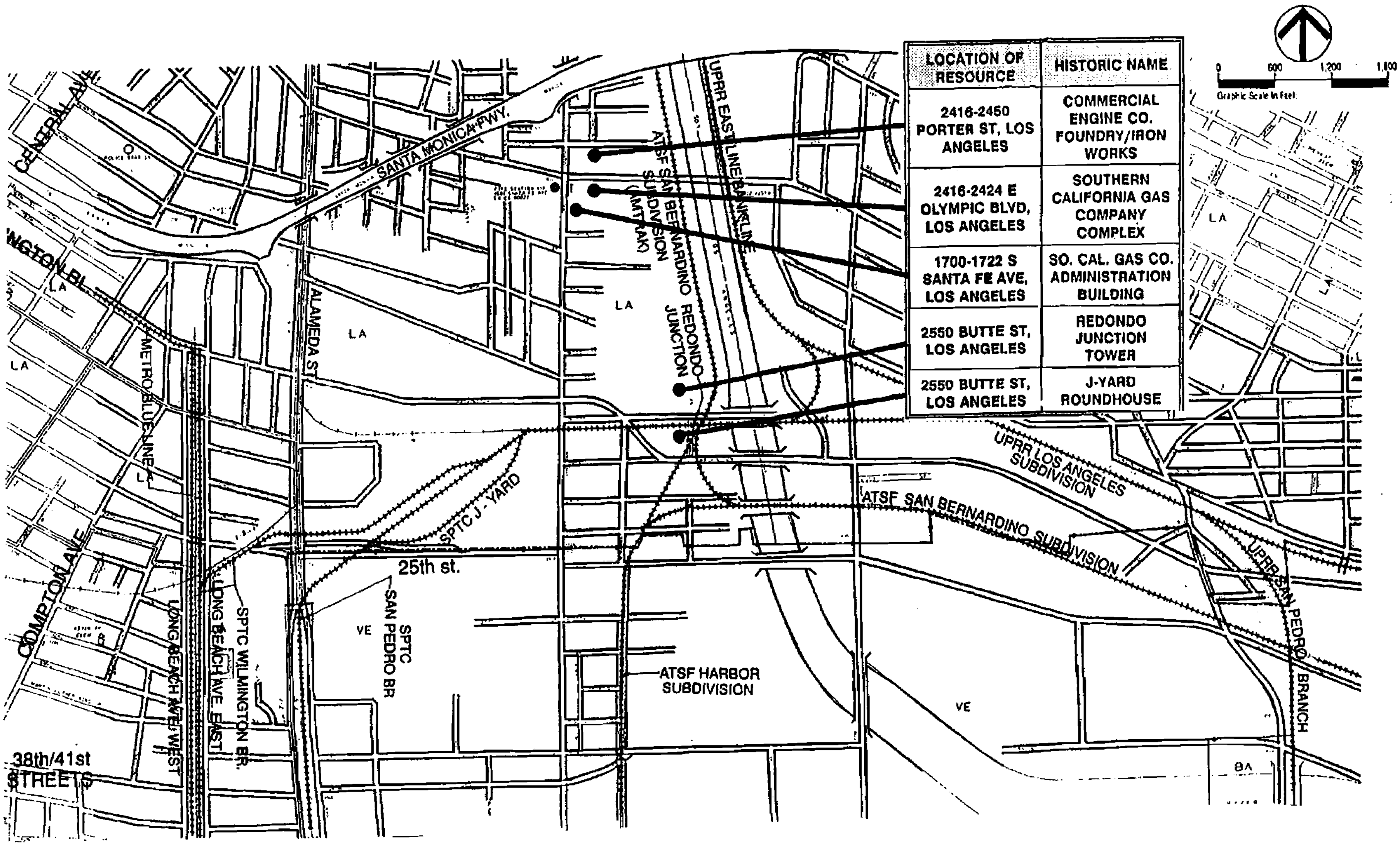
FIGURE 5-47	Signigicant Cultural Resources Alameda Corridor	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



LOCATION OF RESOURCE	HISTORIC NAME
2416-2460 PORTER ST, LOS ANGELES	COMMERCIAL ENGINE CO. FOUNDRY/IRON WORKS
2416-2424 E OLYMPIC BLVD, LOS ANGELES	SOUTHERN CALIFORNIA GAS COMPANY COMPLEX
1700-1722 S SANTA FE AVE, LOS ANGELES	SO. CAL. GAS CO. ADMINISTRATION BUILDING
2550 BUTTE ST, LOS ANGELES	REDONDO JUNCTION TOWER
2550 BUTTE ST, LOS ANGELES	J-YARD ROUNDHOUSE

Source: Myra L. Frank & Associates, Inc., 1992

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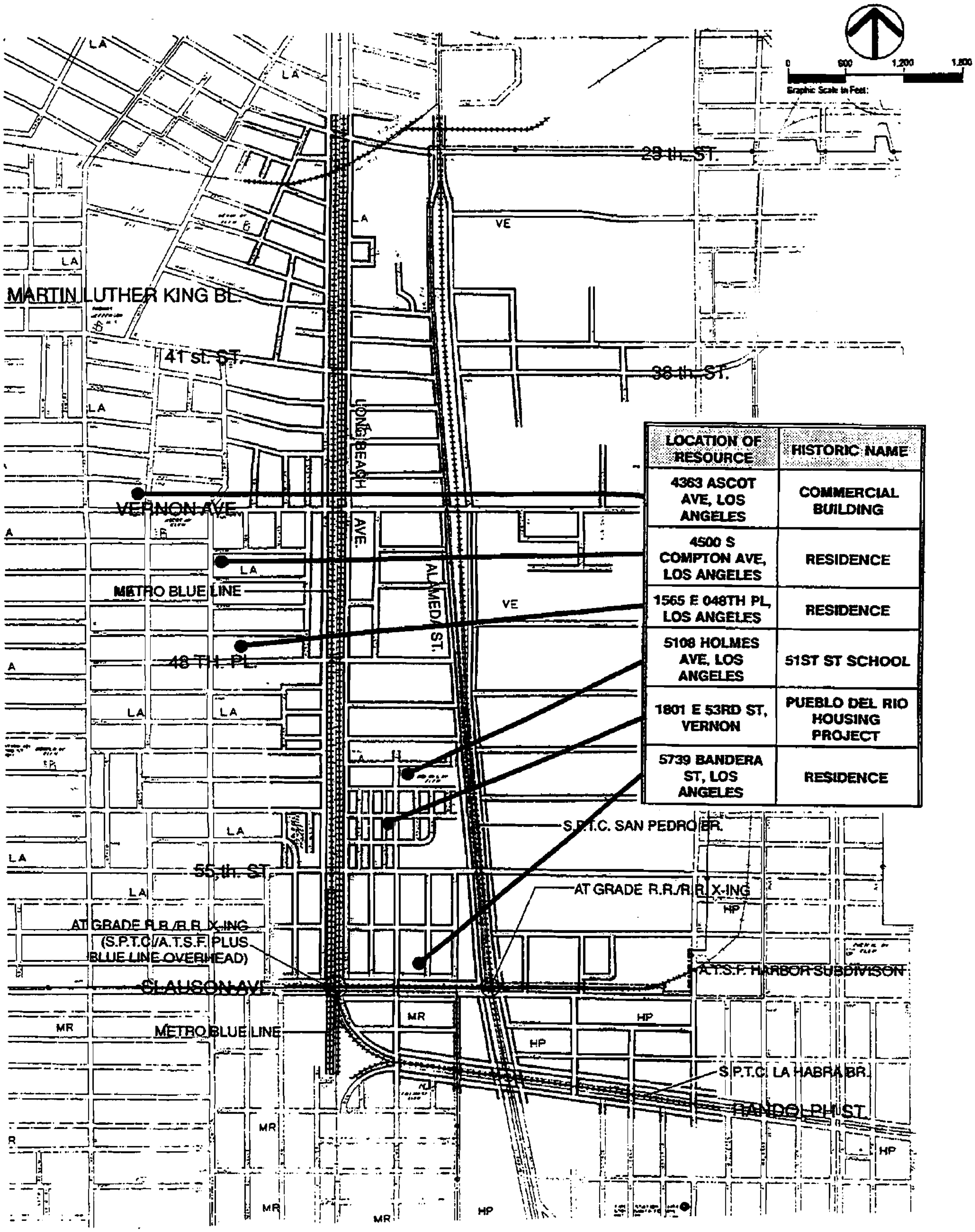
FIGURE

5-47

Signigicant Cultural Resources
Alameda Corridor

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



LOCATION OF RESOURCE	HISTORIC NAME
4363 ASCOT AVE, LOS ANGELES	COMMERCIAL BUILDING
4500 S COMPTON AVE, LOS ANGELES	RESIDENCE
1565 E 048TH PL, LOS ANGELES	RESIDENCE
5108 HOLMES AVE, LOS ANGELES	51ST ST SCHOOL
1801 E 53RD ST, VERNON	PUEBLO DEL RIO HOUSING PROJECT
5739 BANDERA ST, LOS ANGELES	RESIDENCE

Source: Myra L. Frank & Associates, Inc., 1992

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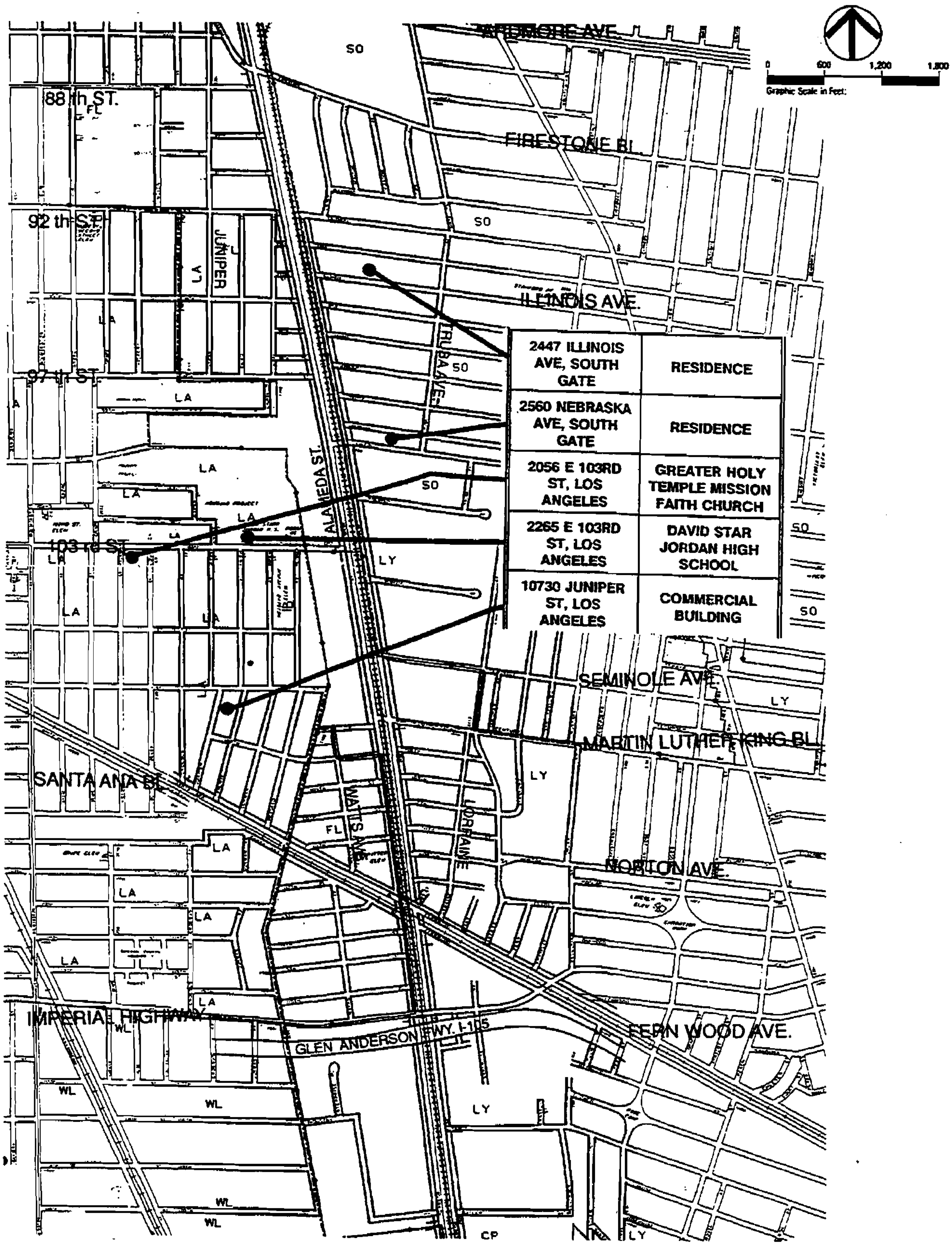
FIGURE
5-47

Signigicant Cultural Resources
Alameda Corridor

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

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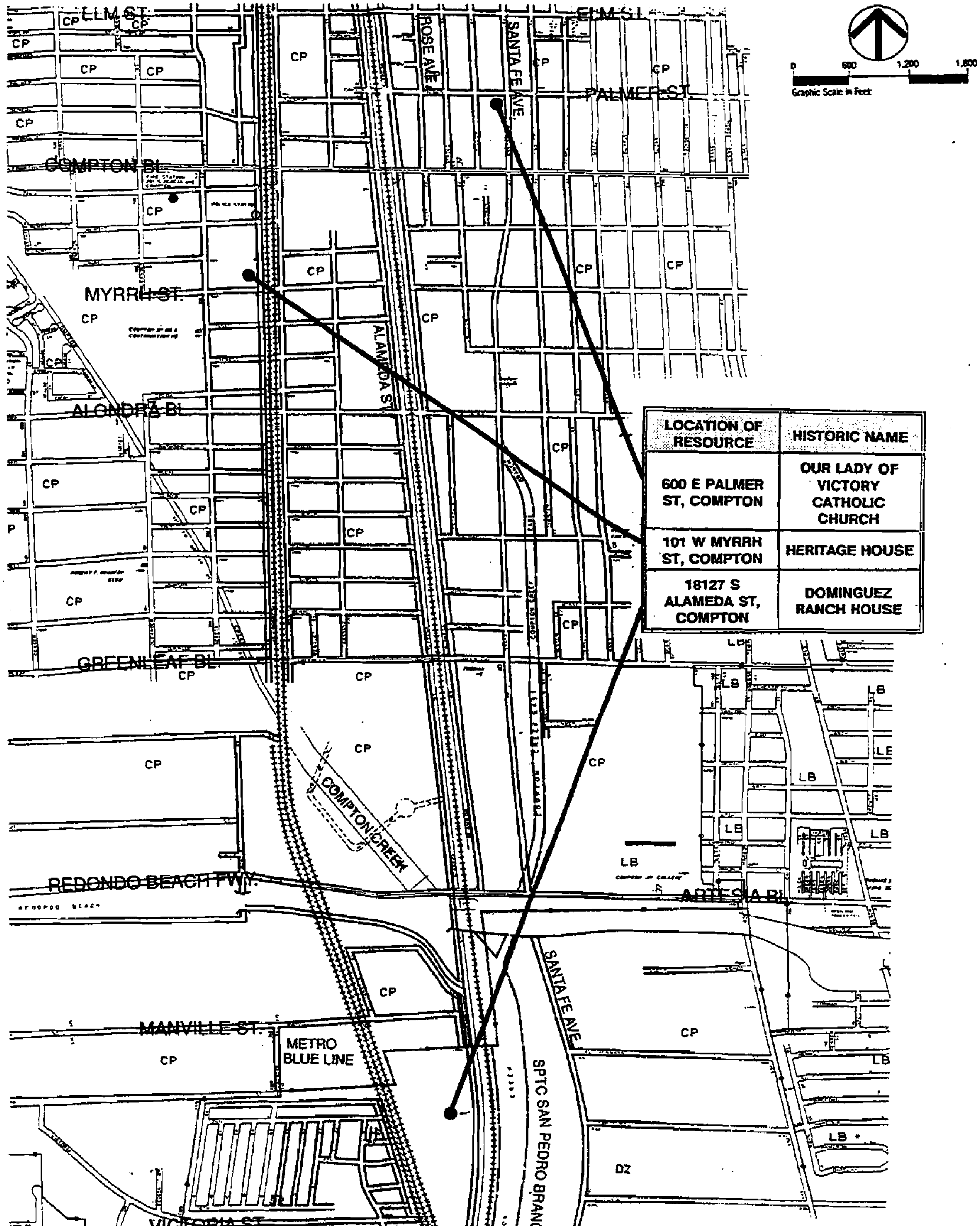
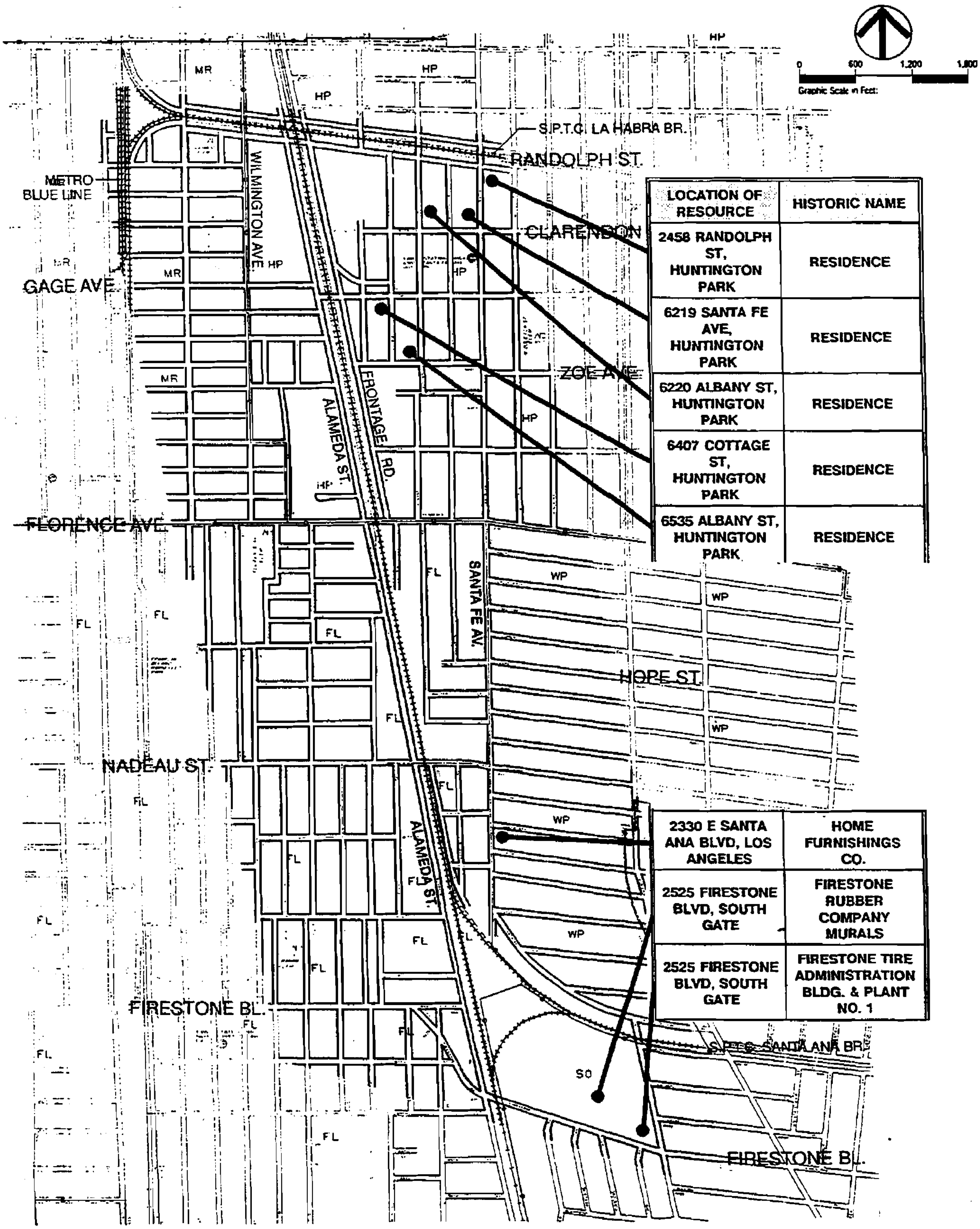
FIGURE 5-47	**Signigicant Cultural Resources Alameda Corridor**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

Sheet 5 of 7

FIGURE 5-47	**Signigicant Cultural Resources Alameda Corridor**	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

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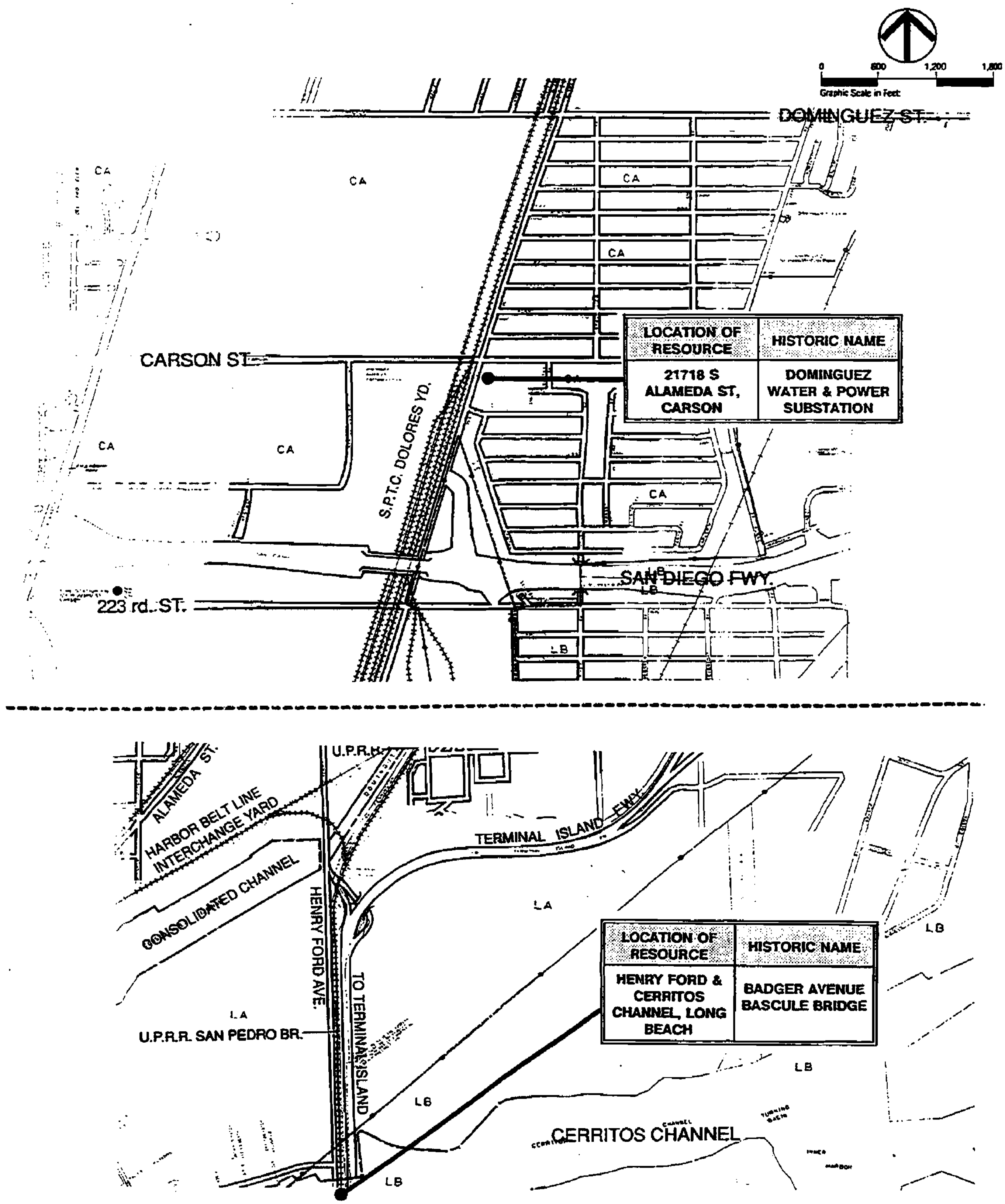
FIGURE 5-47	Signigicant Cultural Resources Alameda Corridor	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY



Source: Myra L. Frank & Associates, Inc., 1992

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FIGURE 5-47	Signigicant Cultural Resources Alameda Corridor	ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

For CEQA purposes, any resource evaluated at a level of 1 to 5 is considered significant for its historic, cultural or architectural value. These significant resources are indicated with an asterisk "*" in the corresponding evaluation column of Table 5-53 and their locations are mapped on Figure 5.8-1. Resources evaluated with a "6", "7", or "X" are no longer considered significant due to loss of integrity or demolition. Potential impacts which may result from the project are assessed for only the significant resources.

Of the 32 significant resources in the study area, 18 are located in the City of Los Angeles, 5 in the City of Huntington Park, 4 in the City of South Gate, 2 in the City of Compton, 1 in the City of Carson, 1 in the City of Long Beach, and 1 in the unincorporated Rancho Dominguez portion of Los Angeles County. No significant resources were identified within the city limits of Lynwood or Vernon.

5.8.2 Impacts

Archaeological

Since a majority of the overall project area is located within an urban environment characterized by roadways, railroad lines and moderate to heavy commercial and industrial land use, there is also still a potential for buried prehistoric and/or historic archaeological resources to exist within the project boundaries.

Although the existence of CA-Lang-385, located on the west side of Alameda north of the Norton Street intersection, could not be substantiated by the Phase 1 reconnaissance, the fact that burials were present suggests a significant resource. Due to the potential for encountering subsurface remains including additional burials, the area from the west side of Alameda Street to 109th Street on the north, Watts Avenue on the west, and 111th Street on the south, is considered archaelogically significant.

Historic, Architectural, Cultural Resources Impact Criteria

The types of impacts on historic, architectural, or cultural resources anticipated for this project are as follows. For the construction phase, effects such as demolition, complete or partial right-of-way acquisition, temporary loss of access, vibration, and settlement may be considered. For the operational phase, permanent loss of access, vibration, noise, visual, alteration, and disruption of the integrity of setting may be considered. In order to establish criteria for these potential effects, technical reports and criteria were examined for right-of-way acquisition, land use sensitivity, noise, vibration, and visual obstruction.

Construction impacts not resulting in demolition, settlement or which produce a temporary loss of access are considered temporary and therefore negligible.

The significance of right-of-way acquisition was based on the "partial" or "full" take determinations used in the land acquisition section (Section 5.3). In addition, the right-of-way plans and profiles for the project alternatives were examined to better interpret the effects of acquisition on a site specific basis. If the right-of-way acquisition results in the demolition of all or part of the architecturally significant portion of a structure, or results in isolation of the structure from significant viewpoints, it would be considered an adverse effect. If the acquisition is limited to a portion of the resource property, and not the structure, the determination of effect is subjective and is dependent upon the historical association of the property to the significance of the resource, and the nature of the resulting loss of integrity of setting.

Impact due to loss of access was also based on the land acquisition analysis done for this project. Site specific determinations were based on project plans in the immediate vicinity of a resource. Access which is restricted to traffic in only one direction as proposed by an alternative is not considered to be a significant effect. Loss of access which results in isolation of the property, loss of significant viewpoints to the building, or diminishes its operational capacity to such a degree that it may force a change of use or cause the property to be vacated would be considered an adverse effect.

The potential for visual impact was established as that area encompassed by the next adjacent parcel or 150 feet from any elevated feature introduced by the project. If a significant resource is located beyond this distance from an alternative alignment, a finding of "no effect" for this impact category was determined. Because of the existing at-grade railroad and roadway configuration of the majority of the project, at-grade or below grade project improvements are not considered to ultimately create significant visual effects. If the significant portion of a resource is on an adjacent parcel to or is located less than 150 feet from a proposed elevated feature such as an overpass, or is in an area which historically had no railroad tracks, the resulting visual effect is considered adverse.

Noise impact criteria is dependent upon the sensitivity of the use of the structure. If a particular resource does not contain residential or other similar occupancy which would be sensitive to noise, it is not considered subject to noise impact. The criteria for significant effect as outlined in the noise technical report prepared for this project is defined in three different impact levels. A <u>severe</u> effect upon a noise sensitive property is defined as a projected future sound level (CNEL or Leq) greater than 72dBA. Effects upon noise sensitive properties defined as <u>Significant "A"</u> are those where the projected future sound level (CNEL or Leq) would be greater than 67 dBA and more than 3dBA greater than future sound level for the Null Alternative. <u>Significant "B"</u> type noise effects are defined as those where the projected future sound level (CNEL or daytime Leq) would be more than 5 dBA greater than projected or measured existing CNEL.

Ground-borne vibration impact criteria is based upon the UMTA threshold of 95 dB for damage of fragile historic buildings. Significant annoyance levels of ground-borne vibration are not anticipated for this project except in a few isolated areas where vibration sensitive buildings would be less than 100 feet from the tracks for trench alternatives and 190 feet from the tracks for at-grade alternatives.

Potential settlement criteria was based on proximity to excavation proposed by a project alternative. The depth of the underpass or railroad trench excavation relative to the closest point of a structure was analyzed for each adjacent resource. If the significant structure is considered seismically unsound, i. e. unreinforced masonry, it would be particularly susceptible to damage by potential settlement. A determination of adverse effect resulted for structures in extremely close proximity to an excavation.

Disruption of integrity of setting is a more subjective area of evaluation and was analyzed in terms of the historic or existing use of the resource, proximity to elevated structures, and the absence or presence of intervening structures. For example, introduction of railroad tracks alongside a resource where there had previously been none would be a disruption of the integrity of setting. Replacement of a front yard with a relocated roadway would also be a significant disruption of integrity of setting.

Table 5-54 summarizes the potential effects anticipated for each significant resource according to project alternative. 25 of the 32 resources determined to be significant would not be affected by any of the proposed alternatives for this project. Structures which are presently used for railroad purposes and are not considered fragile, such as the Redondo Junction Roundhouse and Tower, would not undergo any significant effect other than an increase in train traffic. Their use would not be affected by the increase in vibration or visual effects associated with their proximity to the project, since it is part of their historically intended environment. The remaining resources which the project would not affect are located beyond any reasonable limits of visual, noise, vibration, or disruption of integrity of setting.

Effects on the remaining resources are categorized as beneficial, no adverse effect, and adverse effect. A beneficial effect is defined as an improvement of the condition of the resource as a direct or indirect result of implementation of the project. No adverse effect is defined as a perceptible change to the environment of the resource or its setting, but no diminution of its significant qualities. An adverse effect is defined as an effect which would result in a significant loss of integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Discussions of significant effects on specific resources follow the table.

Beneficial Effect

- Badger Avenue Bridge

The Badger Avenue double-leaf bascule bridge is located in the Cerritos Channel, adjacent to the west side of the Commodore Heim Bridge on Henry Ford Avenue (see Figure 5-47). It was built in 1923-24 by the American Bridge Company for the Port of Los Angeles for an estimated cost of $980,000. The bascule bridge or drawbridge is 760 feet long and includes two leaves of 110 feet each, and at the time of construction was considered the largest and heaviest of its kind ever built. In 1947 and again by 1957 the bridge had settled by approximately eight feet and had to be raised in order to continue operating properly. The Badger Avenue Bridge is thought to be the last operational double-leaf bascule bridge in the United States. It is an excellent example of an increasingly rare type. (Schwartz 1983)

The Badger Avenue Bridge is normally positioned to allow vessel operations along the Cerritos Channel. It is lowered only for railroad movements, presently about four or five trains in each direction per weekday. Although it is immediately south of the project limits and is not the subject of improvements proposed by the Alameda Corridor project, it would ultimately become the main railroad crossing over Cerritos Channel regardless of the selected alternative, and would be exposed to a large increase in daily use. Recommendations in the "2020 Terminal Island Transportation Study" include rehabilitation of the Badger Avenue Bridge for reuse. A study is underway to determine the proposed disposition of this bridge, and one option being considered is replacement.

TABLE 5-54: DETERMINATION OF EFFECTS ON HISTORIC RESOURCES: ALAMEDA CORRIDOR ALTERNATIVES

LOCATION OF RESOURCE	HISTORIC NAME	ALT 1.0		ALT 2.1A		ALT 2.1S		ALT 2.2		DISTANCE (feet)
		EFFECT	TYPE	EFFECT	TYPE	EFFECT	TYPE	EFFECT	TYPE	
1ST & MISSION, LOS ANGELES	ALISO VILLAGE	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		400
1565 E.048TH PL, LOS ANGELES		NO EFFECT		NO EFFECT		NO EFFECT		NO EFFECT		500
1801 E.053RD ST, LOS ANGELES	PUEBLO DEL RIO	NO EFFECT		NO EFFECT		NO EFFECT		ADVERSE EFFECT	DEMOLITION OF 5 UNITS, VIBRATION (58 OTHER UNITS)	30
2056 E.103RD ST, LOS ANGELES	GREATER HOLY TEMPLE MISSION FAITH CENTER	NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		1500
2265 E.103RD ST, LOS ANGELES	DAVID STAR JORDAN HIGH SCHOOL	NO ADVERSE EFFECT	ROW, ACCESS, INTEGRITY OF SETTING	NO EFFECT		NO ADVERSE EFFECT	ROW, ACCESS, INTEGRITY OF SETTING	SAME AS ALTS. 2.1A, or 2.1S		600
18127 S.ALAMEDA ST, COMPTON	DOMINGUEZ RANCH HOUSE	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		450
21718 S ALAMEDA ST, CARSON	DOMINGUEZ WATER & POWER	NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS 2.1A, or 2.1S		300
6220 ALBANY ST, HUNTINGTON PARK		NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		900
6535 ALBANY ST, HUNTINGTON PARK		NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		700
4363 ASCOT AVE, LOS ANGELES		NO EFFECT		NO EFFECT		NO EFFECT		NO EFFECT		1500
5739 BANDERA ST, LOS ANGELES		NO EFFECT		NO EFFECT		NO EFFECT		NO EFFECT		500
2550 BUTTE ST, LOS ANGELES	REDONDO ROUNDHOUSE	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		20
2550 BUTTE ST, LOS ANGELES	REDONDO JUNCTION TOWER	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		10
4500 S.COMPTON AVE, LOS ANGELES		NO EFFECT		NO EFFECT		NO EFFECT		NO EFFECT		900
6407 COTTAGE ST, HUNTINGTON PARK		ADVERSE EFFECT	AQUISITION, DEMOLITION - GAGE OVERPASS	NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		650 CL 0 OP
2525 FIRESTONE BLVD, SOUTH GATE	FIRESTONE RUBBER COMPANY MURALS	NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		1000

TABLE 5-54: DETERMINATION OF EFFECTS ON HISTORIC RESOURCES: ALAMEDA CORRIDOR ALTERNATIVES

LOCATION OF RESOURCE	HISTORIC NAME	ALT 1.0		ALT 2.1A		ALT 2.1S		ALT 2.2		DISTANCE (feet)
		EFFECT	TYPE	EFFECT	TYPE	EFFECT	TYPE	EFFECT	TYPE	
2525 FIRESTONE BLVD, SOUTH GATE	FIRESTONE TIRE ADMINISTRATION BLDG. & PLANT #1	NO ADVERSE EFFECT	POTENTIAL SETTLEMENT - FIRESTONE UNDERPASS	NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		750 CL 110 UP
HENRY FORD & CERRITOS CHANNEL, LONG BEACH	BADGER AVENUE BRIDGE	BENEFICIAL EFFECT	REPAIR, MAINTENANCE	SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		0
5108 HOLMES AVE, LOS ANGELES	51ST ST SCHOOL	NO EFFECT		NO EFFECT		NO EFFECT		NO EFFECT		400
2447 ILLINOIS AVE, SOUTH GATE		NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		500
10730 JUNIPER ST, LOS ANGELES		NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		1000
737 LAMAR ST, LOS ANGELES	SAN ANTONIO WINERY	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		400
900 BLOCK E MACY ST, LOS ANGELES	MACY STREET VIADUCT	NO ADVERSE EFFECT	VIBRATION, VISUAL	SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		0
101 W. MYRRH ST, COMPTON	HERITAGE HOUSE	NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		1200
2564 NEBRASKA AVE, SOUTH GATE		ADVERSE EFFECT	DEMOLITION - TWEEDY OVERHEAD	NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		950 CL 0 OH
2416-2424 E OLYMPIC BLVD, LOS ANGELES	SO. CAL. GAS CO. COMPLEX	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		1200
600 E. PALMER ST, COMPTON	OUR LADY OF VICTORY CHURCH	NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		800
2416-2450 PORTER ST, LOS ANGELES	COMMERCIAL ENGINE CO.	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		1200
2458 RANDOLPH ST, HUNTINGTON PARK		NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		1500
2330 E.SANTA ANA BLVD, LOS ANGELES	HOME FURNISHINGS COMPANY	NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		1000
1700-1722 S SANTA FE AVE, LOS ANGELES	SO. CAL GAS CO. ADMIN. BLDG.	NO EFFECT		SAME AS ALT. 1		SAME AS ALT. 1		SAME AS ALT. 1		1300
6219 SANTA FE AVE, HUNTINGTON PARK		NO EFFECT		NO EFFECT		NO EFFECT		SAME AS ALTS. 2.1A, or 2.1S		1300

Source: Myra L. Frank & Associates, Inc., May 1992.

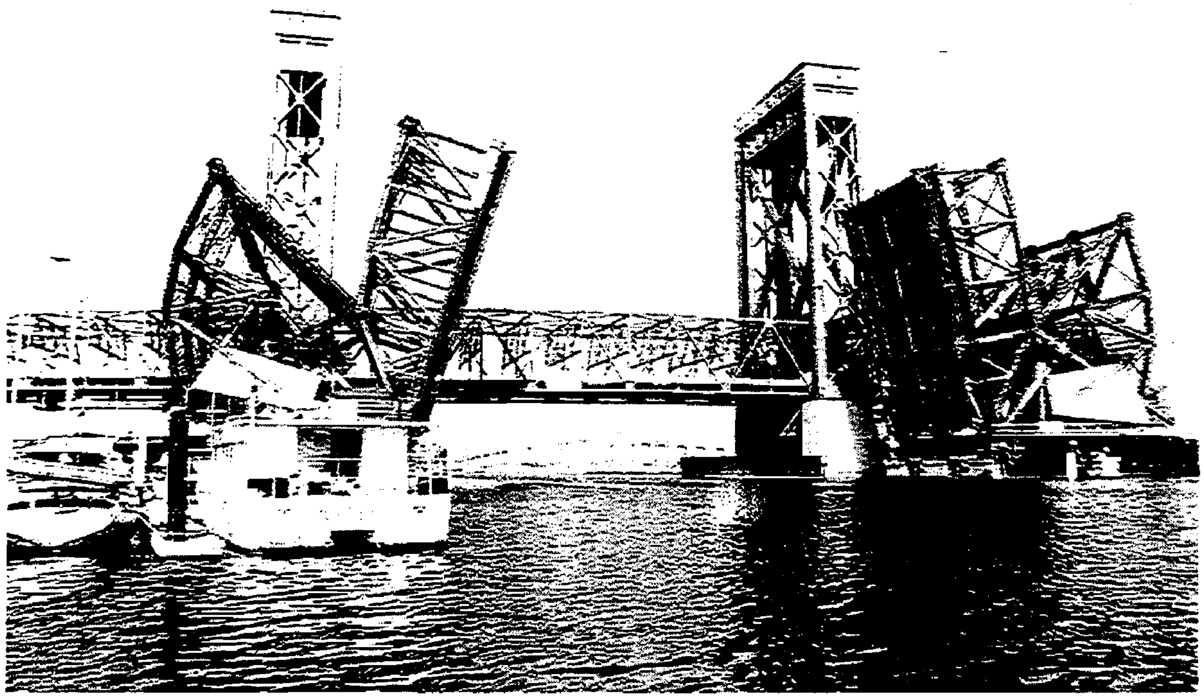

Figure 5-48: Badger Avenue Bridge

No Adverse Effect

- David Starr Jordan High School

The architecturally significant buildings of the David Starr Jordan High School are those which were constructed or remodeled during the period from 1927 to 1937, namely the administration building (see Figure 5-49), the two classroom buildings to the west and northeast of the administration building, gymnasium and dressing rooms, metal shop, and auditorium building. The buildings are excellent examples of the P. W. A. Moderne style of architecture. Other school buildings on the property were added in the early 1960s and are not considered significant at the present time.

The architecturally significant high school buildings are all located more than 600 feet from the nearest proposed alternative right-of-way acquisition or track centerline. A portion of the school parking lot, however, would be acquired by Alternatives 1.0 and 2.1S. Alternative 1.0 would require a 60 foot wide strip of property along Alameda Street, while Alternative 2.1S would require only a 10 foot strip. In both cases, the entrance to the parking lot would have to be moved to accommodate the acquisition, and access would be denied from northbound lanes of Alameda Street. Access from southbound lanes would not be restricted. Because access to the property grounds would still be available, no demolition would occur, and integrity of setting and views to the architecturally significant facades from 103rd Street would not be altered, therefore a determination of no adverse effect is most appropriate for Alternatives 1.0 and 2.1S. The noise technical report prepared for this project indicated that projected noise levels would

Figure 5-49: David Starr Jordan High School

not exceed the impact threshold of 67 dBA even without mitigation. No additional mitigation measures would be required.

- Firestone Rubber Company Administration Building

The Firestone Rubber Company Administration Building and Plant No. 1 at 2525 Firestone Boulevard are considered the only architecturally significant buildings in the former Firestone industrial complex (see Figure 5-50). It was designed in 1927 in the Spanish Colonial Revival style by the prominent Los Angeles architectural firm of Curlett & Beelman and was embellished by interior tile murals by Gladding McBean & Co. (Historical analysis of the HON Industries [Firestone] Plant, 1983). The interior murals have been designated as City of South Gate Historical Site No. 6. The Administration Building was identified as a Structure of note by the Los Angeles County/City of South Gate Preservation Planning Project.

The Firestone Boulevard undercrossing proposed in Alternative 1.0 returns to an at-grade configuration at a distance of approximately 110 feet from the nearest point Plant No. 1, the closest of the architecturally significant buildings of the former Firestone Rubber Co. Complex. Since the underpass descends to the west, directly away from Plant No. 1, excavation would occur at a safe distance from the building. There would be no apparent danger of settlement

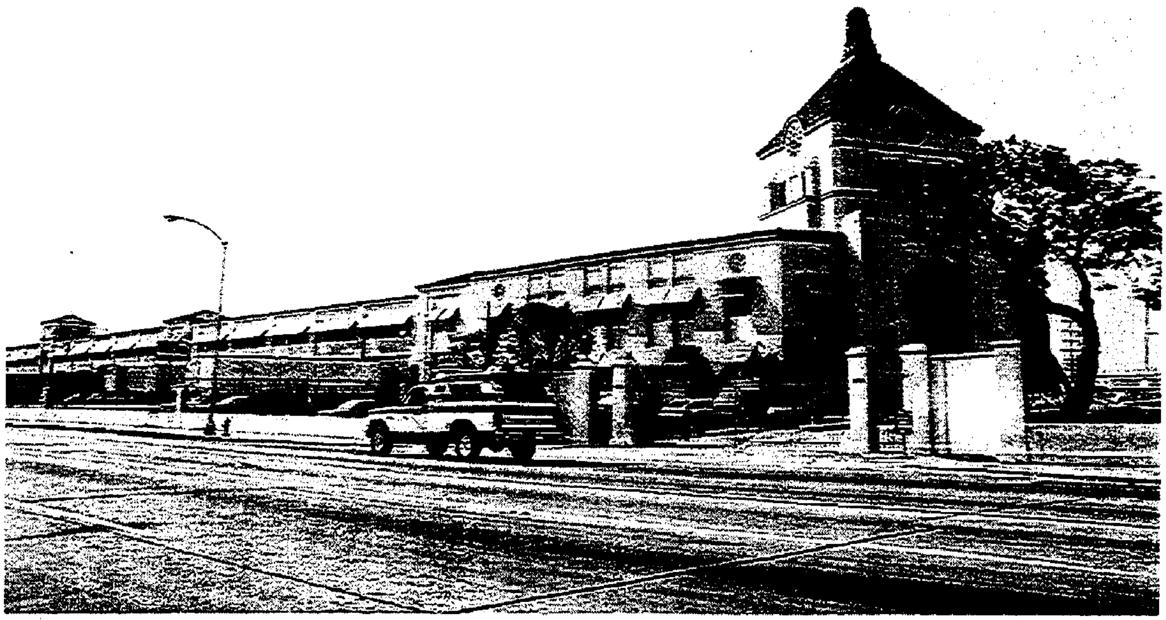

Figure 5-50: Firestone Industrial Complex

from earth removal, since the depressed roadway would also be strengthened by retaining walls. This undercrossing would not visually obscure the Firestone Plant No. 1 or the Administration Building, nor would it limit access to the property. No additional mitigation measures need be required for Alternative 1.0 to avoid significant impact on the architecturally significant features of these resources.

- Macy Street Viaduct

The Macy Street Viaduct was built in 1926 and represents an elaborate interpretation of the Spanish Renaissance style of architecture (see Figure 5-51). Some striking features include light standards and catenary poles atop twisted decorative columns and monumental piers. It was designated City of Los Angeles Historic Cultural Monument on August 1, 1979.

The Macy Street Viaduct is located over the Southern Pacific Tracks between Redondo and Pasadena Junctions, a route common to all alternatives. In this vicinity, the proposed project would not result in any physical changes other than possible railroad trackage improvements, or possibly improvements to signals or other ancillary equipment. Since no new use will be introduced by the project, no adverse visual effect would be anticipated. The increased number of trains travelling directly below this bridge, however, would increase the level of vibration its

Figure 5-51: Macy Street Viaduct

footings would be exposed to. A detailed vibration analysis has been conducted which concluded that no adverse structural effects associated with the project are anticipated. No mitigation measures would therefore be required.

<u>Adverse Effect</u>

- Pueblo Del Rio Housing Project

The Pueblo Del Rio Housing Project (see Figure 5-52) is a public housing complex which consists of 1320 units on a 34.08 acre site. Pueblo Del Rio was designed in the International style by a group effort of some of Los Angeles leading architects during the early 1940s, including Richard Neutra, Paul Revere Williams, Adrian Wilson, Wurdeman and Beckett, Gordon B. Kaufmann, and landscape architect Ralph Cornell. (Gebhard & Winter 1985)

The construction of Alternative 2.2 would require demolition of five of the 1320 units, which would result in a determination of adverse effect. The five units are located along Long Beach Avenue between East 51st and East 52nd Streets, specifically 5110, 5054, 5056 Long Beach Avenue and 1700 and 1702 East 52nd Street. In addition to the demolition, partial takes of undeveloped property would occur along the Long Beach Avenue frontage of Pueblo Del Rio. Approximately

Figure 5-52: Pueblo Del Rio Housing Project

40 feet of undeveloped property would also be acquired from the property located along the east side of Long Beach Avenue, between 55th Street and 52nd Street.

The operation of Alternative 2.2 would also expose an additional fifty-eight units in ten remaining buildings to vibration effects at an annoyance level of impact. Although the centerline of the railroad tracks would be 30 feet from the Pueblo Del Rio property line, this alternative would effectively move the right-of-way of Long Beach Avenue to include what is now a 40 foot strip of the housing project. In addition to railroad related vibrational effects, the relocation of Long Beach Avenue would also be construed as a significant disruption of integrity of setting for the remainder of the housing project.

Alternative 2.2 would also expose several buildings to significant noise impact according to the noise technical analysis prepared for this project. The projected impact could be reduced with modifications to improve the sound attenuating characteristics of the trench, such as the application of acoustical absorption material on the walls.

Alternatives 1.0, 2.1A, and 2.1S would not require any right-of-way acquisition of the Pueblo Del Rio Project. The centerline of the closest track in any of these three alternatives would be 175 feet from the closest dwelling unit in Pueblo Del Rio. This is beyond any reasonable distance for potential visual effect or disruption of integrity of setting. Some noise impact is projected for several buildings on the east side of Pueblo Del Rio for Alternative 1, but almost all such impact could be eliminated with train barriers. No noise impacts are anticipated to result from Alternatives 2.1 or 2.1S. No mitigation measures would be necessary for Alternatives 1, 2.1A or 2.1S.

- 6407 Cottage Street

The two-story residence located at 6407 Cottage Street is an excellent example of the Craftsman style of architecture (see Figure 5-53). It has survived in very good condition and with few significant modifications. Notable design features inspired by the Craftsman movement include bargeboards, exposed rafter tails and support beams, shingle exterior wall surface, extended door and window surrounds, and grouped porch posts supported on massive pedestals. It has been designated as the City of Huntington Park Building of Architectural Significance No. 9.

Figure 5-53: Cottage Street Craftsman Style Residence

Construction of the Gage Avenue Overpass structure and associated frontage road proposed for Alternative 1.0 would require the acquisition and demolition of the two-story residence at 6407 Cottage Street in the City of Huntington Park. The remaining alternatives would have no effect upon this structure.

- 2564 Nebraska Avenue

This one-story, single-family, wood frame residential building was designed in the Colonial Revival style of architecture and built around 1910 (see Figure 5-54). This structure was identified as a structure of note in the Los Angeles County/City of South Gate Preservation Planning Project.

Construction of the Tweedy Boulevard Overhead as proposed for Alternative 1.0 would require acquisition and demolition of the residence located at 2564 Nebraska Avenue in the City of

Figure 5-54: Nebraska Avenue Colonial Revival Residence

Southgate. The remaining alternatives would have no effect upon this structure, as it is more than 900 feet from Alameda Street.

5.8.3 Mitigation

Archaeological

The area bordered by Alameda on the east, Watts Avenue on the west, 109th Street on the north, and 111th Street on the south is considered a highly sensitive archaeological area. Therefore, a SOPA qualified archaeologist must be present during any excavations of the land surface within this area.

The archaeologist will be empowered to stop construction if any cultural resource remains are encountered in order to evaluate the materials. Procedural recommendations will be made following the evaluation of the remains.

Should burials be encountered, construction will halt, and procedures according to Appendix K of the California Environmental Quality Act must be followed, beginning with the immediate contact of the County Coroner. These procedures and additional guidelines will be made a part of the project's construction specifications.

Since there is a further possibility of encountering buried prehistoric and/or historic archaeological resources within the overall project boundaries, it is recommended that a SOPA qualified archaeologist be contacted immediately should such unanticipated cultural resources remains be encountered during development or construction related activities within the limits of the proposed project.

Historic and Architectural

- Pueblo Del Rio

There is no reasonable mitigation measure which could lessen the demolition and vibrational effects of Alternative 2.2 on the affected portions of the Pueblo Del Rio housing project. Substantial landscaping features could, however, alleviate the visual impacts and disruption of setting on the remaining units. The projected noise impact should be reduced by improving the sound attenuating characteristics of the trench by the application of acoustical absorption material on the walls.

- 6407 Cottage Street

A relocation of the Gage Avenue overpass and its associated frontage road to the north side of Gage Avenue rather than the proposed south side would avoid any significant impact upon the residence at 6407 Cottage Street which would result from construction of Alternative 1.0. This suggested avoidance design would require further investigation in the final engineering, and cannot be considered a viable mitigation measure at the present time.

The wood frame building appears to be in good enough condition to be moved successfully in order to avoid demolition by construction of the Gage Avenue overpass for Alternative 1.0, however, this action would still result in a significant disruption of integrity of setting and would not be the most environmentally desirable alternative.

- 2564 Nebraska Avenue

To avoid demolition of this building as a result of Alternative 1.0, the Tweedy Boulevard Overcrossing would have to be moved to the south side of Tweedy. Since it would have essentially returned to an at grade configuration near the residence at 2564 Nebraska, no additional visual impacts would be anticipated from this change. This change of location of the Tweedy Boulevard Overcrossing would necessitate consideration in the final design of the project, and cannot be considered as a viable mitigation measure at the present time.

The wood frame residential building appears to be in good enough condition to be moved successfully in order to avoid demolition as a result of Alternative 1.0, however, this action would not be the most environmentally desirable mitigation as the integrity of its historic setting would be lost.

Cumulative Effects

Recommendations in the "2020 Terminal Island Transportation Study" include rehabilitation of the Badger Avenue Bridge for reuse. The architecturally significant portions of the bridge would be repaired and maintained to extend the useful life of the structure. This bridge may be rehabilitated or it may be replaced. This is the subject of a study that is currently underway. The overall cumulative effect of this related improvement would be beneficial to this cultural resource, if the decision to rehabilitate the bridge is taken.

5.9 ECONOMICS

5.9.1 Setting

The Alameda Corridor is located in a predominately industrial portion of Los Angeles County, connecting the Ports of Los Angeles and Long Beach, collectively known as the San Pedro Bay ports, to downtown Los Angeles. The corridor is one element of a truck and train transportation system which moves goods from the ports to the national railroad system via Alameda Street and the Southern Pacific San Pedro Branch. Currently 19,000 truck trips and 19 train movements per day are generated by activity of the San Pedro Bay ports, which is the largest port complex in the country. In 1991, the combined ports handled 99 million metric tons of cargo, 25 percent of which were containerized cargo. About 40 percent of this container traffic moves by railroad to destinations across the nation. In 1987, the ports generated 363,000 jobs, $8.1 billion in wages, $39.4 billion in sales revenues and $1.2 billion in state and local taxes in the five-county, Southern California region (Alameda Corridor Transportation Authority February, 1991).

By the year 2020, as the national population and trade among Pacific Rim countries continue to increase, maritime cargo through the ports are expected to more than double: 211 million metric tons, 37 percent of which will be containerized cargo, are expected to flow through the ports. (Alameda Corridor Transportation Authority February, 1991). To accommodate this forecasted growth, the Los Angeles and Long Beach Ports have set forth a 2020 Port Development Plan which will expand land and terminal capacity at the two ports. The Alameda Corridor project would increase truck and train capacity in the corridor, connecting the San Pedro Bay ports to the Interstate Highway System and the national railroad system.

Several sources were reviewed to collect data on the fiscal impacts of the corridor project: Environmental Impact Statement/Report (EIR/EIS) for the Ports 2020 Development Plan; Alameda Corridor Transportation Authority's "The Alameda Corridor: A National Priority"; Southern California Association of Governments (SCAG) Regional Growth Management Plan; TRW (1990) database of Los Angeles County Assessor parcels; annual fiscal reports of the cities located along the corridor; California Office of Development Labor Force Statistics; and conceptual drawings of the Alameda Corridor Project prepared by DMJM and Moffat & Nichol. A study area of 1,000 feet from the corridor was devised to measure the effect of the project since the greatest extent of impacts would occur with east-west crossings which would extend approximately 1,000 feet into the surrounding neighborhood on both sides of the corridor.

A database of right-of-way acquisitions was developed from an inhouse database using conceptual engineering drawings. Tax revenues collected by the county from each city was estimated from this database. The number of commercial parcels which would be acquired was also calculated from the database.

Regional Context

- Economic Growth

Southern California's economy has experienced vigorous economic growth over the last 20 years. According to the Southern California Association of Governments (SCAG) 1989 Regional Growth Management Plan, the region's jobs increased from 4.3 million in 1972 to an estimated 6.5 million in 1987, an annual employment growth rate of 3.4 percent. SCAG's employment figures assume implementation of SGAG's Growth Management Plan. Through the year 2010, however, growth in the region is expected to temper. Nine million jobs are anticipated by 2010, with an expected annual growth rate of two percent a year, which is 1.2 percent less than the growth which occurred between 1972 and 1984 in the region.

Much of the future employment opportunities in the Southern California region, however, will be concentrated in service and information sectors of the regional economy. Over the last two decades, Southern California's economic base has shifted from a goods-producing, manufacturing economy to a service-oriented one. This trend is expected to continue, according to SCAG: by the year 2010, using 1984 as the base year, service industries are expected to add 1.3 million jobs to the Southern California economy while manufacturing jobs are expected to increase by 300,000.

Economic growth in Los Angeles County is expected to mirror that of the Southern California region. By the year 2010, 5.4 million jobs, or 60 percent of all jobs in the Southern California region, will be located in Los Angeles County. In 1984, however, the County maintained a 68 percent share of all jobs in the Southern California region. The addition of 1.3 million jobs (from base year 1984 to 2010) represents a 1.3 percent annual increase in employment. Table 5-55 illustrates employment in the SCAG region, by county.

TABLE 5-55
COUNTY EMPLOYMENT IN THE SCAG REGION

COUNTY	1984		2010	
	NUMBER	%	NUMBER	%
IMPERIAL	37,000	1%	65,600	1%
LOS ANGELES	4,053,000	68%	5,392,200	60%
ORANGE	1,048,000	18%	1,718,800	19%
RIVERSIDE	247,000	4%	626,500	7%
SAN BERNARDINO	325,000	5%	785,400	9%
VENTURA	213,000	4%	365,600	4%
REGIONAL TOTAL	5,923,000	100%	8,954,100	100%

Note: Employment figures are from SCAG GMA-4 Modified Jobs/Housing Balance, which is the adopted Growth Management Plan forecast. The GMA-4 Modified Jobs/Housing Balance forecast assumes implementation of SCAG's Jobs/Housing Balance plan.

Source: SCAG, Regional Growth Management Plan. February 1989.

The Alameda Corridor area is expected to experience less employment growth than the County overall. SCAG's 1989 Regional Growth Management Plan divides urban areas into six subregions; the Alameda Corridor is located within two subregions, Santa Monica Bay and Central Los Angeles. According to SCAG employment forecasts, total economic growth for the Santa Monica Bay and Central Los Angeles subregions is expected to increase at an average rate of 0.8 percent a year. In 1984, Santa Monica Bay and Central Los Angeles subregions together generated 2.2 million jobs, or 37 percent of all jobs in Southern California. By 2010, the subregions are expected to generate 30 percent, or 2.6 million jobs, of all employment in the region. Table 5-56 provides SCAG regional employment figures.

- Regional Employment

Services, manufacturing and retail trade sectors dominate the Los Angeles County economy. (See Table 5-57) According to the California Employment Development Department, in April 1992 the service sector employed 1.17 million workers (29 percent) while manufacturing and retail trade employed 795,600 (20 percent) and 587,500 (15 percent) workers, respectively. Agriculture, mining and construction sectors employed less than 5 percent of all workers in the Los Angeles County area.

TABLE 5-56
SHARE OF SCAG REGIONAL EMPLOYMENT

SUBREGION	1984	2010	PERCENT INCREASE	AVERAGE ANNUAL GROWTH 1984-2010	% OF REGION 1984	% OF REGION 2010
SANTA MONICA BAY	759,500	1,012,500	33%	1.3%	13%	11%
CENTRAL LOS ANGELES	1,435,300	1,634,500	14%	.6%	24%	18%
TOTAL	2,194,800	2,647,000	20%	.8%	37%	30%

Note: Employment figures are from SCAG GMA-4 Modified Jobs/Housing Balance, which is the adopted Growth Management Plan forecast. The GMA-4 Modified Jobs/Housing Balance forecast assumes implementation of SCAG's Jobs/Housing Balance plan.

Source: SCAG, Regional Growth Management Plan. February 1989.

TABLE 5-57
LOS ANGELES COUNTY EMPLOYMENT BY INDUSTRY
(AS OF APRIL 1992)

EMPLOYMENT CATEGORY	NUMBER OF JOBS	PROPORTION
Mining	7,300	0%
Construction	120,500	3%
Manufacturing	795,600	20%
Transportation/Public Utilities	210,500	5%
Wholesale Trade	270,000	7%
Retail Trade	587,500	15%
Finance/Insurance/Real Estate	266,400	7%
Services	1,174,300	29%
Government	543,400	14%
Agriculture/forestry/fisheries	10,000	0%
Total	3,985,500	100%

Source: California Employment Development Department, May 1992.

- Redevelopment Areas

The cities of Vernon, Huntington Park, Lynwood, Compton and Carson and the County of Los Angeles have redevelopment areas or projects located within the Alameda Corridor study area. In general, the redevelopment projects include elimination and prevention of urban blight and rehabilitation of industrial and commercial development. Section 5.1.1 (Land Use) provides greater detail regarding redevelopment plans within the corridor study area.

Local Context

- Economic Activity

Economic activity was determined based upon a review of parcels within 1,000 feet of the corridor. The number of commercial parcels may not precisely coincide with the number of business firms in the area: more than one business may occupy a single parcel, or more than one parcel may be occupied by a single business. For purposes of the impact analysis, however, it is assumed that a one to one relationship exists.

Heavy industries, including manufacturing facilities, meat, mineral and petroleum processing plants, open storage space and dump sites, are the predominant economic activities in the corridor area. Over 37 percent of all land in the corridor area is occupied by heavy industrial uses. The second and third most predominant uses are residential (20 percent) and institutional (15 percent). Of non-residential and non-institutional uses, heavy industry accounts for 67 percent of the land area (square footage) and 46 percent of the parcel lots in the corridor area. Light industry, which is mostly warehouses, make up 12 percent of all land and 17 percent of all parcels in the corridor area. Retail establishments, including markets, restaurants, auto service shops, gas stations, car dealers and lumber yards, occupy 4 percent of the land square footage and account for 14 percent of all parcels in the corridor. Offices, hotel/motels, and recreational facilities each constitute less than four percent of the total land area and total number of parcels. 5-58 illustrates the economic activity in the corridor study area.

5.9.2 Construction Impacts

Effects Upon Business Activity

Construction activity along the Alameda Corridor would likely produce a significant adverse effect upon businesses located along the corridor. Disruption occurs when street access is partially or wholly restricted during construction, prohibiting vehicular and pedestrian access to the businesses. Businesses would also experience noise and dust from construction activity. Businesses would lose street parking and perhaps even off-street parking as a result of nearby construction. For some businesses, especially small retail operations, prolonged construction could significantly affect their operation and viability.

Construction activity is expected to last a total of 10 to 12 years, with any one block affected by construction for up to three years. The actual loss of access and street parking availability would depend upon the sequence of construction. Under all the alternatives, entire and partial street closings would be required at various times throughout the construction period and would create noisy conditions. Alternative 1.0, however, would disrupt the largest area and the most

TABLE 5-58
ALAMEDA CORRIDOR PROJECT
ECONOMIC ACTIVITY WITHIN 1,000 FT. OF CORRIDOR

ECONOMIC ACTIVITY	NUMBER OF PARCELS	% OF TOTAL PARCELS	LAND AREA SQ.FT.	% OF TOTAL LAND AREA
HOTEL/MOTEL	15	0.5%	65,941	0.1%
OFFICE	100	3%	1,113,167	1%
PARKING	426	13%	14,215,635	16%
RETAIL/WHOLESALE	467	14%	3835,255	4%
HEAVY INDUSTRIAL	1,493	46%	61,576,489	67%
LIGHT INDUSTRIAL	544	17%	10,937,977	12%
OTHER COMMERCIAL (theaters, clubs, recreational facilities)	46	1%	122,006	0.1%

Source: Myra L. Frank & Associates, Inc. 1992

businesses, affecting businesses located along Alameda Street and streets designated for underpasses and overhead crossings. In addition, most of the small retail stores that could be potentially affected by construction are located along the cross streets along the Alternative 1.0 route.

The precise effects on businesses located along the corridor would depend upon site-specific conditions and the strength of the business at the outset of construction. Larger businesses should have less difficulty than smaller ones. Businesses having a particular loyal client base (such as those that provide unique goods or services) would have less difficulty than those which depend upon trade from the general public. Businesses of an industrial nature and wholesale business would have less difficulty than commercial, office and retail businesses. Overall, the project construction period would produce businesses disruptions and inconveniences that can be overcome in the majority of instances but may be insurmoun for some.

Job Creation and Construction Spending

Construction employment has two beneficial components: direct and indirect effects. The direct effect is the number of construction jobs created to complete the project. Depending upon alternative, the Alameda Corridor project would generate an estimated 6,900 to 9,200 person-years of construction employment over a ten year period: 6,900 person-years under Alternative 1.0, 9,000 person-years under Alternatives 2.1A and 2.1S, and 9,200 person-years under Alternative 2.2. Construction employment was calculated based upon a factor of 11 jobs created per one million dollars spent on construction (U.S. Bureau of Labor Statistics, 1991 Abstract). Construction expenditures for the ten year period would total $631.0 million under Alternative 1.0, $820.5 million under Alternative 2.1A and $834.8 million under Alternative 2.2. Alternative 2.1S would require more right-of-way acquisition than Alternative 2.1A and therefore, construction costs would be somewhat greater than the estimate for Alternative 2.1A. A precise estimate has not been calculated, however.

The indirect benefit is the additional employment gains and business activity to the regional economy generated by the initial construction expenditure. This indirect effect can be quantified using a multiplier factor. The multiplier factor for regional output used by SCAG in its 1991 66-sector I/O Model is 1.74, that is, for every dollar of construction spending fueled into the regional economy, $1.74 dollars would result in the form of overall employment, income and output. The trench alternatives would incur the largest construction costs and, therefore, generate the greatest amount in output, employment and income for the region. Alternatives 2.1A, 2.1S and 2.2 would generate approximately $1.4 billion in secondary economic benefits, while Alternative 1.0 would generate $1.0 billion in indirect output, employment, and income. See tables 5-59 and 5-60.

TABLE 5-59
ESTIMATED CONSTRUCTION COSTS AND JOBS
(1991 DOLLARS)

BENEFIT	ALTERNATIVE 1.0	ALTERNATIVE 2.1A	ALTERNATIVE 2.1S	ALTERNATIVE 2.2
CONSTRUCTION COSTS ($)	$631,000,000	$820,500,000	$820,500,000	$834,800,000
CONSTRUCTION JOBS (#)	6,900	9,000	9,000	9,200

Source: DMJM, Concept Study, Appendix E, 1992.

TABLE 5-60
DIRECT AND INDIRECT BENEFITS
(1991 DOLLARS)

ALTERNATIVE	ESTIMATED CONSTRUCTION COST	DIRECT AND INDIRECT BENEFITS (MULTIPLIER OF 1.74)
ALTERNATIVE 1.0	$631,000,000	$1,097,940,000
ALTERNATIVE 2.1A	$820,500,000	$1,427,670,000
ALTERNATIVE 2.1S	greater than $820,500,000	greater than $1,427,670,000
ALTERNATIVE 2.2	$834,800,000	$1,452,552,000

Source: Myra L. Frank & Associates, Inc. 1992

5.9.3 Operational Impacts

Business Access

The Alameda Corridor project generally would improve traffic flows across Alameda Street, thereby enhancing access to businesses located adjacent to the corridor. In general, all of the build alternatives would maintain the same number of crossings opportunities, 22 across the Alameda Corridor. The grade separations provided by all the build alternatives would greatly improve access to businesses which would otherwise be seriously impaired by increased train traffic in the year 2020.

All businesses not acquired by the Alameda Corridor project would have street access maintained although street routing would vary by alternative. Under Alternative 1.0, vehicles may be required to travel more circuitous routes to access the overpasses or underpasses.

Relocation of Acquired Businesses

All alternatives would require full acquisition of some commercial properties adjacent to the corridor. (See Section 5.3 for a detailed discussion.) Alternative 1.0 would acquire the greatest number of commercial properties, 341, followed by Alternative 2.1S with 208 properties, Alternative 2.2 with 158 properties, and Alternative 2.1A with 139 properties. In all cases, full acquisitions of properties would require appropriate relocation and compensation. (See Section 5.3. Acquisition and Displacement). Table 5-61 shows the number of business acquisitions by activity.

TABLE 5-61
BUSINESS ACQUISITION

ACTIVITY	ALTERNATIVE 1.0	ALTERNATIVE 2.1A	ALTERNATIVE 21.S	ALTERNATIVE 2.2
HOTEL/MOTEL	0	1	1	0
OFFICE	18	3	3	2
OTHER COMMERCIAL (THEATERS, CLUBS, RECREATIONAL FAC.)	4	3	3	3
PARKING	26	7	9	7
RETAIL/WHOLESALE	60	19	29	21
HEAVY INDUSTRIAL	105	36	81	47
LIGHT INDUSTRIAL	40	23	30	23
CORRIDOR TOTAL	253	92	156	103

Source: Myra L. Frank & Associates, Inc. 1992

Two types of business operations that exist within the corridor have been identified as potentially difficult to relocate: 1) small-scale industrial businesses that have been in operation prior to enactment of Southern California Air Quality Management District (AQMD) standards which would be required to meet increasingly stringent AQMD rules in order to be permitted to relocate; and 2) small-scale businesses, such as fast-food restaurants, repair shops and scrap metal yards, which would encounter such significant relocation costs such that their financial stability could not be maintained.

Displaced firms which are currently out of compliance with AQMD standards could incur severe costs, forcing them to relocate out of Southern California or cease operation. Although it is unknown how many industrial businesses in the corridor are currently in non-compliance with AQMD codes, it is clear that Alternative 1.0 would displace more industrial properties than all other build alternatives. This effect is considered potentially significant. Relocation of displaced small-scale businesses to locations near the corridor would also be potentially significant. The number of small-scale businesses which may be unable to re-establish themselves would most likely be greatest for Alternative 1.0, which would acquire the most commercial parcels, followed by Alternative 2.1S and Alternative 2.2.

Ports 2020 Development Plan

Under all of the build alternatives, the Alameda Corridor would provide economic benefits by supporting the San Pedro Bay Ports 2020 Development Program, which proposes to expand land and terminal facilities at the Ports of Los Angeles and the Ports of Long Beach. Fiscal benefits generated by Port expansion, therefore, would be benefits indirectly related to the Alameda Corridor project, to the extent that the corridor project is necessary to successfully realize the ports expansion plan. According to the Alameda Corridor Transportation Authority (ACTA), the San Pedro Bay Ports' 2020 Development Program would add 15,000 construction 678,000 port-related jobs in the Southern California, five-county region by the year 2020. The ports' expansion plan would also generate $69 billion in sales revenue and $2.2 billion in state and local taxes in the Southern California region by the year 2020. A summary of fiscal benefits associated with the Ports' 2020 Development Program is provided in Table 5-62.

Revenue Loss due to Acquisition

- Property Taxes

Property taxes are levied on the assessed value of privately owned property. Los Angeles County collects property taxes for properties within the County limits and disburses the revenue to individual jurisdictions based on a percentage of the total property taxes collected in those jurisdictions. When properties are obtained for rights-of-way, the property tax base is reduced. Only parcels which would be taken in their entirety by the project are included in the calculation of property tax losses. Property taxes collected in 1990 on commercial, residential and vacant properties were calculated using 1990 Los Angeles County Assessor rolls and are shown in Table 5-63. Property tax losses may also include special assessment district taxes.

Property tax losses to individual jurisdictions would be a small portion of each jurisdictions' annual property tax revenue and therefore, not significant. Table 5-64 shows the estimated annual property tax revenue loss for each jurisdiction.

TABLE 5-62
ECONOMIC BENEFITS OF THE 2020 PORT DEVELOPMENT PROGRAM

BENEFIT	AREA OF BENEFIT	JOBS/REVENUE
ADDITIONAL EMPLOYMENT BY YEAR 2020		
CONSTRUCTION	REGION	15,000
PORT-RELATED JOBS[1]	REGION	678,000
	NATIONWIDE	2,200,000
ADDITIONAL REVENUE BY YEAR 2020		
SALES REVENUE	REGION	$69 BILLION
	NATIONWIDE	$169 BILLION
STATE AND LOCAL TAXES	REGION	$2.2 BILLION
ANNUAL CUSTOM RECEIPTS	NATIONWIDE	$5.2 BILLION
ANNUAL FEDERAL INCOME AND BUSINESS TAXES	NATIONWIDE	$26.7 BILLION

Note:
[1]Includes jobs associated with port industry, capital spending, tenants and users.

Source: Alameda Corridor Transportation Authority, "The Alameda Corridor: A National Priority to Support National and Regional Economic Expansion and to Protect the Environment." February, 1991.

- Sales Taxes

The loss of sales tax revenue is not considered significant. Sales taxes are collected by the State of California at 7 percent of the total sales receipts. Out of this amount 6 percent goes to the State of California, and one percent is redistributed to the city where the business is located. In Los Angeles County, an additional one percent is levied as result of Propositions A and C, and .25 percent for local transit project, making the current total sales tax rate to be 8.25 percent.

Acquisitions would lower the number of sales tax-generating businesses in cases where the business could not relocate. The cities along the corridor, Los Angeles County and State of California would lose sales tax revenue. Sales tax revenue is difficult to predict, and therefore, not calculated in this report. It is likely that greater losses would occur under Alternative 1.0, which would acquire more businesses than any other alternative. However, the number of business acquisitions for each city are sufficiently small that the impact is considered insignificant.

- Business License Fees

The loss of business license fees to local jurisdictions is not considered significant. Business license fees represent a relatively small share of total city revenues. The commercial properties acquired by the Alameda Corridor project, in turn, represent only a small fraction of all businesses in each jurisdiction. Business license fees are generally assessed by the jurisdictions based upon one of two factors: number of employees or annual gross sales receipts.

Regardless of the method uses, Alternative 1.0 would most likely result in the greatest loss of business license fees than any other alternative: Alternative 1.0 would require acquisition of the largest number of business properties followed by Alternative 2.1S. Most business acquisitions under all alternatives would occur in the City of Los Angeles and unincorporated communities of Los Angeles County.

TABLE 5-63
PROPERTY TAX LOSSES

JURISDICTION	ALTERNATIVE 1.0		ALTERNATIVE 2.1A		ALTERNATIVE 2.1S		ALTERNATIVE 2.2	
	PARCELS	PROP. TAX ($)	PARCELS	PROP. TAX ($)	PARCELS	PROP. TAX ($)	PARCELS	PROP. TAX ($)
CARSON	0	0	0	0	0	0	0	0
COMPTON	88	251400	5	5430	27	48241	5	5430
HUNTINGTON PARK	47	84901	1	8396	17	75612	3	15563
L.A. COUNTY	145	109948	11	31010	36	71023	11	31010
L.A. COUNTY-SEGMENT A	0	0	0	0	0	0	0	0
L.A. COUNTY-SEGMENT B1	0	0	0	0	0	0	0	0
L.A. COUNTY-SEGMENT B2	85	76394	5	14877	29	51370	5	14877
L.A. COUNTY-SEGMENT C	60	33554	6	16133	7	19653	6	16133
L.A. COUNTY-SEGMENT D	0	0	0	0	0	0	0	0
LOS ANGELES	172	715188	138	563256	144	597060	178	384886
LOS ANGELES-SEGMENT A	36	175546	12	53792	12	53792	12	53792
LOS ANGELES-SEGMENT B1	20	343448	15	316458	21	350263	55	138088
LOS ANGELES-SEGMENT B2	0	0	0	0	0	0	0	0
LOS ANGELES-SEGMENT C	5	3189	0	0	0	0	0	0
LOS ANGELES-SEGMENT D	111	193005	111	193005	111	193005	111	193005
LYNWOOD	1	11946	1	7006	3	26753	1	7006
SOUTH GATE	46	55647	0	0	0	0	0	0
VERNON	27	177941	4	36317	9	74629	0	0
CORRIDOR	526	1406971	160	651415	236	893318	198	443895

Source: Myra L. Frank & Associates, Inc. 1992

TABLE 5-64
PROPERTY TAX LOSSES TO JURISDICTIONS

JURISDICTION	PROP. TAX RATIOS (%)[1]	ALTERNATIVE 1.0	ALTERNATIVE 2.1A	ALTERNATIVE 2.1S	ALTERNATIVE 2.2
		PROP. TAX LOSS ($)	PROP. TAX LOSS ($)	PROP. TAX LOSS ($)	PROP. TAX LOSS ($)
CARSON	NOT APPLIC.	0	0	0	0
COMPTON	14%	34190	738	6561	738
HUNTINGTON PARK	11%	8915	882	7939	1634
L.A. COUNTY	100%	109948	31010	71023	31010
LOS ANGELES	33%	233151	117185	128205	59037
LYNWOOD	15%	1804	1058	4040	1058
SOUTH GATE	6%	3394	0	0	0
VERNON	8%	13879	2833	5821	0
CORRIDOR		405282	153706	223589	93477

Note:
[1]Tax ratios are from the Los Angeles County Auditor Controller, Tax Division, 1992. These ratios represent the average rate at which jurisdictions are reimbursed by the County for property taxes collected within their boundaries.

Source: Myra L. Frank & Assoc., Inc, 1992.

Enhanced Attractiveness of the Corridor

Expansion and reconfiguration of the corridor under all project alternatives would generate benefits by inducing industrial, warehousing or transportation-related development in the area. All the build alternatives would create a linear transportation corridor that would result in the improved traffic flow for both trains and motor vehicles. It is likely that the corridor would become a focal point for businesses that would directly and indirectly serve the goods movement industry. A beneficial effect in this regard is found.

5.9.4 Mitigation

Construction Impacts

Regarding inconveniences to business along the corridor during construction, appropriate signage should be used to displayed to direct patrons to alternate routes to businesses. Traffic management plans could be implemented to maintain access to as many businesses as possible. Construction schedules should be developed such that access to businesses would be impeded as little as possible. A business outreach program should be implemented to inform local merchants of construction schedules which may affect their establishments. A project office hot-line could also be developed as a mechanism to answer questions related to the project.

Operation Impacts

Although more circuitous routing to businesses would result from the project, street access would be maintained to all businesses along the corridor and improved in most instances. Therefore, mitigation would not be necessary.

Regarding relocation of acquired businesses, standard relocation measures, discussed in Section 5.3 (Acquisition and Displacement), would be followed for displaced businesses. The relocation measures follow the Uniform Relocation Procedures and Real Property Act and generally provide for monetary compensation and assistance and relocation assistance. Regarding those businesses which would face inordinate difficulty relocating in the nearby area, local jurisdictions should be consulted and included as participants in the relocation process.

With regard to the Ports 2020 Development Plan, the Alameda Corridor Project would generate substantial indirect benefits. Therefore, no mitigation would be necessary.

With regard to the loss of property tax, business license and sales revenue to local jurisdictions, the aggregate benefits of construction employment and related expenditures, attractiveness of the new corridor and anticipated growth of port, rail, truck, import and export-related businesses in the corridor area outweigh the loss in taxes and license fees.

The Alameda Corridor would enhance the attractiveness of the corridor area, providing greater opportunities for industrial development in the area. Therefore, no mitigation would be necessary.

Excess land along the corridor would produce a beneficial effect, providing development opportunities and marke parcels along the new, reconfigured corridor. Excess land, therefore, should be reparcelled where possible to make marke parcels that could be resold and policies should be developed to facilitate this process.

CHAPTER 6

OTHER ENVIRONMENTAL CONSIDERATIONS

6.0 OTHER ENVIRONMENTAL CONSIDERATIONS

6.1 CUMULATIVE EFFECTS

6.1.1 Effects Associated With Ports Expansion

As noted in Chapter 1, the purpose of the Alameda Corridor transportation project is to facilitate access to the ports of Los Angeles and Long Beach through the year 2020, by providing a set of freight rail and highway improvements that would also mitigate adverse effects associated with that growth. The Alameda Corridor project is functionally linked to ports growth, inasmuch as it facilitates land-side movement of goods arriving at or leaving from the ports, but it is not a limitation on that growth. Growth of the ports in turn is part of regional planning efforts. The Alameda Corridor project is also part of those planning efforts, as documented in the Regional Mobility Plan.

The projected doubling of port cargo activity by the year 2020 would be the result of economic forces of national and international proportions. If the Alameda Corridor project is not implemented, it is entirely likely that these forces would continue to exercise their influence and port activity would continue to grow. The rate of growth could be slowed somewhat, since at some point in time the adverse effects associated with port growth could become unacceptable, but overall, growth at the ports is likely to continue into the future at its present rate. There is not a cause-effect relationship between the Alameda Corridor and ports growth, but rather the reverse is true.

While the Alameda Corridor project (or rather its absence) would not constrain ports growth, it would permit that growth to take place in a more orderly manner. The corridor provides a facility that would not only allow freight rail consolidation, but would encourage it by providing operating advantages that cannot be offered otherwise. Without this, future freight rail movements would take place on each of the common carriers branch and main lines, with attendant increases in noise, traffic delays, and other adverse effects. With the corridor, rail movements would be channeled to a facility that recognizes the existence of these effects and makes provision for their mitigation. Thus, the Alameda Corridor would enable the rate of growth of ports activity to continue while at the same time helping to reduce the adverse effects that would otherwise occur by the year 2020. It is therefore reasonable to suggest that long-term growth at the ports and the Alameda Corridor project are functionally connected, and each recognizes the influence of the other. By providing a means of mitigating a substantial portion of the land-side transportation impacts, the corridor makes it more palatable to have continued economic growth at the ports. While growth at the ports is not constrained by the Alameda Corridor, it is clearly enhanced by it.

The functional relationship between the Alameda Corridor project and ports growth is acknowledged in the recently-published U.S. Army Corps of Engineers Deep Draft Navigation Improvements, Los Angeles and Long Beach Harbors, San Pedro Bay, California; Draft Environmental Impact Statement/Environmental Impact Report (June 1992). The cumulative affects associated with long-term ports growth through 2020 and the Alameda Corridor project are discussed in terms of land use, ground transportation, noise, and economic activity. This document evaluates in a site-specific manner a first portion of the Ports 2020 Plan (approximately 582 acres of new fill).

Insofar as land use is concerned, street and highway improvements in the vicinity of the ports, in conjunction with development of the Alameda Corridor, would facilitate ports-related transport in areas adjacent to the ports. This in turn could indirectly result in expanded industrial land use development which could have potential adverse effects on some existing land uses in the general harbor complex.

Development of the ports through the year 2020 would result in greatly increased truck and train movements. It is estimated that 50,000 truck movements and 99 trains per day would occur in the year 2020, from general growth in port activity. These movements require facility improvements beyond the immediate vicinity of the ports, and the Alameda Corridor is identified as the primary means for accommodating these flows. The Alameda Corridor acts as a mitigation measure for the increased truck and train traffic resulting from port growth to the year 2020. As pointed out in Section 5.4 of this DEIR, even with the improvements proposed by the Alameda Corridor project, there would still remain some residual traffic impacts, primarily associated with background growth, that may not be able to be mitigated. Additional improvements would be required, for which the financial assistance of the corridor jurisdictions could be necessary.

Given the projected increases in train movements and truck traffic associated with port growth, adverse noise effects would be expected. These effects would be of substantial proportions in some areas. The Deep Draft DEIS/EIR identifies the potential for these effects in a programmatic fashion and the Alameda DEIR contains a detailed analysis of these effects (see Section 4.4). Thus, the cumulative noise effects of both projects taken together would be accommodated by noise barriers and other mitigation measures identified in the Alameda document.

In terms of economics, the Deep Draft DEIS/EIR identifies increased activity occurring in the region as a result of the growth in ports activity, with an emphasis on expanded employment opportunities. The Alameda Corridor would add to this expansion of employment opportunity, for both construction and operational labor needs. Also noted in the Deep Draft DEIS/EIR is the fact that the expanded employment resulting from ports growth would be heavily skewed toward transportation and trade workers. The Alameda Corridor project would also emphasize these fields. The two projects would have a cumulatively reinforcing beneficial effect on economic activity.

For a discussion of the specific cumulative effects associated with the relationship between the Corridor and the ports, the reader is also referred to Section 6.1.4, where a discussion of regional freight rail operations is provided.

6.1.2 Effects Associated With Ports Access Demonstration Projects

The ports access demonstration projects (see Section 3.8) are functionally connected with the development of the Alameda Corridor, and they contribute to the consolidated corridor concept.

A beneficial cumulative effect therefore results from them when taken in context with the corridor, essentially manifested as improved efficiency of goods movement throughout the region.

Construction of some of the ports access projects could be occurring at the same time the corridor is being built. It is therefore probable that some inconveniences associated with construction could be expanded, either in terms of the length of time the effects would occur, or as a larger effect in the same amount of time. As a result, it will be important that a coordinated schedule be developed to reduce the cumulative adverse construction effects as much as possible.

6.1.3 Effects Associated With Local Projects

There are a number of projects, in various stages of development, that are occurring in the local jurisdictions along the corridor (see Section 3.8). Once the corridor has been completed, a great many of these projects would be enhanced, because nearly all of them are proposed industrial uses, and some are transportation-related. There are a few projects that are of a general retail nature which may not be directly enhanced by the corridor, and could potentially be hindered, due to problems such as diminished access. The actual effects would be dependent upon the details occurring at each site. It will be important for a close working relationship to be fostered with the corridor local jurisdictions while the corridor is being designed and constructed, so that the potential for overall enhancement of projects is promoted, rather than diminished. By and large, the cumulative effects of the corridor and local projects should be beneficial.

Secondly, there would likely be a coincidence of construction schedules between local projects and the corridor. If this is not managed properly, prolonged inconveniences and other adverse consequences could result. It will therefore be important that construction schedules be coordinated to minimize the adverse effect that would otherwise occur.

The Pacific Pipeline project (see Section 3.8) is also being planned for location within the Alameda Corridor. Should this project come to fruition before construction begins on the consolidated corridor, it is probable that the pipeline would be placed within the area subject to later excavation for the corridor improvements. If the pipeline is constructed either during or after the consolidated corridor, provisions can be made for its placement within the corridor envelope. Therefore, with regard to construction effects, the cumulative effects of the two project could either be none or they could be mutually adverse, depending upon sequence. It is therefore desirable that a close working relationship be developed between these two projects, to reduce the potential for negative reinforcement. Once the two projects are completed and operating, they would be mutually beneficial.

6.1.4 Effects Associated With Regional Freight Rail Operations

The fundamental purpose of the Alameda Corridor is to make possible consolidated freight rail operations from the ports to downtown Los Angeles. Achievement of this objective would enable economic growth generated by the ports to continue, while at the same time providing a mechanism for mitigating the adverse effects of that growth. The corridor would also make it possible for the three freight rail operators in the region to move goods to and from the ports of Los Angeles and Long Beach in a manner that would be substantially more efficient than they could accomplish using their own independent facilities. Operating speeds would be higher, delays at train crossings would be eliminated, and control and communications would be greatly improved.

Operation of the consolidated corridor would change the routing currently used by the three common carriers. The Southern Pacific Wilmington and West Santa Ana branches, Union Pacific San Pedro branch, and the Santa Fe Harbor District branch would no longer be used for ports-related train movements. In addition, incoming and outgoing Southern Pacific movements along its La Habra and Santa Ana branches could also be removed and channeled to the corridor by means of the Southern Pacific's Alhambra main line. These rail lines would remain in place and could be used for some train movements, but they would no longer be used for the heavy volumes contemplated for future ports-related trade. As a result of the routing changes that would occur, many of the effects associated with freight train operations would no longer be experienced on a regional basis. They would instead be focused along the Alameda Corridor, which would have extensive mitigation provided.

The corridor provides for more efficient train movements throughout the region. Compared with Status Quo routing, aggregate train miles would be reduced and average operating speeds would be increased. In addition, delays occurring between trains would be virtually eliminated. It s estimated that a 30 percent saving in locomotive-hours of delay would result in 2020. Also, vehicular traffic along the corridor would be improved and delays at grade crossings would be substantially reduced throughout the region. As a result, substantial reductions in locomotive and motor vehicle idling emissions would occur. The net effect would be an overall reduction in regional emissions. If rail electrification were to become a reality, additional benefits would be realized, because the corridor could be electrified in the future.

On a local basis, there would be increases in pollutant concentrations at some locations along the corridor. This would occur in contrast to the more widespread distribution of increased local concentrations that would occur in the region without the project. The local increases along the corridor would in some instances produce violations of current standards. It is likely, however, that violations of these standards would be more prevalent without the project, due to the expected added delays at train crossings and at-grade vehicular crossings of tracks located throughout the region.

The corridor has the beneficial effect of consolidating train movements in one area, where the mitigation of increased noise levels can be focused and provided. If this consolidation were not to occur, increased train movements would result in more noise intrusion into residential areas located between the ports and downtown Los Angeles. It is estimated that the Union Pacific San Pedro branch would have 19,000 persons exposed to severe or significant noise impacts in the year 2020, without the Alameda Corridor. With the corridor operating, this figure would be reduced to 2,400. Similarly, the Santa Fe Harbor District would have 22,300 people exposed to severe or significant noise in the year 2020 without the corridor, whereas with the corridor, this would be reduced to 1,300. Also, the Southern Pacific Wilmington branch would have 20,100 people exposed to severe or significant noise impacts in 2020 without the project. With the project, this would be reduced to 1,200.

The Alameda Corridor would also have the benefit of greatly reducing train traffic along branches (La Habra, Santa Ana, Puente) currently used by the Southern Pacific to reach the ports. The 1980 population residing within 500 feet of these three lines combined was 33,900. It is reasonable to expect that nearly all of these people would experience noise impacts of a severe or significant nature without the project, in the year 2020.

Because train movements would be reoriented to the Alameda Corridor rather than elsewhere, noise impacts would be greater there. Without mitigation, it is estimated that between 3,000 and 8,900 people along the Alameda Corridor would be exposed to severe or significant impact, depending upon the project alternative. With noise mitigation, these figures would be reduced to 2,100 to 2,700. Most of the noise can be reduced by soundwalls, but the walls themselves have the adverse effect of being attractive to vandalism and being perceived as a barrier to neighborhoods.

There would be increased train volumes along the main lines feeding the corridor. These lines include the SP Alhambra, the UP/SP lines to the City of Industry, and the ATSF 3rd District. Of these, the SP Alhambra main line is potentially subject to increased train traffic as a result of the consolidation concept, since the corridor would channel trains to this route. Regional main line routing decisions, however, are being examined by the Los Angeles County Transportation Commission in the context of regionwide consolidation. This is occurring as a response to air quality objectives and the need to manage both freight and passenger train movements as efficiently as possible. These decisions have not been made as yet, and therefore the actual effects are not known. In the worst case, additional adverse noise exposure would occur along the SP Alhambra main line.

Consolidated train movements would result in reductions in overall diesel fuel consumption from locomotive use, as compared with the No Build alternative. A regionwide savings of three percent is estimated in year 2010, increasing to 5 percent by 2020. Because the corridor would provide improved highway conditions, it would attract more vehicular traffic. As a result, year 2010 vehicular fuel consumption in the study area would be five percent higher with the project than without; by 2020 this would decline sightly to four percent. Since the corridor provides for electrification in the future, benefits associated with a future shift to electricity for locomotives would also accrue.

The corridor would promote a long-term coherent land use pattern that would be port-related, transportation-related, and industrial use-related. In a cumulative sense, this should promote economic growth patterns that would be consistent with the corridor's function and thus would encourage some land uses to locate on or near the corridor, rather than elsewhere in the region, where they perhaps would be less compatible with neighboring uses. Also, land uses adjacent to other rail corridors that now feed the ports should be benefitted in the long run. In particular, the SP Wilmington and West Santa Ana branches, the UP San Pedro branch, and the ATSF Harbor District branch should have adjacent land uses benefitted by reduced train volumes. Also experiencing benefits would be the land uses adjacent to the SP La Habra, Santa Ana and Puente branches. Depending upon the outcome of regional consolidation decisions, the SP Alhambra main line could experience adverse effects.

The consolidation concept would result in an improved highway corridor along Alameda Street that would provide for complete grade separation of vehicular from rail traffic. This would result in improved vehicular flow along the corridor. Depending upon the particular alternative, varying local traffic effects would occur, both within the corridor and throughout the region. Some local streets in the vicinity of the corridor would become burdened with additional traffic. Some intersections along the corridor would become similarly burdened. On balance, traffic flow along the corridor would be improved, particularly in light of the delays at existing grade crossings that would be eliminated.

The consolidation concept would also remove trains from a number of rail lines, thus greatly reducing vehicular delays at grade crossings along those routes. It is estimated that a 70 percent savings in vehicle-hours of delay would result in 2020. A detailed analysis of grade crossing impacts is included in Appendix G of the Concept Report. Of immediate benefit would be the SP Wilmington, UP San Pedro, and ATSF Harbor subdivision branches, which have 35, 33 and 92 unseparated grade crossings respectively, or a total of 160 such grade crossings. It is estimated that in 1990, taking into account all grade crossings at all branch and main lines, a total of 1,900 vehicle hours of delay occurred on a daily basis. Without consolidation, this would be expected to increase to 10,200 hours by 2010 and 15,900 hours by 2020. With the consolidated corridor in place, these figures would be reduced to 1,000 hours in 2010 and 1,400 in 2020. Also benefitted would be the SP La Habra, Santa Ana and Puente branches, which have a total of 59 unseparated grade crossings. There are 25 unseparated grade crossings along the SP Alhambra main line that would be potentially subject to increased delays, if regional consolidation decisions are not made to route rail movements away from this line.

If future freight rail movements are accommodated on existing rail lines (No Build Alternative), upwards of 100 trains per day would be traveling along these lines. While the railroads would be expected to keep their facilities in a good state of repair, the expected conditions of these lines would certainly be inferior to that offered by the consolidated corridor. As a result, it is reasonable to expect that there would be increased risk of train accidents, exposing a wider range of people, than would be the case under consolidation. The total 1980 population residing within 500 feet of the three branch lines paralleling the Alameda Corridor was 64,700, as compared with the estimated 7,900 people residing within the same distance along Alameda Street. Added to this would be the estimated 33,900 persons that resided within 500 feet of the other SP branch lines. Thus, in terms of population exposure, there would be less risk under the Alameda Corridor than under Status Quo routing.

In addition, it should be understood that implementation of the Alameda Corridor would require designing the project such that close attention to safety will be maintained. The corridor would have continuously welded track, central traffic control, centralized dispatching, and a high level of surveillance. These conditions would result in a corridor that should provide a high level of protection to the general public from risk of accidents.

On balance, the cumulative effects to the region resulting from the Alameda Corridor, under any of the configuration alternatives being considered, would be beneficial.

6.2 UNAVOIDABLE ADVERSE EFFECTS

The purpose of this section is to summarize significant adverse effects that cannot be avoided, even after mitigation measures are applied. The discussions that follow provide a summary of the effects found to be unavoidable, and the reader is referred to the specific impact discussions in Chapters 4 and 5 of this document for further details.

6.2.1 Construction

Air Emissions

Construction of the Alameda Corridor would require the use of equipment and vehicles that would produce emissions of criteria and potentially toxic pollutants, and some construction activities would release fugitive dust. The amounts of such emissions are not expected to result in long-term health effects, and they would be transitory in nature. These emissions would also be localized to the area immediately surrounding construction sites. Some portions of the corridor pass by sensitive receptors, including schools. While every effort would be maintained to reduce these emissions to levels considered not harmful, it is not possible to guarantee that all emissions can be eliminated. It is therefore necessary to conclude that the project would result in an unavoidable adverse effect with regard to construction-related emissions.

Noise and Vibration Exposure

Construction of the Alameda Corridor would result in increased noise levels, and to a lesser extent vibration on an intermittent basis, throughout the construction period, which is expected to last up to 10-12 years. The length of time that any one location would be exposed is anticipated to range between two and three years. Most, if not all, construction activity would be confined to daytime hours, and local noise ordinances would be adhered to. In addition, locations having sensitive receptors such as homes and schools would be given special attention to ensure that adverse noise and vibration exposure would be reduced as much as possible. However, even after all measures are taken, adverse noise and vibration exposure would occur. This would constitute an unavoidable adverse effect.

Accessibility and Other Inconveniences

Construction of the Alameda Corridor would require complete reconstruction of the combined railroad and highway facilities in Alameda Street and the Southern Pacific San Pedro Branch. In addition, Alternative 1.0 would affect significant portions of a number of east-west crossings along the corridor. All alternatives would require the acquisition of private property. During the course of this construction, there would be extensive disruption to the local circulation system for periods of time. This disruption would include detours, impaired accessibility affecting businesses and residences, possible impairments to the delivery of emergency services and other effects of a generally inconvenient nature. These effects would be temporary, but in some instances they could be severe. Some businesses may not be able to survive the construction process, the number of which is not known at this time. These effects are considered adverse and unavoidable.

6.2.2 Operation

Air Quality

The Alameda Corridor would result in a regionwide reduction in emissions from train and vehicular travel, such reduction coming as a result of reduced delays at train-train crossings and train-vehicle crossings, as compared with the No Project condition. However, because the corridor is already carrying heavy volumes of traffic, there are some locations which currently display local concentrations of carbon monoxide that exceed state or national standards. The completed project would accommodate additional traffic that would result in additional amounts of carbon monoxide in those locations. The sources of carbon monoxide are nearly exclusively automobiles and trucks, which are controlled by laws promulgated at the state and national level, and it would not be possible for the proposed project to provide adequate mitigation. Moreover, freight rail consolidation, and electrification if that should become viable, are both identified in the SCAQMD's 1991 Air Quality Management Plan as transportation control measures necessary for the attainment of air quality standards by the year 2010. Nonetheless, with regard to local carbon monoxide concentrations, with the proposed project in place, there would be an adverse effect for which adequate mitigation is not available and is therefore considered unavoidable.

Noise

The Alameda Corridor would provide for the daily movement of approximately 99 trains and high volumes of vehicular traffic. These sources would result in increased noise along the corridor. In some locations, the residual effects would be severe, affecting residential and other sensitive receptors. Alternative 1.0 would provide noise attenuation walls for a distance of 59,300 lineal feet. Similar barriers for the remaining alternatives would be 9,800 feet for Alternatives 2.1A and 2.1S, and 13,800 feet for Alternative 2.2. However, even with these provisions for noise mitigation, adverse noise effects would still be realized. Depending upon the project alternative, the residual impacts would be felt by between 352 and 442 residences. Although it may be possible to further reduce these figures by sound insulation at individual residences, it is likely that some significant portion would remain impacted. This is considered an adverse effect that cannot be avoided.

Population and Housing

Alternative 2.2 would require the taking of several dwelling units in the Pueblo Del Rio public housing project, along Long Beach Avenue. This is considered an adverse effect that cannot be avoided in this alternative.

Acquisition and Displacement

All alternatives would require the acquisition of private property and a significant number of houses and businesses would be required to relocate. Alternatives 2.1A and 2.1S would require the least residential relocation, affecting 48 and 65 estimated persons, respectively. Alternative 2.2 would displace an estimated 190 persons and Alternative 1.0 would displace the most; an estimated 1,373 persons. Non-residential properties would also be displaced, as follows: Alternative 1.0, 341 properties (3,525 estimated employees); Alternative 2.1A, 139 properties (1,755 estimated employees); Alternative 2.1S, 208 properties (2,558 estimated employees); and Alternative 2.2, 158 properties (1,241 estimated employees). Some of the displaced businesses may not be able to resume business for a variety of reasons. While all displaced residents and businesses would be compensated in accordance with state law, a residual hardship may still be felt by some for which compensation would not be available. The extent to which this may occur is not known, although it should be limited. This adverse effect would be unavoidable.

Transportation and Circulation

Despite the roadway improvements proposed under the various project alternatives, there would be residual adverse effects at intersections. This is largely due to background growth in regional traffic and the fact that the improved facility would be a traffic attractor. The project has established a transportation mitigation approach, as follows: (a) traffic mitigation for Alternative 1.0 would extend to the points at which the east-west grade separations meet existing grades, and (b) Alternatives 2.1A, 2.1S and 2.2 would provide bridges over the depressed trainway. Improvements beyond the corridor to the east and west would be the responsibility of other agencies and jurisdictions. Alternative 1.0 would have 46 intersections that would qualify for additional improvements after imposition of project-proposed mitigation. Alternatives 2.1A and 2.1S would have 35 such intersections and Alternative 2.2 would have 31 such intersections. If the agencies and jurisdictions are not willing or able to provide the additional needed improvements, the adverse effects at these intersections would be regarded as unavoidable, although these effects would be primarily associated with background traffic growth.

Aesthetics

Alternative 1.0 would require nearly 50,000 lineal feet of soundwalls, located on both sides of the corridor, that would be 15 feet high. While these walls would attenuate project-related noise, they would also be visually intrusive. These walls would be subject to graffiti and they would be likely perceived by the adjacent neighborhoods as social barriers. This is considered an adverse effect that would be unavoidable. While the remaining alternatives also would require soundwalls, they would be far less extensive.

6.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The concept of rail consolidation has been under investigation since the early 1980s. Since that time, various studies have concluded that this concept has merit, both in terms of the operational benefits to be realized by the rail carriers, and also as a means of focusing eventually needed mitigation in one corridor, where it could be more effectively handled. The recently completed Alameda Corridor concept engineering study that has culminated in this environmental document has also concluded that rail consolidation still has merit, and further that the Alameda Corridor is the appropriate location for that consolidation to occur.

Of the alternatives that are examined in this environmental document, all of the depressed trainway alternatives (Alternatives 2.1A, 2.1S, 2.2) have fewer adverse effects than the at-grade trainway (Alternative 1.0), with few exceptions. In preliminary recognition of this likely outcome, the ACTA governing board identified the depressed trainway as its preferred option at the beginning of the environmental documentation phase of the project.

Alternative 2.2 would have essentially the same effects as the other depressed trainway alternatives, with the exception that it would require the acquisition of more residential units. Also, it would require the taking of units from the Pueblo Del Rio public housing project, and it would subject some units to adverse vibration impacts. For these reasons, it is found less desirable than the remaining depressed trainway options.

Of the remaining depressed trainway alternatives, Alternative 2.1A has a lesser effect on property acquisition and adverse noise effects. This alternative has a generally less intrusive effect in most impact categories. Alternative 2.1A is hereby identified as the "environmentally superior alternative," pursuant to CEQA Guidelines Section 15126.

APPENDICES

APPENDIX I: GLOSSARY OF TERMS AND ABBREVIATIONS

APPENDIX I: GLOSSARY OF TERMS AND ABBREVIATIONS

Abutment	A surface or mass provided to withstand thrust ; for example, end supports of an arch or bridge.
Alluvial Fan	A fan-shaped deposit formed by a stream as it issues from a narrow mountain valley or canyon onto a plain or broad valley.
Alluvium	Loosely compacted gravel, sand, silt or clay deposited by streams.
Anticline	A fold in which layered strata are inclined down and away form the axes.
Aquiclude	A porous formation that absorbs water slowly but will not transmit fast enough to furnish an appreciable supply for a well or spring.
Bent	A framework support transverse to the length of the structure.
Crib Wall	Any structure composed of frames of timber placed horizontally on top of each other to form a wall.
Carcinogen	Any agent that incites development of any type of malignancy (cancer).
CTC	Centralized Traffic control.
Diamond	A crossing structure consisting of four connected frogs.
Double Main	Two main tracks, in which one track is specified for traffic in a specific direction. (However, with CTC, either track may be used for travel in either direction).
Dredging	The removal of solid matter from the bottom of a water body.
Drill Track	A track connecting with a lead or ladder track, over which locomotives and cars move back and forth in switching.
Electric Lock	A hand operated switch with an electronically-controlled device which restricts movement of the switch.

Frog	An assembly of rigid rail at a turnout or crossing, directing the flanged wheels across a bleak in the running surface where a rail with a different alignment crosses; used in pairs at crossovers.
Holding Track	A track on which cars are held awaiting disposition.
Industrial Lead	A track serving an industrial area, with numerous tracks branching off of it.
Interlocking	An arrangement of signals and special track work where rail routes meet, including turnouts and crossovers (as the case may be); and connected such that movements from track to another can only be made safely and in the proper sequence, preventing opposing or conflicting train movements. Interlockings occur at the crossings of two railroads; at junctions; or upon entering or leaving terminals or yards.
Decibel	A unit for describing sound intensity.
Diatomite	Dense, consolidated diatomaceous earth. Contains the siliceous shells of diatoms, a form of algae.
Ecosystem	A functional system which includes the organisms of a natural community together with their environment.
Grade Crossing	The intersection of roadways, railways, pedestrian walks, or combinations of these at grade.
Intermodal Yard	A yard used for the transfer of containers between railroad flatcars and flat-bed truck (trailer/semitrailer) chassis; or for loading/unloading highway trailers or semitrailers onto/from flatcars.
Jointed Rail	Tracks made up of segments of (usually) 39 inch rail.
Junction	A point at which a branch line connects with a main-line track; or where a track connection is provided between two main line or two branch line tracks.
Ladder Track	A track with numerous turnouts leading to a parallel yard tracks; often a yard will have a ladder tracks at both ends, for improved access.

Landbridge	An intermodal container movement involving two ocean crossings and an intermediate transcontinental rail link between port cities.
Light Rail Transit	Light capacity rail rapid transit involving the movement of single cars and short trains operating on electrical power from the overhead wires. Light rail lines utilize surface private right-of-way with highway crossings at grade, and/or subway-surface streetcar operation.
Liquefaction	A change in the phase of a substance to the liquid state. In geology it refers to the tendency of some water-saturated sandy or silty soils to assume some of the characteristics of a liquid and suddenly become unable to support a load.
Main Track	A track extending between stations and through yards, on which trains are operated by train order or time table, or on which movements are governed by signal indication.
Microbridge	An intermodal container movement involving a single ocean crossing and a rail transport between a port city and an inland port.
Minibridge	An intermodal container movement involving a single ocean crossing and transport from the port of entry to a second port city, where the containers are stripped ; or to the port of exit from an originating port city, where the containers were stuffed.
Paired Track	The use of two single track lines in separate rights-of-way for directional through movements, such that they function as a double track but lack crossovers. Opposing movements by local trains are common, whereas they can often be minimized to some extent on true double main system.
Passing Track	A siding, usually on a single track line, permitting the passage of trains at opposing meets; or allowing a superior train to overtake and pass another train moving in the same direction.
Piggyback	Carriage of highway trailers or containers on railroad flat car.
Power Switch	A turnout activated by a mechanical command,

such as a trackside device activated by an electrical signal from the train, or the sound of the locomotive horn.

Pre-Blocked Run-Through Train — A through train made up of blocks or cuts of cars which are not separated until reaching a destination yard, where the blocks may be sent off on separate lines or to individual cosignees.

Reverberation — The prolongation of sound at a given point after direct reception from the source has ceased, due to such causes as reflections from bounding surfaces.

Reverse (Thrust) Fault — A fault along which the hanging wall has moved up relative to the foot wall.

Road Switcher — A locomotive used for through or main line movements, often in multiple with other similar units. Road switcher may also be used to do work along branch lines.

Runaround Track — A running track kept clear to allow the movement of equipment from one end of a yard to the other.

Shale — A fine-grained laminated or fissile sedimentary rock made up of silt- or clay-sized particles.

Siding — An auxiliary to the main track to allow the meeting or passing of trains.

Soft-Ride Grade Crossing — A composite steel-reinforced rubber/plastic modular crossing surface. allowing reduced road wear at crossings and improved safety and comfort for motorists.

Solid Train — A train transporting a single commodity from one source to one destination, in which the integrity of the loaded train is maintained; but unlike unit trains, the empty cars may than be deadheaded separately back to the original or to other sources.

Sound Walls — Vertical barriers that are placed between a source of noise and a potential receiver of that noise, resulting in a reduction of the level of noise that would otherwise be experienced.

Species — A taxonomic category including closely related, morphologically similar individuals which actually or potentially interbreed.

Spotting	The placement of a car where required so that it is accessible for loading/unloading.
Spring Switch	A switch equipped with a spring mechanism to restore the switch points to their original position after having been trailed through. Spring switched can allow opposing trains to pass on single track with passing sidings, provided directionality is maintained on the double track sections.
Spur	A section of track connected only at one end to a main track, i.e., a stub-ended siding.
Storage Track	A track on which cars are placed when not in service.
Syncline	A fold having stratigraphically younger rock material in its core; it is concave upward.
Tail Track	A turnout in which access to the siding is via a trailing point switch (whose points face in the direction in which the train is moving), such that trains must be backed in.
Tangent Track	A straight section of track, as opposed to curved track.
Team Track	A track owned by the railroad, and used to spot cars for the customers who do not have an industrial spur into their plant; often provided with a platform for the trans-loading of freight between box cars and highway trucks.
Through Train	A train which does not stop at intermediate stations nor does switching work en route.
TOFC	Intermodal operation of highway trailers on flat cars; or of containers mounted on highway chassis, the combination being mounted on flat cars, like highway trailers.
Tower	A building along the right-of-way, at a junction crossing, terminal, yard, etc., permitting ta maximum view of the tracks and housing yardmaster, switch lever or block operator, or dispatcher.

Train	A locomotive, with or without cars, and displaying a marker or markers.
Turnout	A switch and accompanying section of track allowing the diversion of rolling stock from one track to another.
Unit Train	A train transporting a single commodity from one source (shipper) to one destination (cosignee); the integrity of unit trains is maintained after unloading at the destination, and empties (still coupled in the same order) are returned for subsequent loading.
Universal Crossover	A set of crossovers allowing head-end movements in either direction from any track to any other of a set of two or more parallel tracks
Vibration	A cyclic motion of the particles of an elastic body or medium in alternately opposite directions from the position of an equilibrium when that equilibrium has been disturbed.
Wigwag	A grade crossing warning device with a marker arranged to swing back and forth on a shot ar, for greater visibility.
Wye	Tracks forming the letter "y" with a connector across the top, and used for turning equipment in a reverse direction where no loop or turntable is available; a wye may also occur where a branch line approaches a main line from only one direction.
X-Over	A pair of crossovers allowing head-end movements in either direction from either track to the other of a double track pair; a from of universal crossover.
Yard Engine	A small locomotive, used for switching cars in yards and terminals.

APPENDIX II: BIBLIOGRAPHY

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APPENDIX V: NOTICE OF PREPARATION

Notice of Preparation
December 1990

TO: All Interested Parties, Organizations and Individuals

FROM: Alameda Corridor Transportation Authority
6550 Miles Avenue, Room 113
Huntington Park, CA 90255

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report/Environmental Impact Statement:

The Alameda Corridor Transportation Authority in cooperation with the California Department of Transportation and Federal Highway Administration, hereby presents notice that it will be the State Lead Agency for a joint Environmental Impact Report (EIR), Environmental Impact Statement (EIS) for the:

PROJECT TITLE: Alameda Corridor Project

We need to know the views of your agency as to the scope and content of the environmenta information which is germane to your agency's statutory responsibilities in connection with the proposed project. If your agency is a Responsible Agency as defined by State CEQA Guidelines (Section 15381), your agency will need to use the EIR/EIS prepared for this project wher considering your permit or other approval for the project. If your agency is not a responsible agency as defined by the CEQA Guidelines, or if you are an interested individual or organization we would still like to know your views on the scope of the environmental document for this project.

The project description, a discussion of possible alternatives, a location map, and a copy of the Initial Study are included in the enclosed materials.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date but no later than 30 days after receipt of this notice. Please send your response before January 31, 1991 to Alameda Corridor Transportation Authority, 6550 Miles Avenue, Huntington Park, CA 90255, Attn: Mr. Gill Hicks, General Manager. Please include the name of an appropriate contact person in your agency for continued EIR coordination.

BACKGROUND

The Alameda Corridor is a multi-modal transportation project that is intended to improve the movement of goods and services between the Ports of Los Angeles and Long Beach and downtown Los Angeles, and to destinations within southern California and beyond. The project is centered on Alameda Street, which currently is a major roadway that contains freight rail tracks. The project is an outgrowth of nearly a decade of studies that have identified the need for rail consolidation, grade separation, and other highway improvements in the corridor.

PROJECT DESCRIPTION

The fundamental purpose of the project is to provide the improvements necessary to consolidate freight rail service and improve highway capacity along the Alameda Corridor, so that movement of goods will be enhanced and delays to automotive traffic will be greatly reduced or minimized. Without these transportation infrastructure improvements the regional economic growth anticipated under the Port's 2020 Plan cannot be accommodated without serious adverse effects on transportation. The 2020 Plan is a joint project of the Ports of Long Beach and Los Angeles and the United States Army Corps of Engineers. The plan represents a $5 billion dollar investment and is designed to accommodate anticipated growth within the ports through the year 2020. The 2020 Plan calls for the development of additional land for the ports and the construction of additional terminals. The Alameda Corridor offers an opportunity to focus environmental mitigation efforts that will be needed to accommodate the 2020 Plan.

Currently, freight rail service to the Ports of Los Angeles and Long Beach are provided on separate tracks by the Sante Fe, Union Pacific, and Southern Pacific Railroads. The Alameda Corridor would permit these entities to operate jointly on one facility having superior operating characteristics. This consolidation, apart from offering improved operating efficiency to the railroads, will be necessary to permit future rail movements of as many as 100 trains per day, some of which will be over one mile in length.

Coupled with the improved freight rail facilities will be an improved roadway facility to encourage trucks to operate along Alameda Street, thus freeing up capacity on the Harbor and Long Beach freeways to be used by light duty vehicles. Currently, Alameda Street is a four-lane roadway, and depending upon the specific location, includes a two-lane frontage road east of the railroad to serve local business. The Alameda Corridor will provide a more efficient transportation corridor for both trucks and automobile traffic. Concepts under study would affect both rail traffic and motor vehicle movements. The physical interrelationship of the rail and roadway facilities will be a very important consideration as current studies proceed.

The completed Alameda Corridor will include elements that address freight rail movements, truck and automotive traffic along the corridor, and vehicular cross traffic. The recommended project will be developed through a process that will take into account engineering feasibility, railroad operation, intrusion into neighborhoods, disruption and displacement of residents and businesses, access to local destinations, construction and operating cost, and many other issues. The goal is a facility that will effectively balance competing requirements, while at the same time promoting the concept of freight rail consolidation.

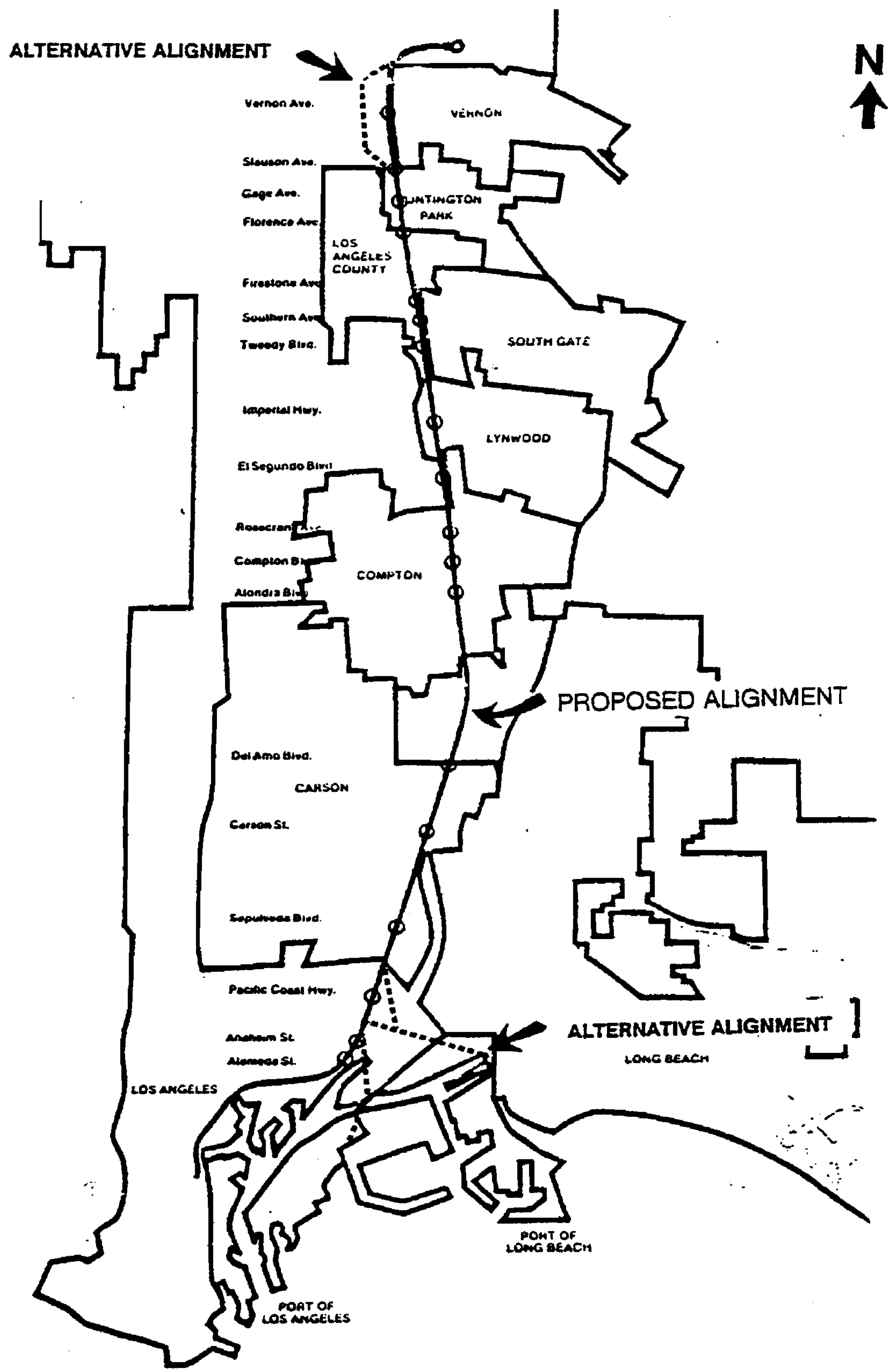
PROJECT ALTERNATIVES

Although the specific details of the project alternatives have not been defined, a number of options are under consideration. The range of alternatives would, in addition to the no-project option, include options to improve both rail and highway service in the Alameda Street Corridor from approximately Henry Ford Avenue to I-10. Potential highway improvements include an improved roadway facility that would have four to six travel lanes, plus provisions for turning movements, such as left turn pockets at intersections. The new roadway facility could either be at grade or grade separated, such as an aerial roadway that would function as an expressway or superstreet, with ramps allowing access between it and at grade surface streets. An elevated roadway facility, while offering obvious speed advantages and eliminating many conflicts with cross traffic, would make access to local businesses somewhat more difficult.

Numerous grade separations will also be considered. One design concept would combine an at-grade railroad with a number of major east-west street grade separations that could be elevated viaduct structures and/or underpasses. Approximately eighteen grade separations are currently envisioned as part of this concept. This configuration promotes improved traffic flow along both Alameda and its east-west cross streets. However, one disadvantage is the extent of intrusion that could occur into existing neighborhoods along the cross streets and also the required additional right-of-way for street purposes. Another concept, which would be used with a depressed railroad trench, would be at-grade east-west street crossings, using structures that would be built over the railroad. This option would reduce the intrusive effects of aerial east-west street grade separations, but it would require constructing bridges over the railroad trench for every desired crossing.

Rail traffic would be provided for on two main tracks that would extend from the vicinity of downtown Los Angeles on the north to the Ports of Los Angeles and Long Beach on the south. A drill track would also be provided where necessary to serve local delivery needs. Both at-grade and depressed tracks are being examined for these two main line railroad tracks. Currently, existing tracks are at grade. Important factors that will need to be addressed before a decision to depress the tracks can be made are the severe construction difficulties resulting from underground utilities that would be encountered, and rail operating constraints, such as the distance required to bring a train back up from a trench below grade and how connections to at-grade local tracks can be made, and the costs to construct such a configuration. One alignment variation is being examined for rail movement in the northern portion of the corridor. Along the Wilmington Branch of the Southern Pacific railroad (along Long Beach Avenue), there currently exists both freight rail and passenger service (the recently built "blue line" trolley). One suggestion has been to route Alameda Corridor rail traffic onto this branch between Randolph Street and 25th Street, rather than continuing along Alameda Street. In addition train staging/storage areas at both the northern and southern ends of the project corridor will also be considered and the potential for railway electrification will be evaluated.

ALAMEDA CORRIDOR PROJECT LOCATION MAP



ENVIRONMENTAL SIGNIFICANCE CHECKLIST
ALAMEDA CORRIDOR PROJECT

Checklist

This checklist is intended to be used as a scoping mechanism to identify physical, biological, social and economic factors which might be affected by the proposed project. In many cases, the initial background studies performed in connection with this project clearly indicate the project will not affect a particular item. A "NO" answer in the first column documents this determination. A "MAYBE" response in the second column indicates that further research will be necessary prior to making a determination. An assessment of significance is made in the third column (Yes/No/Unknown). Clarifying information immediately follows the response. If mitigation is required in order to reduce the significance of an impact, that mitigation is discussed.

	Y/N	MAYBE	Significant? Y/N/U
PHYSICAL. Will the proposal either directly or indirectly:			
1. Appreciably change the topography or ground surface relief features?	(N)	( )	( )

Development of the proposed project will require grading. However, it is not anticipated that the grading will result in significant changes to the overall topography or ground surface relief features within the study area.

	Y/N	MAYBE	Significant? Y/N/U
2. Destroy, cover, or modify any unique geologic or physical features?	(N)	( )	( )

The project area is largely developed and it is unlikely that there are any remaining unmodified unique features which could be destroyed or covered.

	Y/N	MAYBE	Significant? Y/N/U
3. Result in unstable earth surfaces or increase the exposure of people or property to geologic or seismic hazards?	(Y)	( )	(N)

Although the project would not result in unstable earth surfaces or disrupt geologic resources, it is located within a seismically active area and is potentially subject to seismic hazard. Portions of the project area may be within Alquist Priolo Special Study Zones for Fault Rupture Hazard. Additionally, portions of the proposed project are located near the Los Angeles River and groundwater may be close to the surface and the susceptibility of the area to liquefaction during an earthquake may be high. As a result of these considerations, the project has the potential to expose users to seismic hazards. However, the study area would experience the same level of exposure, one which would not be appreciably greater than the existing levels of exposure in the Southern California area. Appropriate seismic engineering design criteria will be incorporated into the project.

	Y/N	MAYBE	Significant? Y/N/U
4. Result in or be affected by soil erosion or siltation (whether by water or wind)?	(Y)	( )	(N)

Construction activities would temporarily increase potential soil erosion by exposing bare soil to the wind. Increased erosion would be mitigated through construction practices such as seeding, wetting, check dams, and hay bales.

5. Result in the increased use of fuel or energy in large amounts or in a wasteful manner?	(N)	( )	( )

Construction activities will require energy consumption. Once constructed the project will result in energy consumption associated with the movement of freight trains, trucks, and automobiles. The purpose of the project is to improve travel efficiency and thus would be expected to have an overall beneficial effect in energy consumption. One option to be investigated will be rail electrification. This option would have additional ramifications on the consumption of energy.

6. Result in an increase in the rate of use of any natural resource?	(N)	( )	( )

Construction of the proposed project would use concrete, fuel, and other construction materials but the rate of use within the area is not expected to increase.

7. Result in the substantial depletion of any nonrenewable resource?	(N)	( )	( )

There would be no substantial depletion of fossil fuels, concrete, or other nonrenewable resources as a result of the construction or operation of the proposed project.

8. Violate any published Federal, State, or local standards pertaining to hazardous waste, solid waste or litter control?	(N)	( )	( )

Construction of the proposed project would conform with all published standards, including those relating to the discovery and clean-up of hazardous waste.

9. Modify the channel of a river or stream or the bed of the ocean or any bay, inlet, or lake?	(Y)	( )	(N)

The project corridor crosses over the Los Angeles River, Compton Creek, and the Dominguez Channel. It is possible that construction of the project would require some modification of the existing channels such as placement of piers and abutments, and clearing for construction of levees under the structures. Coordination with appropriate flood control agencies including the Corps of Engineers, will be conducted to identify specific mitigation measures that may be required.

	Y/N	MAYBE	Signi-ficant? Y/N/U
10. Encroach upon a floodplain or result in or be affected by floodwaters or tidal waves?	( )	(XX)	( )

The southern portion of the study area is within the 100 year floodplain of the Los Angeles River and the northern portion is within the 200 year floodplain. The increased area of pavement resulting from the roadway and other improvements may very slightly increase the runoff in the watershed, but not in a significant amount.

	Y/N	MAYBE	Y/N/U
11. Adversely affect the quantity or quality of surface water, groundwater, or public water supply?	( )	(XX)	( )

The proximity of the Los Angeles River indicates a potentially high groundwater level. The corridor is highly industrialized and as such there is a potential for encountering contaminated groundwater during construction. The increased area of pavement resulting from roadway and other improvements may very slightly increase the runoff in the watershed, but not in a significant amount. The project should have no impact upon the public water supply.

	Y/N	MAYBE	Y/N/U
12. Result in the use of water in large amounts or in a wasteful manner?	(N)	( )	( )

The only use of water following construction of the proposed project might be to establish or maintain landscaping. The planting of drought tolerant species will minimize this use.

	Y/N	MAYBE	Y/N/U
13. Affect wetlands or riparian vegetation?	(N)	( )	( )

Some riparian vegetation is present along portions of the Los Angeles River channel, however, within the study area, all portions of the river are channelized and the existing vegetation consists of ruderal species of little value.

	Y/N	MAYBE	Y/N/U
14. Violate or be inconsistent with Federal, State, or local water quality standards?	(N)	( )	( )

No water quality-related discharge permits will be required for the proposed project unless groundwater is encountered during construction and dewatering is required. If required, dewatering will be performed in conformance with applicable standards. No violation of water quality standards is anticipated.

	Y/N	MAYBE	Y/N/U
15. Result in changes in air movement, moisture, or temperature or any climatic conditions?	( )	(XX)	( )

Neither the construction nor the operation of the proposed project is expected to change climatic conditions. Some project alternatives involve placing freight rail traffic below grade, which could have localized changes in air movement.

	Y/N	MAYBE	Significant? Y/N/U
16. Result in an increase in air pollutant emissions, adverse effects on or deterioration of ambient air quality?	(Y)	( )	(U)

Construction dust will be created in amounts sufficiently small to be considered insignificant. An air quality analysis will be performed using projected traffic to determine the operational emissions burden attributable to the project. Project-related emission production will be analyzed in the context of existing conditions data collected for the South Coast Air Basin. Because the project has as one objective, improving the efficiency of goods movement, a net beneficial effect may be expected on area emissions. This benefit would be enhanced by rail electrification, which is one option that will be considered.

17. Result in the creation of objectionable odors?	(N)	( )	( )

It is not anticipated that the proposed project will produce objectionable odors.

18. Violate or be inconsistent with Federal, State, or local air standards or control plans?	(N)	( )	( )

The South Coast Air Basin is currently classified as a non-attainment area for several criteria pollutants. Any project that would result in increased amounts of any of the criteria pollutants for which the South Coast Air Basin is not in attainment could be interpreted as being inconsistent with the recently adopted 1989 Air Quality Management Plan. The improved traffic flow resulting from the project should have a beneficial effect on local air quality. In addition, rail electrification and consolidation as well as diversion of goods movement to rail, are specific control measures identified in the 1989 AQMP and would be in direct support of the AQMP.

The project will be constructed in such a way as to be consistent with local dust control ordinances, and the applicable rules of the South Coast Air Quality Management District.

19. Result in an increase in noise levels or vibration for adjoining areas?	(Y)	( )	(U)

Construction and operation of the proposed project may increase levels of noise and vibration for areas adjacent to the corridor. Measurements of existing and future noise and vibration will be conducted at a number of sensitive locations along the proposed alignment. Freight rail consolidation would have a beneficial effect relative to some areas now experiencing adverse rail noise effects.

20. Result in any Federal, State, or local noise criteria being equal or exceeded?	( )	(XX)	( )

See response to # 19 above. Project related effects will be examined in the context of applicable federal, state, and local impact criteria.

	Y/N	MAYBE	Signi-ficant? Y/N/U
21. Produce new light, glare, or shadows?	(N)	( )	( )

Given the predominantly industrial character of the corridor as a whole, it does not appear likely that substantial adverse impacts to light and glare would occur as a result of the proposed project.

BIOLOGICAL. Will the proposal result in (either directly or indirectly):

	Y/N	MAYBE	Y/N/U
22. Change in the diversity of species or number of any species of plants (including trees, shrubs, grass, microflora, and aquatic plants?	( )	(XX)	( )

Although construction of the proposed project may require the removal of existing vegetation along portions of the corridor, the highly industrial character of the corridor makes it is highly unlikely that the project would result in a change in the diversity of number of any species of plants.

	Y/N	MAYBE	Y/N/U
23. Reduction in the numbers of or encroachment upon the critical habitat of any unique, threatened, or endangered species of plants?	( )	(XX)	( )

The project area is highly industrialized and has been so for many years and it is unlikely that the project would encroach upon any critical habitat or any unique, threatened, or endangered species. However, consultation with appropriate agencies will be undertaken to ensure that no critical habitat or species are located in the study area.

	Y/N	MAYBE	Y/N/U
24. Introduction of new species of plants into an area, or result in a barrier to the normal replenishment of existing species?	(N)	( )	( )

New landscaping, if any, following any construction will use native California plants.

	Y/N	MAYBE	Y/N/U
25. Reduction in acreage of any agricultural crop or commercial timber stand, or affect prime, unique, or other farmland of State or local importance?	(N)	( )	( )

The Alameda Corridor is highly industrialized and no agricultural crops, prime farm lands or stands of timber exist in the study area.

	Y/N	MAYBE	Y/N/U
26. Removal or deterioration of existing fish or wildlife habitat?	( )	(XX)	( )

The Alameda Corridor is highly industrialized and has been so for many years. As such it is highly unlikely that the proposed project would remove or deteriorate any existing fish or

	Y/N	MAYBE	Signi-ficant? Y/N/U

wildlife habitat. However, due to the project's proximity to the Los Angeles River and the Ports of Los Angeles and Long Beach, further investigation must be conducted to determine the precise impacts of the project to fish and wildlife habitat.

	Y/N	MAYBE	Y/N/U
27. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?	( )	(XX)	( )

The corridor is already highly industrialized, and it is unlikely that construction or operation of the proposed project would result in any adverse impacts to any species of animal. However, further consultation will be required to determine the precise nature of potential impacts if any to the biota found in the area.

	Y/N	MAYBE	Y/N/U
28. Reduction of the numbers of or encroachment upon the critical habitat of any unique, threatened, or endangered species of animals?	( )	(XX)	( )

See response to question number 23 above.

	Y/N	MAYBE	Y/N/U
29. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	(N)	( )	( )

The existing corridor presents a barrier to movement and the proposed project would not appreciably change this barrier. No new species would be introduced.

SOCIAL AND ECONOMIC. Will the proposal directly or indirectly:

	Y/N	MAYBE	Y/N/U
30. Cause disruption of orderly planned development?	( )	(XX)	( )

Development of the proposed project may disrupt the orderly planned development of some portions of the corridor.

	Y/N	MAYBE	Y/N/U
31. Be inconsistent with any elements of adopted community plans, policies or goals, or the California Urban Strategy?	( )	(XX)	( )

Extensive coordination will be undertaken relative to local and areawide plans and it is therefore not likely that an adverse effect would result. However, it is possible that some local community plans may contain provisions that could be in conflict with the project.

	Y/N	MAYBE	Significant? Y/N/U
32. Be inconsistent with a Coastal Zone Management Plan?	(N)	( )	( )

The southernmost portion of the project corridor may extend into the coastal zone. Due to the industrial nature of the coastal zone in this area, it is not anticipated that a conflict with coastal zone management would result from the project.

33. Affect the location, distribution, density, or growth rate of the human population of an area?	(N)	( )	( )

It is not anticipated that the project would have an influence on population growth or the distribution of that growth, in the region.

34. Affect life-styles, or neighborhood character or stability?	( )	(XX)	( )

The project may result in some street closures that could affect the character of some existing neighborhoods.

35. Affect minority, elderly, handicapped, transit-dependent, or other specific interest groups?	( )	(XX)	( )

The project may require acquisition of private property for right-of-way purposes. This could adversely affect some special interest groups.

36. Divide or disrupt an established community?	( )	(XX)	( )

The project may require the closure of some streets that currently cross Alameda Street. It is possible that this could disrupt some established communities.

37. Affect existing housing, require the acquisition of residential improvements or the displacement of people or create a demand for additional housing?	( )	(XX)	( )

The project may require acquisition of residential property for right-of-way purposes. A demand for additional housing is not anticipated.

38. Affect employment, industry or commerce, or require the displacement of businesses or farms?	( )	(XX)	( )

The project would have beneficial and potentially adverse effects on industry and commerce. Some business may be displaced, but the project will contribute to the continued growth of the regional economy.

39. Affect property values or the local tax base?	( )	(XX)	( )

Signi-
ficant?

	Y/N	MAYBE	Y/N/U

It is not anticipated that the project would have an effect on property values. Some properties may be removed from the local tax base as a result of acquisition for right-of-way purposes.

	Y/N	MAYBE	Y/N/U
40. Affect any community facilities (including medical, educational, scientific, recreational, or religious institutions, ceremonial sites or sacred shrines)?	( )	(XX)	( )

It is possible that some community facilities could be affected by the project, either as a result of right-of-way acquisition or in terms of accessibility after project completion.

	Y/N	MAYBE	Y/N/U
41. Affect public utilities, or police, fire, emergency or other public services?	( )	(XX)	( )

Construction may require rerouting of emergency vehicles but access will be maintained at all times. Emergency vehicle access routes could be affected by street closures resulting from the project.

	Y/N	MAYBE	Y/N/U
42. Have a substantial impact on existing transportation systems or alter present patterns of circulation or movement of people and/or goods?	(Y)	( )	(Y)

The project would have a beneficial effect on transportation. The proposed project has been designed to improve the movement of goods and services between the Ports of Los Angeles and Long Beach and downtown Los Angeles. This is considered a beneficial effect. Adverse effects of substantial proportions would result if the project were not implemented.

	Y/N	MAYBE	Y/N/U
43. Generate additional traffic?	(Y)	( )	(Y)

Once completed, the proposed project will serve to improve the movement of goods and services through the corridor. To the extent that this encourages the movement of additional goods and services beyond those which now move through the corridor, the project may generate additional traffic. Traffic would be relieved in other areas and in other routes. The overall efficiency of rail and other motor vehicle traffic should be improved as a result of the project.

	Y/N	MAYBE	Y/N/U
44. Affect or be affected by existing parking facilities or result in demand for new parking?	( )	(XX)	( )

Parking may be affected by the project. It is possible that minor amounts of parking could be taken for purposes of right-of-way acquisition.

	Y/N	MAYBE	Significant? Y/N/U
45. Involve a substantial risk of an explosion or the release of hazardous substances in the event of an accident or otherwise adversely affect overall public safety?	( )	(XX)	( )

Traffic safety would be improved by proposed improvements. An Initial Site Assessment will be performed as a part of the EIR/EIS process. The corridor is highly industrialized and as such there is a potential for encountering hazardous wastes during the construction period. A hazardous waste Preliminary Site Investigation would be performed prior to construction to minimize the risk of accidental release of hazardous materials should any exist in the project corridor. The project would consolidate future freight train movements into one corridor which poses the potential for a derailment or other accident that could result in the release of hazardous substances.

	Y/N	MAYBE	Significant? Y/N/U
46. Result in alterations to waterborne, rail, or air traffic?	(Y)	( )	(Y)

The project will directly affect rail traffic. Its purpose is to consolidate freight rail traffic along one corridor that would otherwise occur on three independent rail lines, resulting in significant operating efficiencies.

	Y/N	MAYBE	Significant? Y/N/U
47. Support large commercial or residential development?	( )	(XX)	( )

The proposed project could encourage commercial and industrial development along the corridor. The project would contribute to regional economic growth which would indirectly support commercial and residential development.

	Y/N	MAYBE	Significant? Y/N/U
48. Affect a significant archaeological or historic site, structure, object, or building?	( )	(XX)	( )

The potential for archeological, historic and cultural resources along the alignment will be investigated.

	Y/N	MAYBE	Significant? Y/N/U
49. Affect wild or scenic rivers or natural landmarks?	(N)	( )	( )

No portion of the corridor is designated as a National Wild or Scenic River and no natural landmarks have been identified.

	Y/N	MAYBE	Significant? Y/N/U
50. Affect any scenic resources or result in the obstruction of any scenic vista or view open to the public, or creation of any aesthetically offensive site open to public view?	( )	(XX)	( )

Given the predominantly industrialized nature of the corridor as a whole, it is highly unlikely that substantial adverse visual impacts would result from the project. However, the visual

		Significant?
Y/N	MAYBE	Y/N/U

character of the corridor, including any elevated structures, will be documented and the effect of the project will be assessed.

51. Result in substantial impacts associated with construction activities (e.g., noise, dust, temporary drainage, traffic detours and temporary access, etc.)?	(Y)	( )	(Y)

Development of the proposed project will result in substantial construction related effects. Mitigation measures will be identified and implemented to reduce adverse effects as much as possible. Traffic detours will be required for limited periods.

52. Result in the use of any publicly-owned land from a park, recreation area, or wildlife and waterfowl refuge?	(N)	( )	( )

No publicly owned land in these categories are expected to exist within the project area.

MANDATORY FINDINGS OF SIGNIFICANCE

53. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	(N)	( )	( )

The project is not anticipated to adversely affect any of the above subjects.

54. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	(N)	( )	( )

The focus of this project is to improve the movement of goods and services over the long term and as such would have a beneficial effect insofar as this category is concerned.

55. Does the project have environmental effects which are individually limited, but cumulatively considerable? Cumulatively considerable means

	Y/N	MAYBE	Significant? Y/N/U
that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. It includes the effects of other projects which interact with this project and, together, are considerable.	(Y)	( )	(Y)

The proposed project should have a cumulatively beneficial effect on the movements of goods and services within the corridor and throughout the region.

	Y/N	MAYBE	Significant? Y/N/U
56. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	( )	(XX)	( )

The proposed project will likely require the acquisition of private property and associated displacement of residents and employees. These effects could be substantial.

APPENDIX VI: SUMMARY OF RESPONSES TO THE NOTICE OF PREPARATION

ALAMEDA CORRIDOR TRANSPORTATION PROJECT
SUMMARY OF RESPONSES TO THE NOTICE OF PREPARATION

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
1	City of Long Beach Department of Planning and Building 333 W. Ocean Blvd. Long Beach, CA 90802	• Support Project • Environmental effects should be beneficial on Long Beach • Checklist adequately addresses concerns • EIR should fully address social and economic concerns • "No Project" has negative effects on Long Beach • Alternatives should include: 1. Los Angeles River and 2. Extension of Terminal Island freeway	• Comment Noted • Comment Noted • Comment Noted • See Chapter 5, The Socioeconomic Environment • Comment Noted. Effects of "No Project" are documented in Chapters 4 & 5. • See Chapter 2.
2	California Regional Water Quality Control Board-Los Angeles Region 101 Centre Plaza Dr. Monterey Park, CA 91754	• Discharge of contaminated groundwater is subject to regulation • Environmental document should report prior land uses suspected of hazardous materials discharge • Provides staff contacts	• See Section 4.2, Hydrology & Water Quality • See Section 4.1, Topography, Geology, Soils • Comment Noted
3	City of Compton 205 So. Willowbrook Avenue Compton, CA 90220	• Neighborhoods and commercial areas will be affected by the project • Identifies a list of 18 issues to be addressed, including: dividing neighborhoods, property acquisition, displacement, impacts on the base, traffic, emergency response times, parking, land use, community facilities, redevelopment plans, hazardous materials, and noise	• See Section 5.2, Population and Housing and 5.3 Acquisition and Displacement • See Chapter 4, The Natural Environment and Chapter 5, The Socioeconomic Environment
4	Dave Hall 1187 E. 3rd St., #305 Long Beach, CA 90802	• Requests analysis of impacts as follows: traffic, noise,safety, L.A. River (wildlife)	• See Sections 4.4, Noise; 4.7, Vegetation and Wildlife; 5.4, Transportation and Circulation; 5.6 Safety and Security

Alameda Corridor Transportation Project Letters Received (continued)

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
5	Los Angeles County Sanitation Districts 1955 Workman Mill Road Whittier, CA 90601	• Project is adjacent to District's field office and trunk sewers • Field office access must be maintained • Identifies specific trunk sewer locations • Request more detailed project description	• Comment Noted • Comment Noted. • See Section 5.5, Public Services See Chapter 3, Project Description
6	South Coast Air Quality Management District 9150 Flair Drive El Monte, CA 91731	• Project may adversely affect air quality • Appropriate mitigation measures should be incorporated • Potential emission source and mitigation measures attached	• See Section 4.3, Air Quality • See Section 4.3 • See Section 4.3
7	City of South Gate 8650 California Avenue South Gate, CA 90250	• Provides staff contact • Comments offered on a number of checklist entries • Effects of concern include: Local air quality, noise, landscaping, disruption of local development, neighborhood stability, right-of-way acquisition, business and employee displacement, impacts on property values, traffic and aesthetics • Police department identifies issues of emergency access, hazardous waste, construction effects	• Comment Noted • Comment Noted • See Chapters 4, The Natural Environment and 5, The Socioeconomic Environment • See Sections 4.1, Topography, Geology, Soils and 5.6 Safety and Security. Construction impacts are discussed within each issue area.
8	City of Downey 1111 Brook Shire Avenue P.O. Box 607 Downey, CA 90241	• Construction and operation of the project would affect Santa Ana Branch Railroad operations, which would affect Downey • Downey supports the project if it takes rail traffic off the Southern Pacific Santa Ana Branch; EIR should examine this	• See Chapter 6, Section 6.1, Cumulative Effects. • See Chapter 6.

Alameda Corridor Transportation Project Letters Received (continued)

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
9	Southern California Rapid Transit District 425 So. Main Street Los Angeles, CA 90013	• Project will directly affect Metro Blue line • Thorough analysis of interrelationship with transit service should be done. • Contact LACTC for its views • Identifies bus routes in study area • Expanded roadway capacity may not benefit traffic	• See Section 5.4. • See Section 5.4. • Comment Noted • Comment Noted • See Section 5.4, Transportation and Circulation
10	City of Carson 701 E. Carson Street P.O. box 6234 Carson, CA 90749	• Concerns are as follows: impacts on Carson, noise and vibration, effects of street closures, impacts on local commerce, impacts on planning	• See Sections 4.4, Noise; 4.5, Vibration; 5.1, Land Use; 5.4, Transportation and Circulation; 5.9, Economics
11	State of California Department of Boating and Waterways 1629 S Street Sacramento, CA 95814	• No comment • Desires copy of DEIR	• Comment Noted • Comment Noted
12	California Air Resources Board 1102 Q Street Sacramento, CA 95812	• Project will result in air quality impacts • Air quality analysis should follow C.A.R.B. guidelines • Mitigation measures should be project specific and should identify implementing agency and financing	• See Section 4.2, Air Quality • See above • See above
13	Wilmington Home Owners P.O. Box 1947 Wilmington, CA 90748	• Concerned about effects on local Wilmington area • Favors grade separations at Anaheim Street and Pacific Coast Highway • Identifies issues as follows: accidents, hazardous spills, traffic impacts, construction • Provides detailed comments on environmental checklist	• See Chapters 4 and 5. • Comment Noted • See Sections 4.1, Topography, Geology, Soils; 5.4, Transportation and Circulation; and 5.6, Safety and Security. Construction Impacts are discussed within each issue area • Comment Noted

Alameda Corridor Transportation Project Letters Received (continued)

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
14	City of Compton 205 So. Willowbrook Avenue Compton, CA 90220	• Asks what effect rail consolidation would have on freight traffic on Willowbrook Avenue • Identifies two related projects: 1) MC-5 Alternative, 2) Alameda Street, west grade separation	• See Chapters 4 and 5 • Related projects are discussed in Section 3.8
15	Metropolitan Water District of Southern California 1111 Sunset Boulevard P.O. Box 54153 Los Angeles, Ca 90054	• MWD has a number of facilities in the vicinity of the project • Requests copies of construction drawings • Encourages water conservation	• Comment Noted • Comment Noted • See Section 5.5, Public Services
16	Willdan Associates 12900 Crossroads Parkway South, Suite 200 Industry, CA 91746	• Request to add name to mailing list for notification of upcoming meetings	• Comment Noted
17	City of Vernon 4305 Santa Fe Avenue Vernon, CA 90058	• Vernon will receive little benefit from project • Local business access is important • Recommends depressed rail corridor in Wilmington branch	• Comment Noted • See Sections 5.4 and 5.9. • Comment Noted
18	State of California Public Utilities Commission 505 Van Ness Avenue San Francisco, CA 94102	• Identifies several topics related to safety of railroad operations • Recommends preserving rail service to local industries	• See Section 5.6, Safety and Security • See Chapter 3.
19	California Department of Transportation District 7 120 So. Spring Street Los Angeles, CA 90012	• Identified Caltrans as a study participant	• Comment Noted
20	City of Huntington Park Community Development Department Civic Center Huntington Park, CA 90255	• Would like to be kept informed of progress of project	• Comment Noted

Alameda Corridor Transportation Project Letters Received (continued)

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
21	Los Angeles County Fire Department 1320 No. Eastern Avenue Los Angeles, CA 90063	• May have comments later when more details are known • Forestry division sees no impacts	• Comment Noted • Comment Noted
22	Southern California Gas Company 810 So. Flower Street P.O. Box 3249, Terminal Annex Los Angeles, CA 90051	• Identifies additional contacts • Gas Company facilities are located within the proposed project	• Comment Noted • See Section 5.5, Public Services
23	Munger, Tolles and Olson 355 So. Grand Avenue, 35th Floor Los Angeles, CA 90071	• Represents Nehemiah West Corp. • Potential adverse effects on proposed housing project are enormous • Urges depressed cross section for rail and truck traffic • Grade separations should be provided along 41st Street • EIR should address the following issues: growth inducement, effects on property values, measures to preserve residential and historic areas, identification of needed truck facilities, traffic impacts, detailed diagrams and maps	• Comment Noted • See Section 5.2, Population and Housing • Comment Noted • See Chapter 3 • See Chapters 4, 5, and 6
24	Community Dynamics 3205 Ocean Park Blvd., Suite 140 Santa Monica, CA 90405	• States concern regarding project impacts on proposed housing project • Impact areas include: air quality, noise and vibration, pedestrian and vehicular safety, access, congestion and delays • Recommends depressed configuration and other design options • Opposes routing along Wilmington branch	• See Section 5.2, Population and Housing • See Sections 4.3, Air Quality; 4.4, Noise; 4.5, Vibration; 5.4, Transportation and Circulation; and 5.6, Safety and Security • Comment Noted • Comment Noted
25	State of California State Lands Commission 1807 13th Street Sacramento, CA 95814	• Identifies additional contact • Identifies SLC as trustee agency, due to potential of project encroaching on state-owned lands • Suggests other alternatives	• Comment Noted • Comment Noted • Comment Noted

Alameda Corridor Transportation Project Letters Received (continued)

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
26	United States Department of the Interior Fish and Wildlife Service 24000 Avila Road Laguna Niguel, CA 92656	• Impact on natural drainage systems, riparian and wetland habitats, sensitive species, and wildlife movement and migratory corridors • Need the following for analysis: description of proposed project, acreages and descriptions of types of affected habitats, fish and wildlife resources associated with each habitat type, list of federal and state threatened or endangered species, biological impacts, mitigation planned to offset impacts, identification of construction methods to be employed to prevent soil erosion, discussion of continuation of open space to wildlife	• See Section 4.7, Vegetation and Wildlife • See Section 4.7, Vegetation and Wildlife
27	City of Los Angeles Department of Fire 200 N. Main Street Los Angeles, CA 90012	• Concern that access for Fire Department apparatus and personnel is provided • Prior notification must be made to Operations Control Dispatch Section • Cumulative effect of project on fire protection, prevention and emergency medical services • Project's compliance with state and local codes and ordinances	• See Section 5.5 • Comment Noted • See Section 6.1, Cumulative Effects • Comment Noted
28	Los Angeles County Transportation Commission	• Supports project • Requests an evaluation of improving the Los Angeles River drainage channel as a truck expressway in lieu of Alameda Street	• Comment Noted • See Chapter 3, Section 3.8
29	Manuel Lewis	• Preferred subterranean railroad	• See Chapter 3
30	David Stoll	• Requested Wilmington to be represented on ACTA board	• City of Los Angeles is represented.

Alameda Corridor Transportation Project Letters Received (continued)

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
31	Homer Lewis	• Requested adequate number of grade separations. • Expressed concern over amount of traffic in residential areas.	• See Chapter 3. • See Section 5.4, Transportation and Circulations
32	Grieg Asher, City of Los Angeles, Office of Emergency Management	• Stated a number of issues concerning seismicity and hazardous materials. • Suggested the need for coordination of multiple jurisdictions in the event of an accident.	• See Section 4.1, Topography, Geology & Soils. • See Section 5.5, Public Services and 5.6, Safety and Security.
33	William Schwab, Wilmington Homeowners Association	• Stated that residents adjacent to corridor will bear most of the impacts. • Asked if project was tied to Ports 2020 improvements.	• See chapters 4 and 5. • See Chapter 1.
34	Pilar Perry, Watson Land Company	• Expressed concern over property being planned for an industrial park.	• See chapters 4 and 5.
35	Gertrude Schwab, Wilmington Homeowners	• Asked where Thenard Junction was located. • Stated that impacts on schools should be considered.	• See Chapter 3. • See Section 5.5, Public Services.
36	Gwen Butterfield, Wilmington North Neighborhood Association	• Asked if lanes would be set aside for passenger cars only. • Stated urgent need for grade separations. • Identified Wilmington Park Elementary School in proximity to the corridor, and suggested noise to be a major concern.	• See Chapter 3. • See Section 5.5, Public Services and Section 4.4, Noise.
37	Roslyn Carter, City of Los Angeles, Chief Legislative Analyst's Office	• State that project location of SP Wilmington Branch would have an adverse effect on a proposed housing project on the former LANCER site.	• The identified project is no longer proposed.
38	Anna Blasyak, Homeowners of Dominguez	• Asked if any future meetings would be held in Carson or Dominguez.	• See Chapter 7.

Alameda Corridor Transportation Project Letters Received (continued)

NO.	COMMENTING PARTY	NATURE OF COMMENT	RESPONSE/LOCATION IN EIR
39	JoAnn Wysocki, Wilmington Homeowners	• Stated that project would adversely affect East Wilmington homes and that noise barriers would be required. • Asked if a grade separation was planned at Pacific Coast Highway.	• See Section 4.4, Noise. • See Chapter 3.
40	Steve Alan, Citizens for Reliable and Safe Highways	• Expressed concern regarding highway safety.	• See Chapter 3 and Section 5.4, Transportation and Circulation.
41	Loren Bloch, Nehimiah West	• Expressed concerns regarding a proposed housing project.	• The project is no longer proposed.
42	S. Robert Caso, Westside Project Area Committee	• Commented that the project was linked to the Ports 2020 Plan. • Identified potential impacts in a number of subject areas.	• See Chapter 1. • See chapters 4 and 5.
43	Carmen Carduti	• Asked if the project would help everyone or just the railroads, and he stated a concern regarding financial feasibility.	• See Chapter 1.
44	Gilbert Bishop	• Stated preference for using the Los Angeles River.	• See Chapter 2.
45	Bryan Allen	• Asked that El Segundo and west Santa Ana boulevards be considered as alternatives. • Asked that the cumulative effects of travel time savings be considered. • Asked that a "stripped down" corridor be considered for financial feasibility reasons.	• See Chapter 2. • See Section 5.4, Transportation and Circulation, and Section 4.3, Air Quality. • See Chapter 3.

APPENDIX VII: ADDITIONAL TRAFFIC GEOMETRIC IMPROVEMENTS

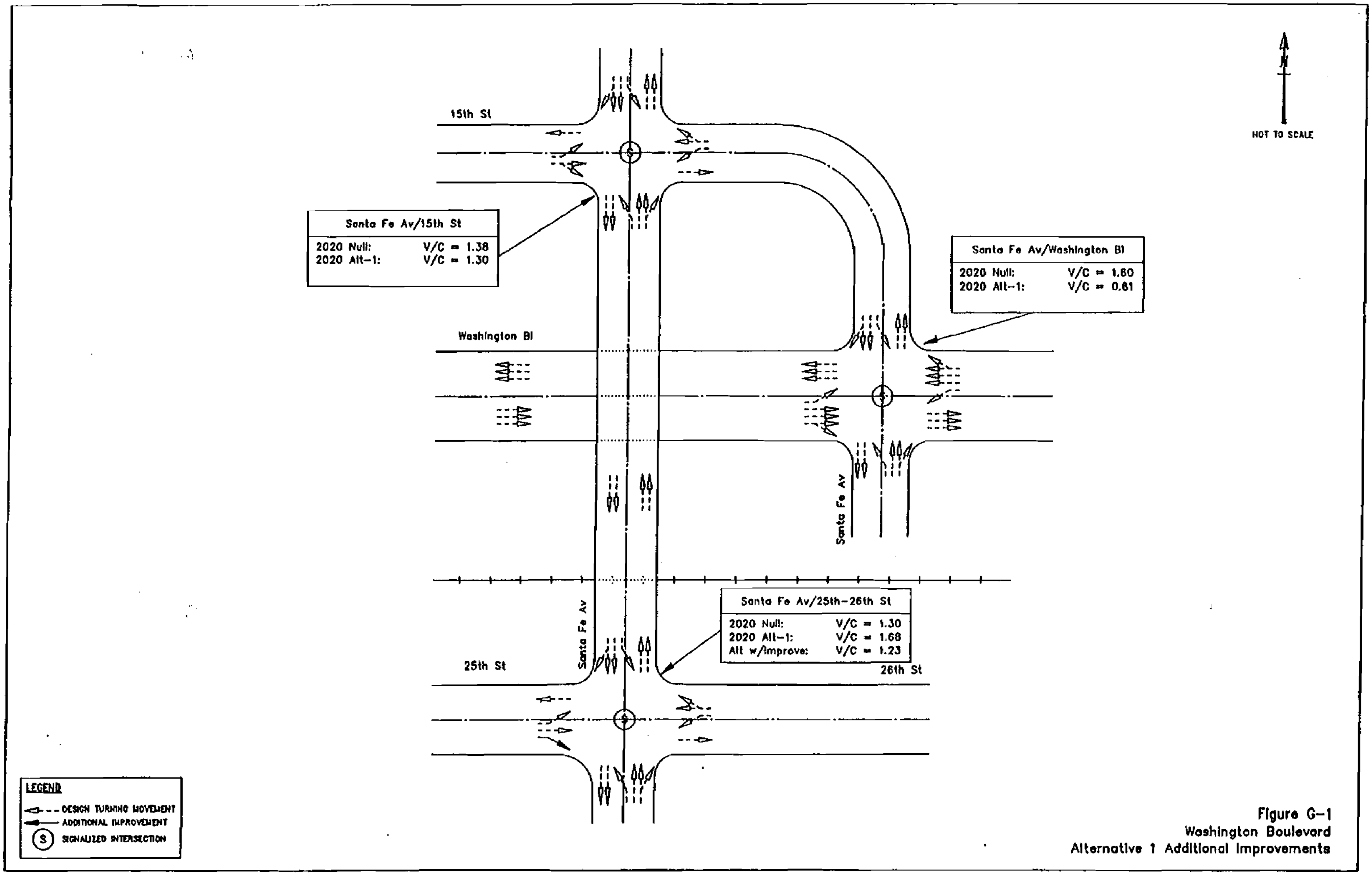


Figure G-1
Washington Boulevard
Alternative 1 Additional Improvements

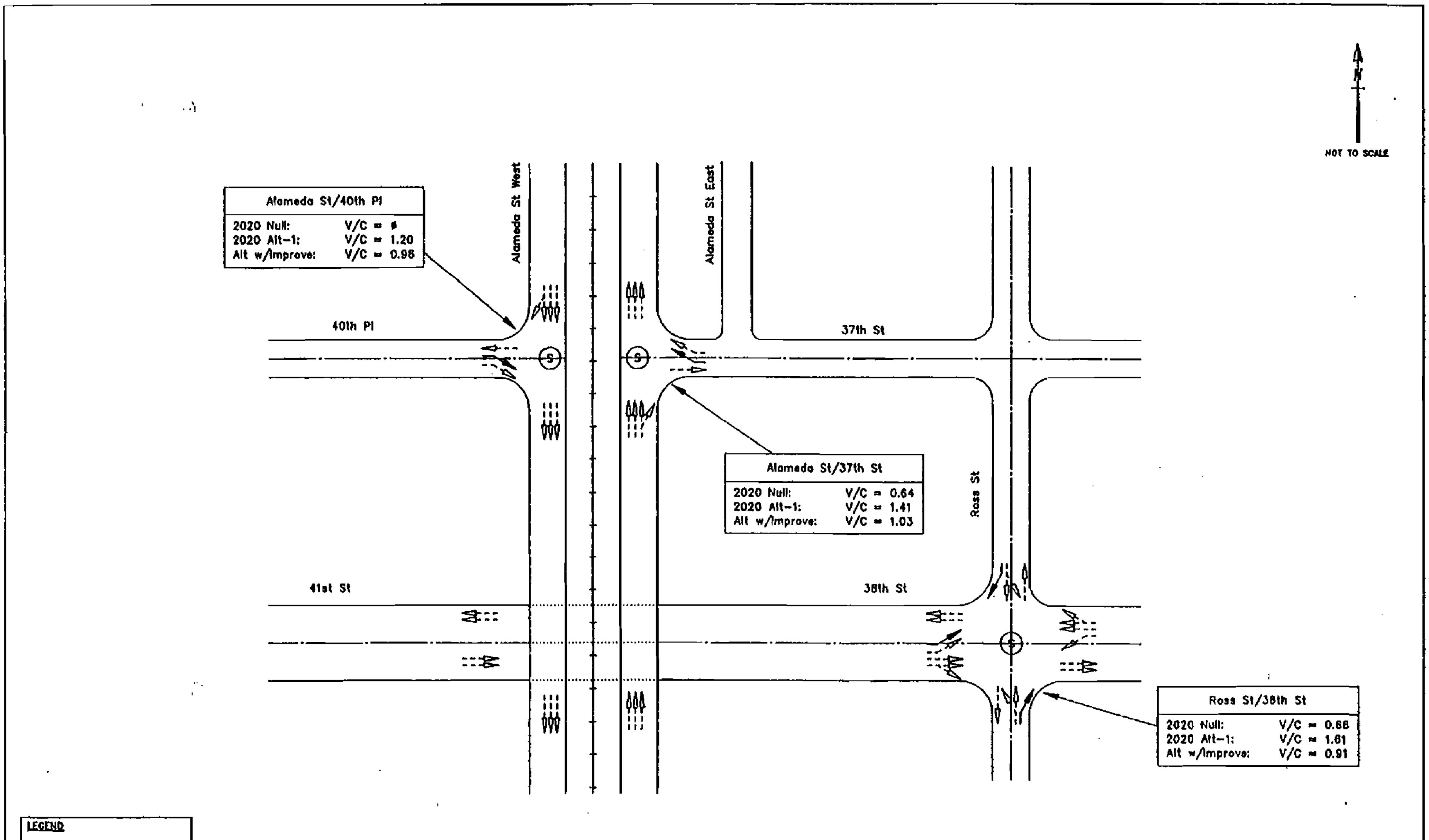


Figure G-2
41st Street–38th Street
Alternative 1 Additional Improvements

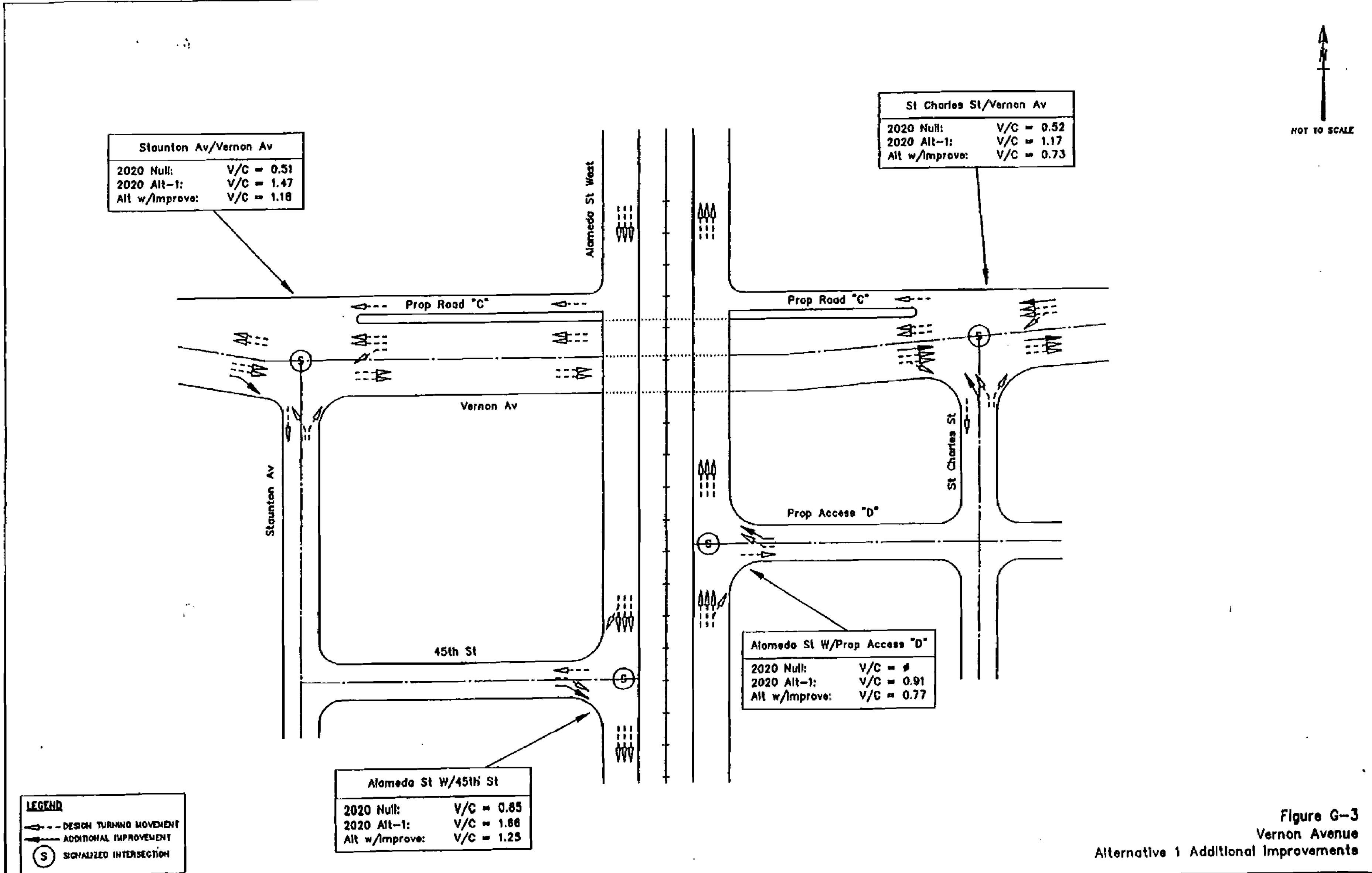


Figure G-3
Vernon Avenue
Alternative 1 Additional Improvements

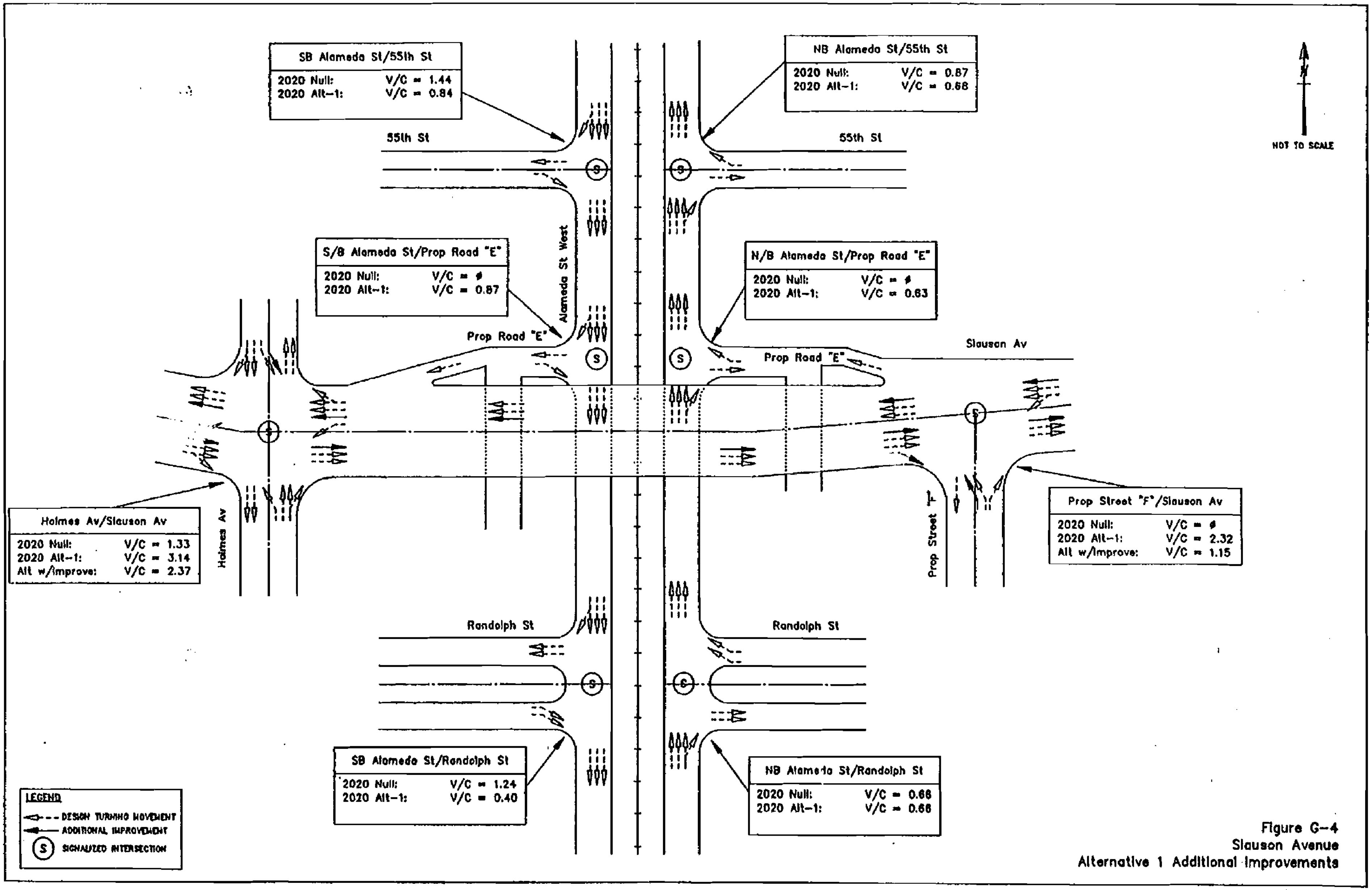


Figure G-4
Slauson Avenue
Alternative 1 Additional Improvements

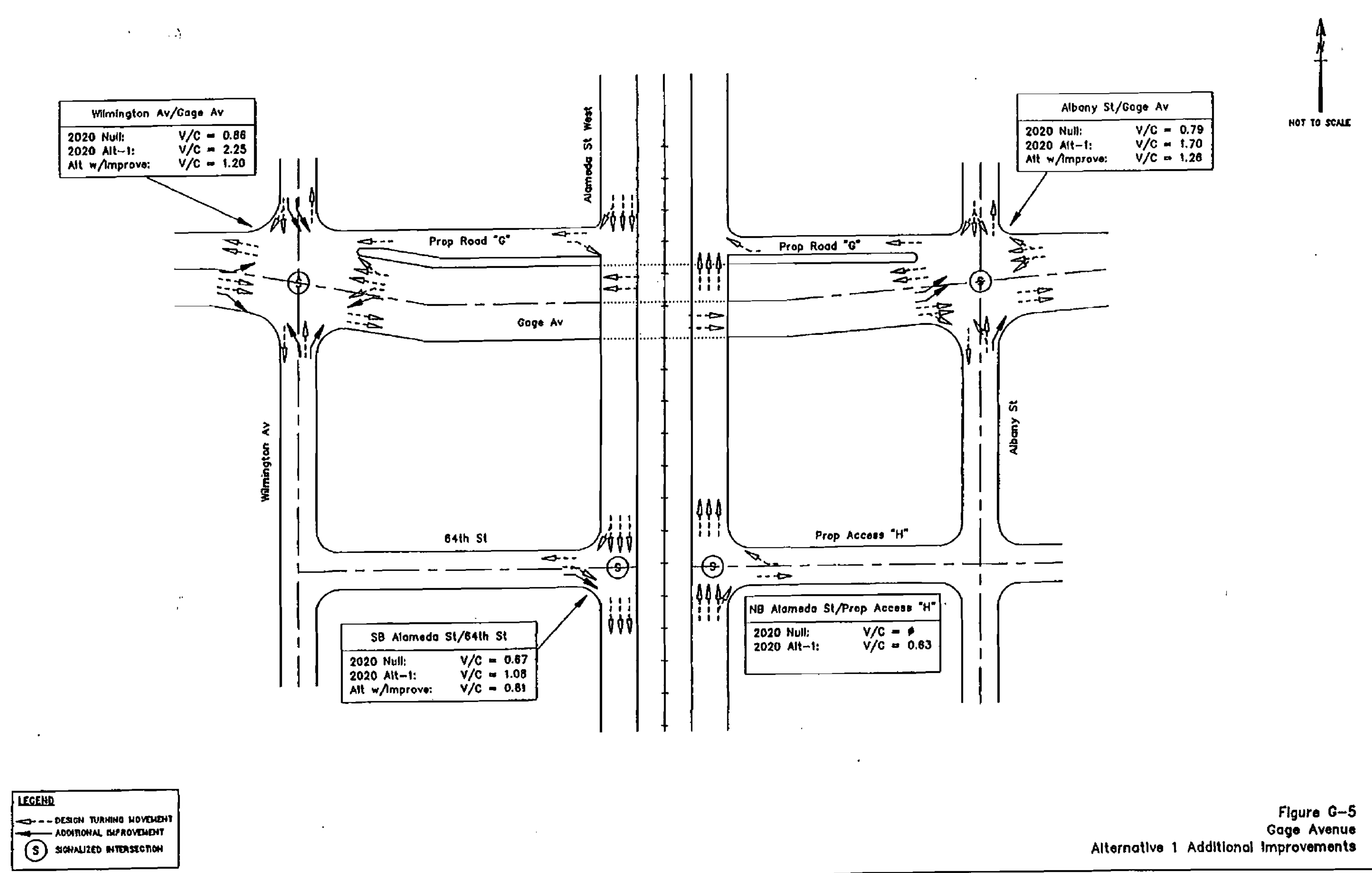


Figure G-5
Gage Avenue
Alternative 1 Additional Improvements

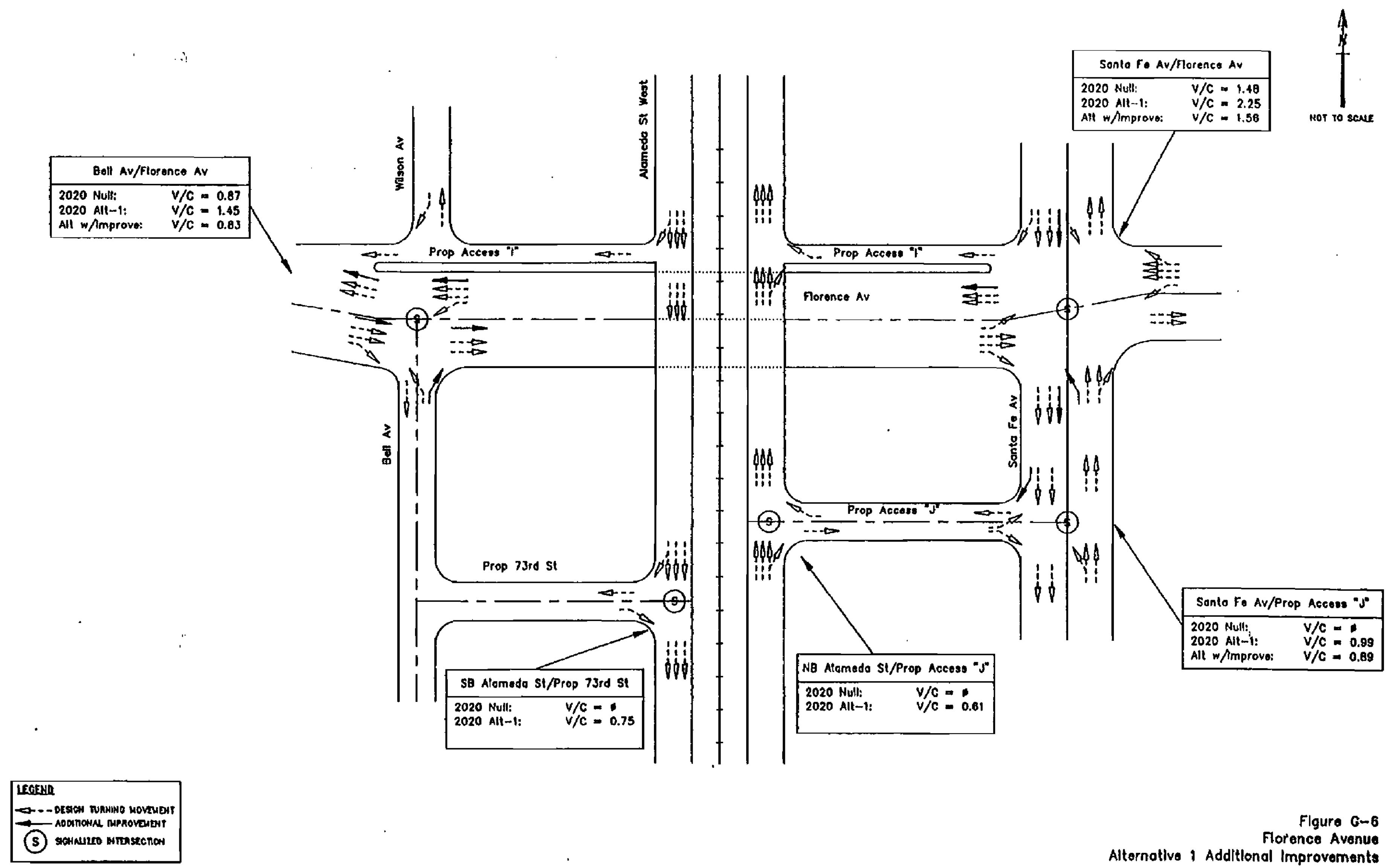


Figure G-6
Florence Avenue
Alternative 1 Additional Improvements

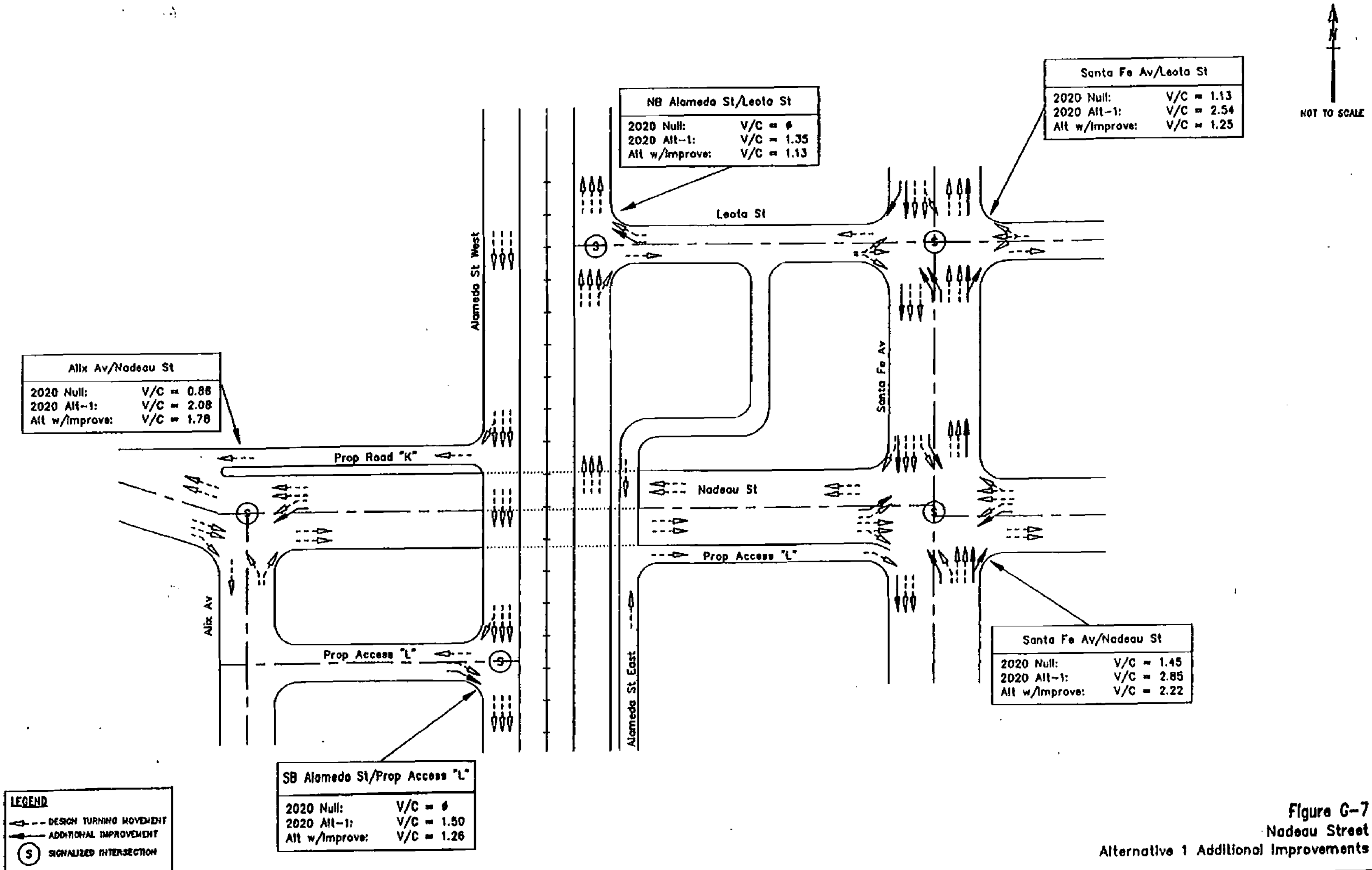


Figure G-7
Nadeau Street
Alternative 1 Additional Improvements

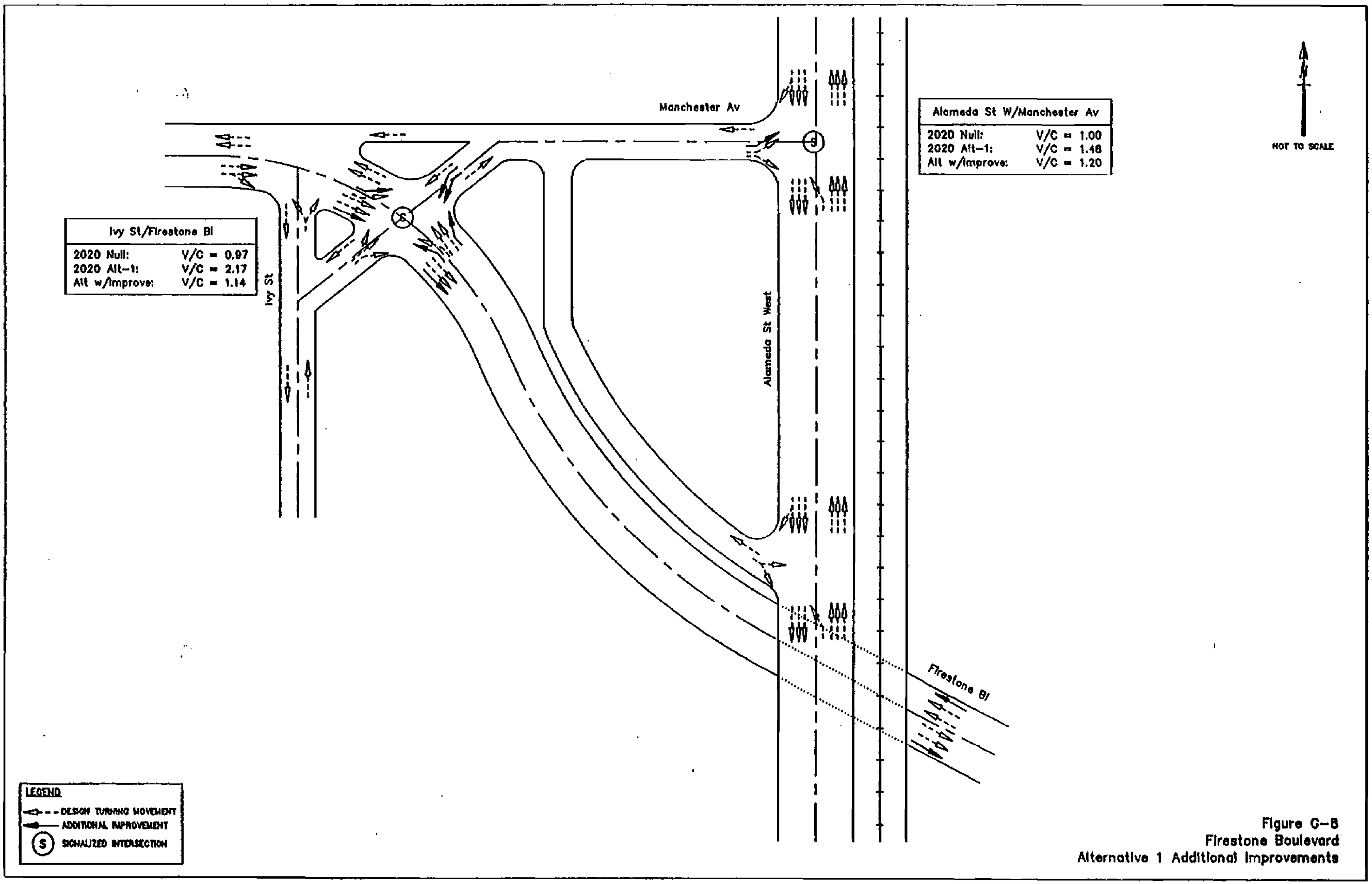


Figure G-8
Firestone Boulevard
Alternative 1 Additional Improvements

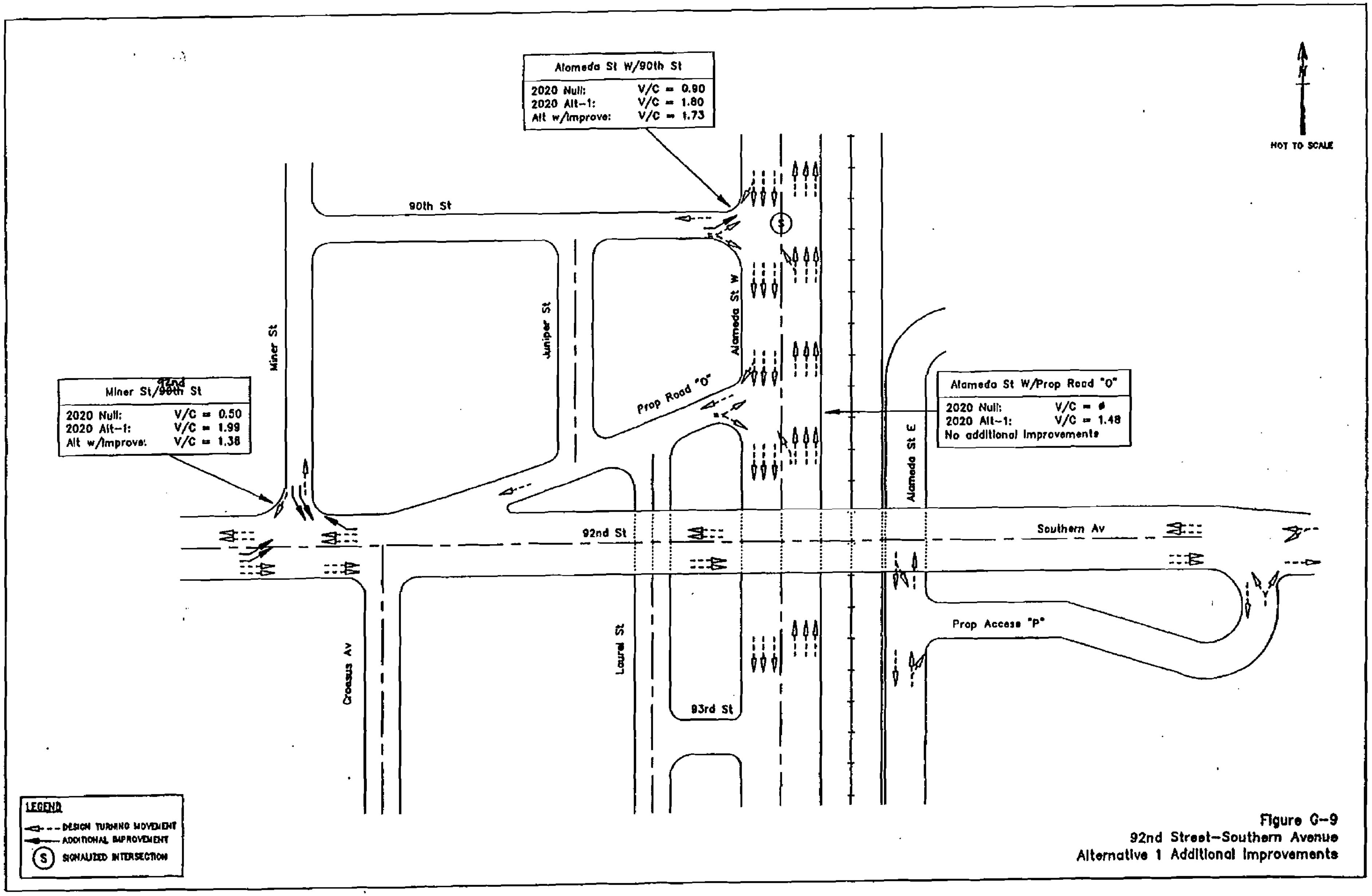


Figure G-9
92nd Street–Southern Avenue
Alternative 1 Additional Improvements

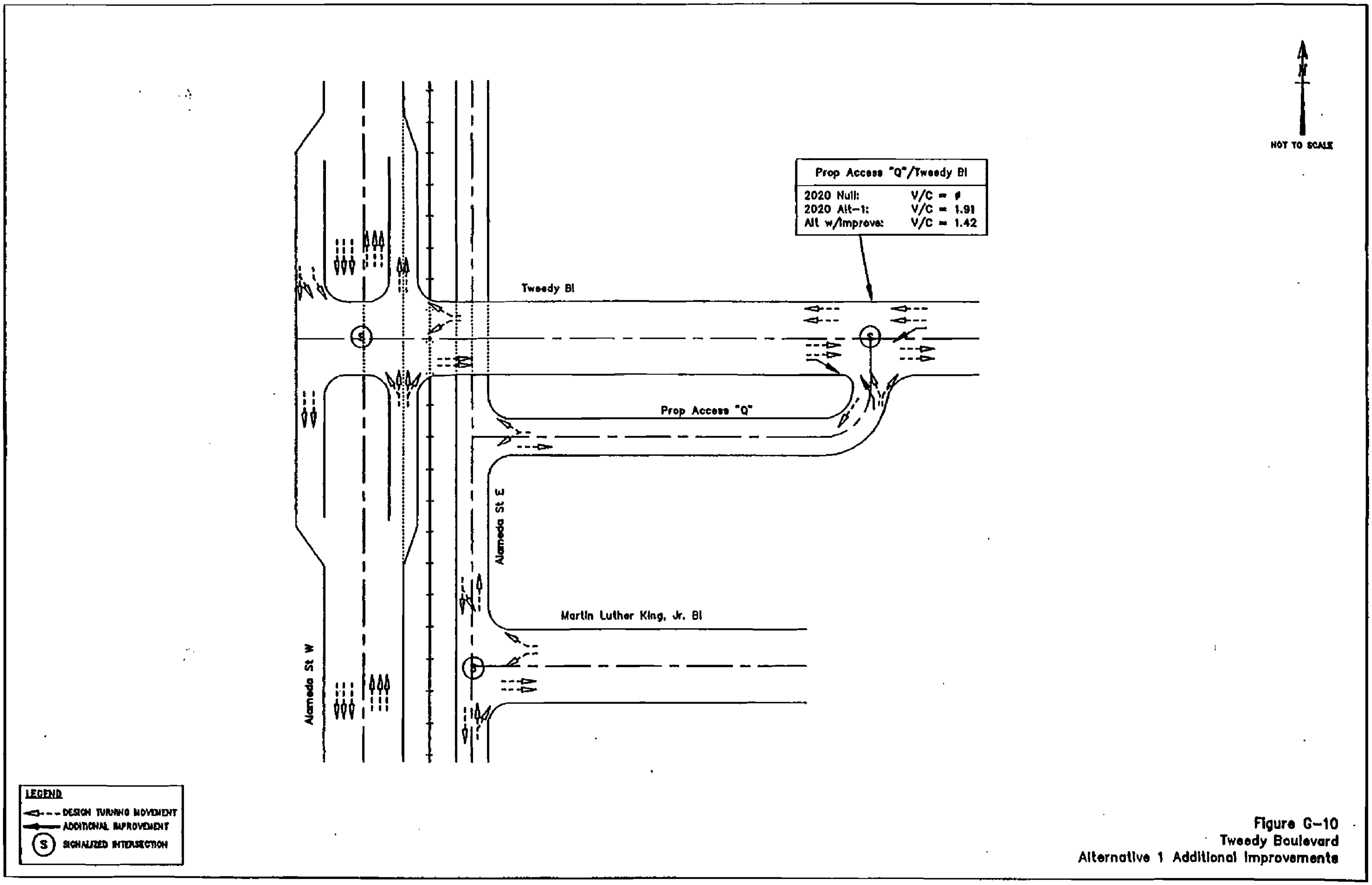


Figure G-10
Tweedy Boulevard
Alternative 1 Additional Improvements

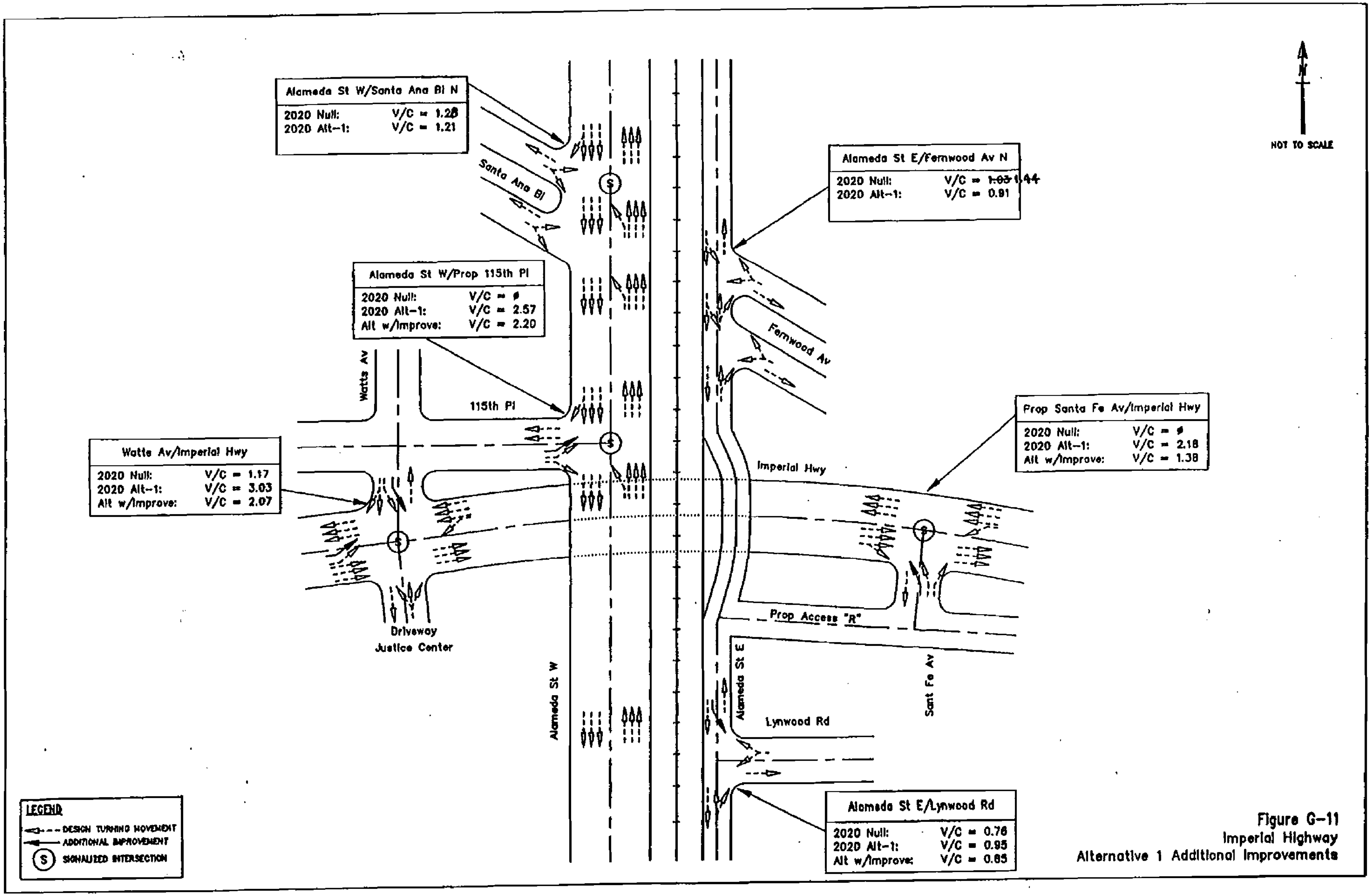


Figure G-11
Imperial Highway
Alternative 1 Additional Improvements

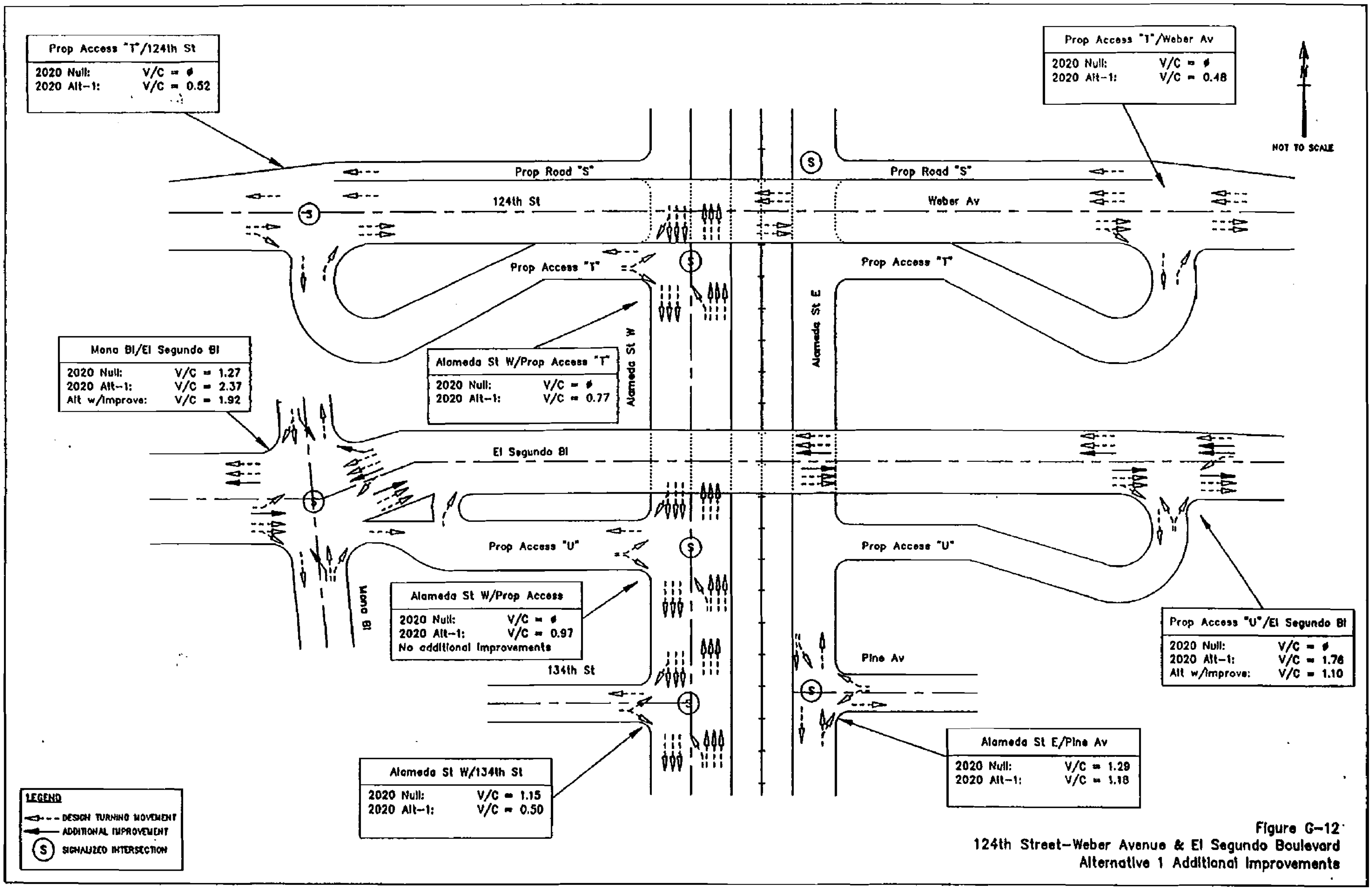


Figure G-12
124th Street-Weber Avenue & El Segundo Boulevard
Alternative 1 Additional Improvements

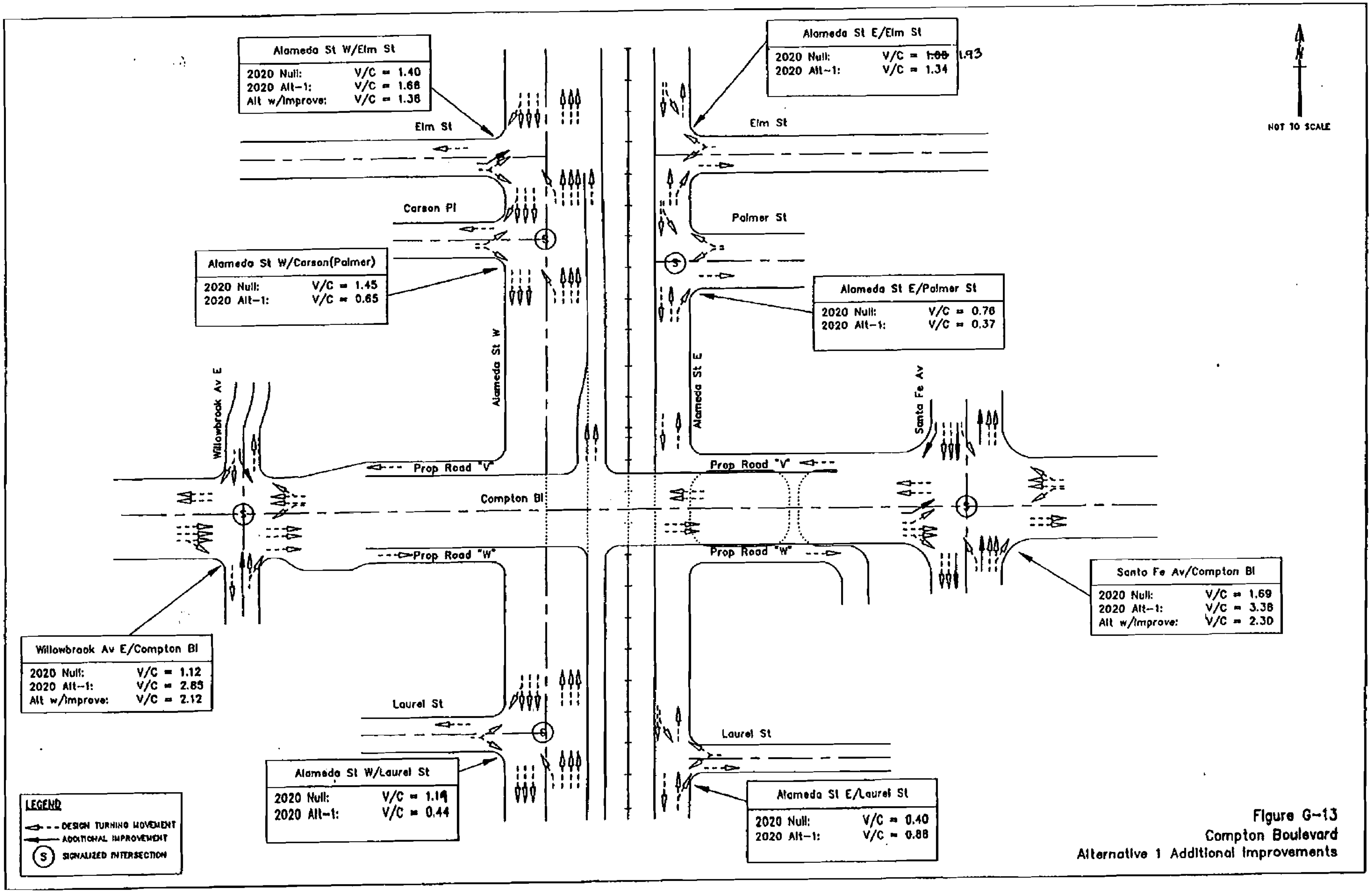


Figure G-13
Compton Boulevard
Alternative 1 Additional Improvements

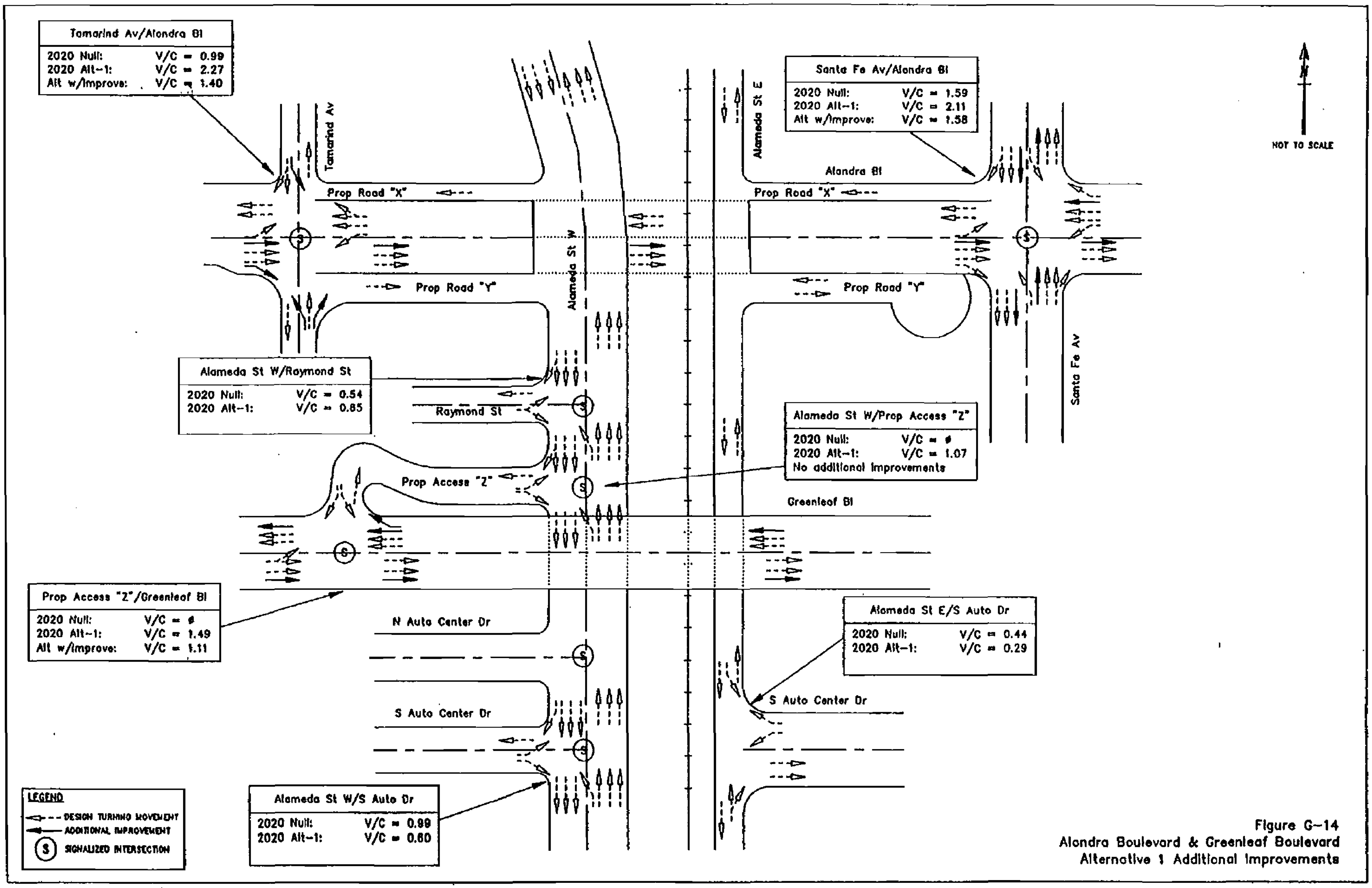


Figure G-14
Alondra Boulevard & Greenleaf Boulevard
Alternative 1 Additional Improvements

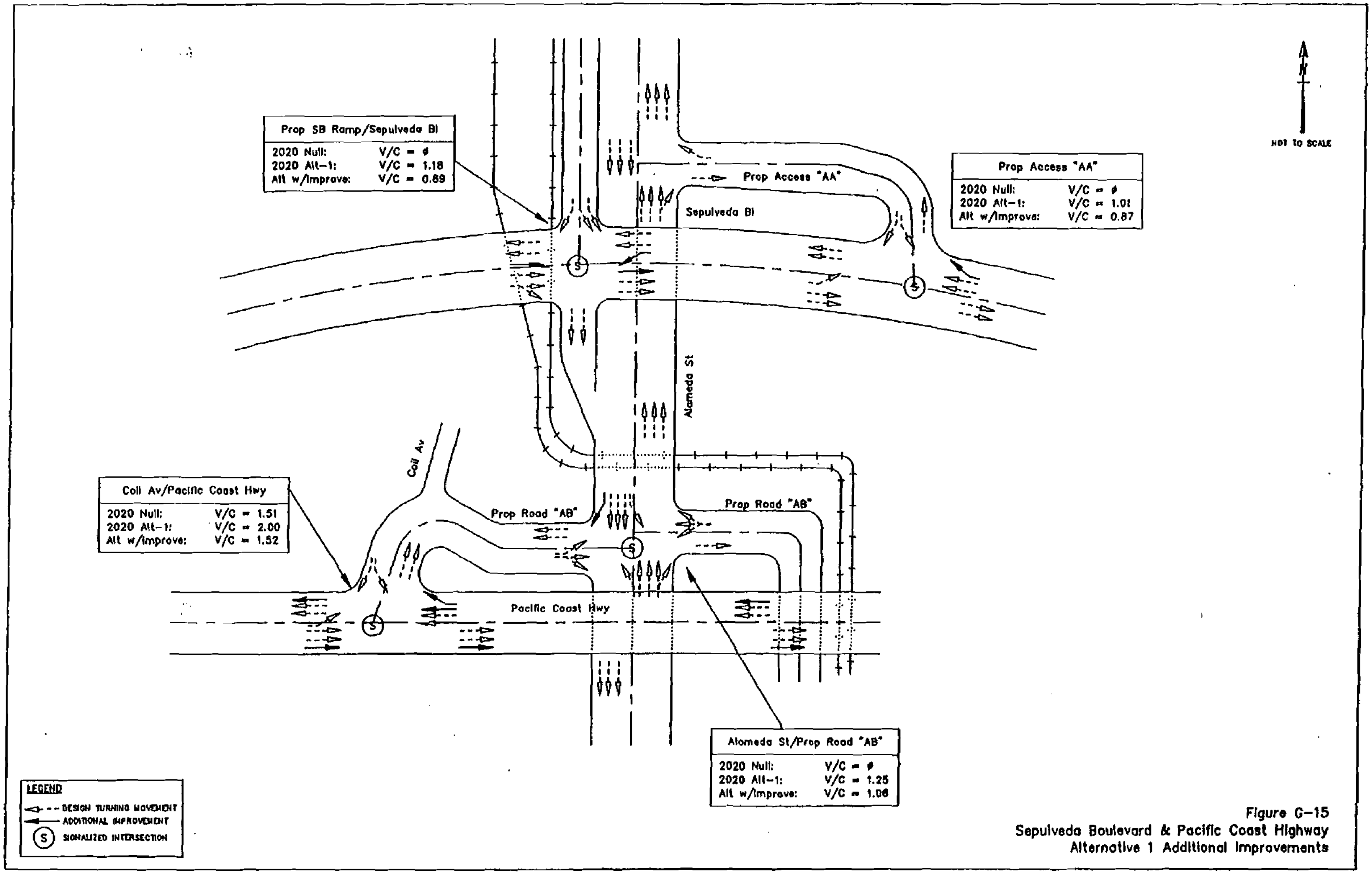


Figure G-15
Sepulveda Boulevard & Pacific Coast Highway
Alternative 1 Additional Improvements

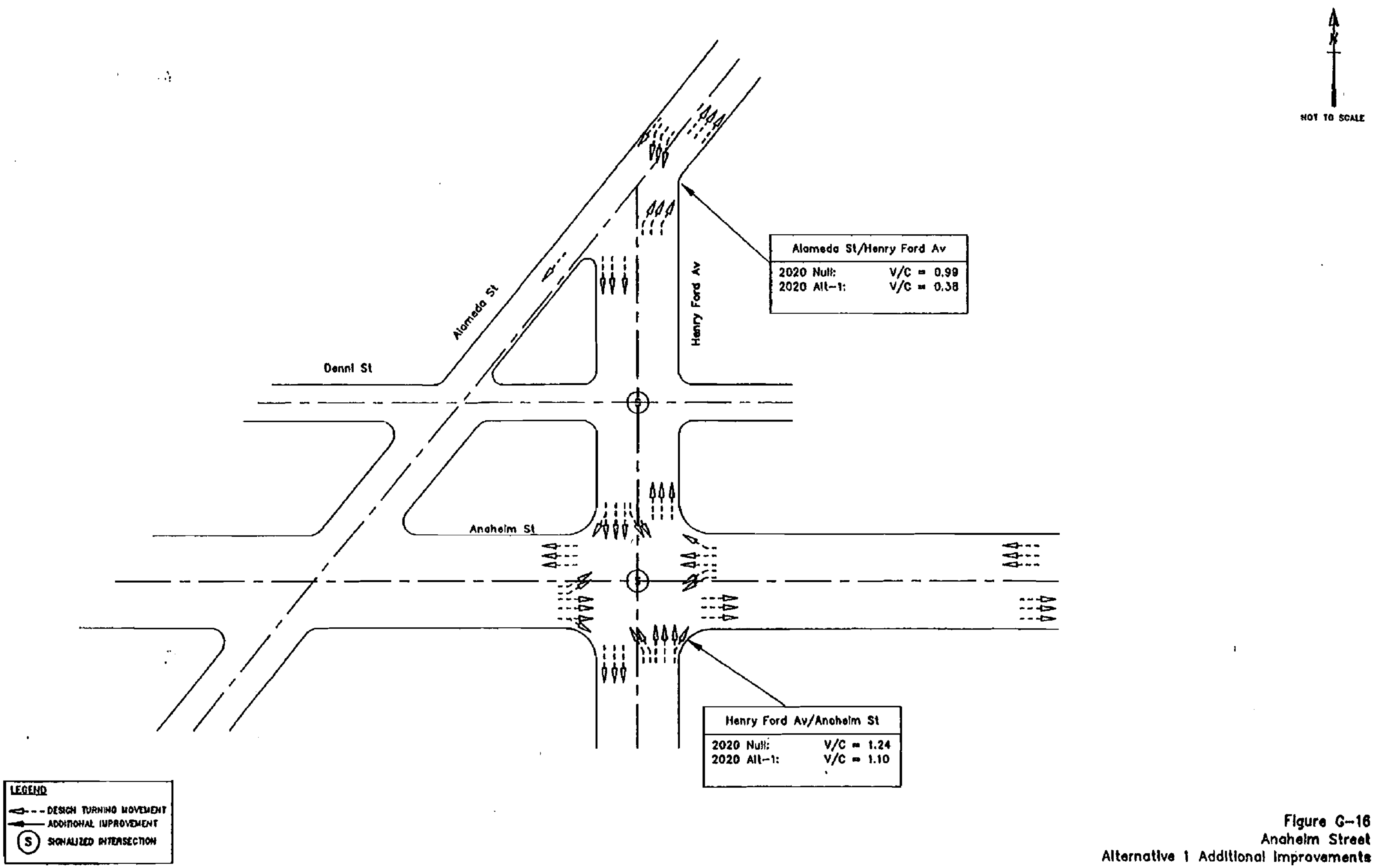


Figure G-16
Anaheim Street
Alternative 1 Additional Improvements

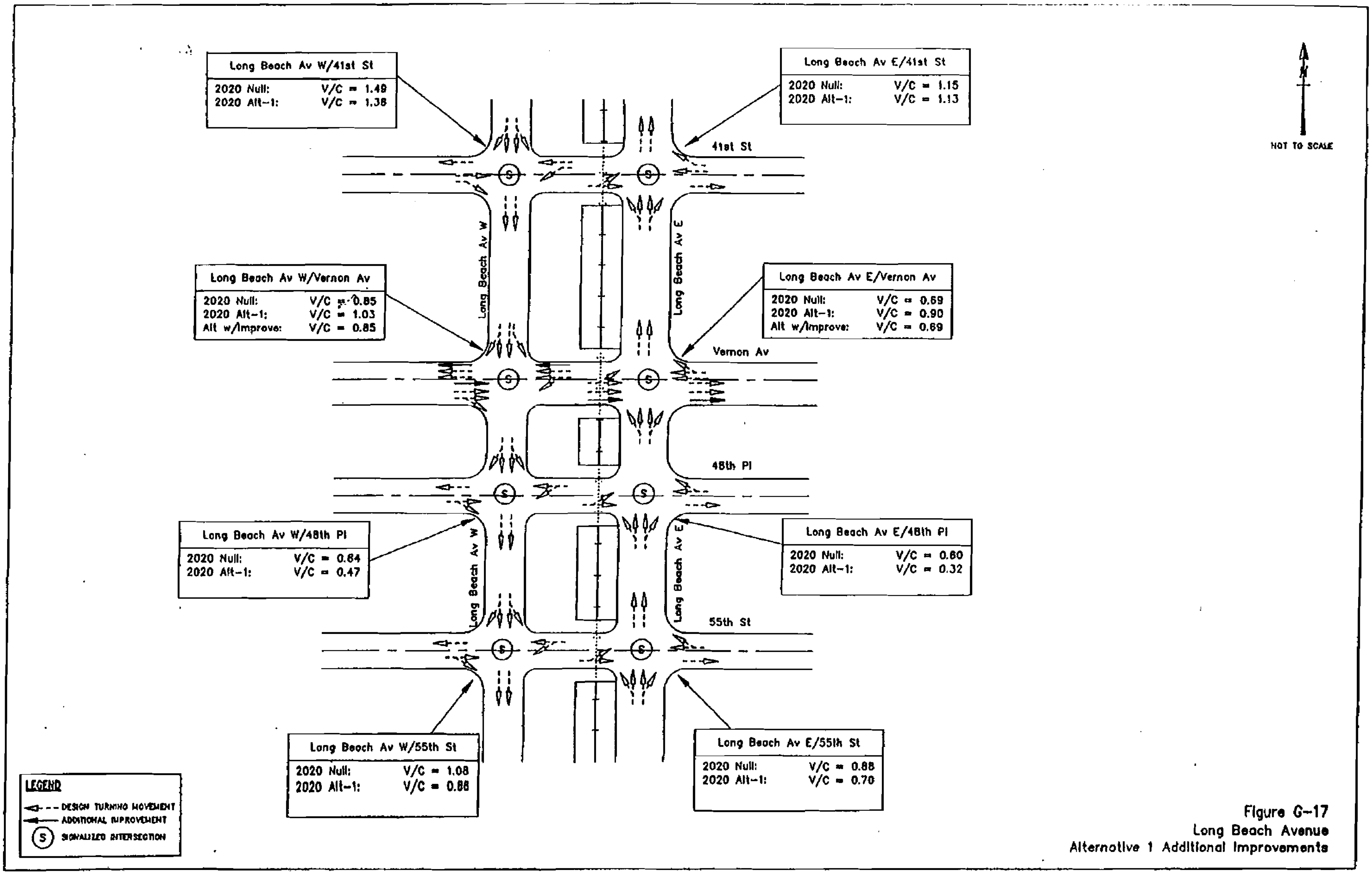


Figure G-17
Long Beach Avenue
Alternative 1 Additional Improvements

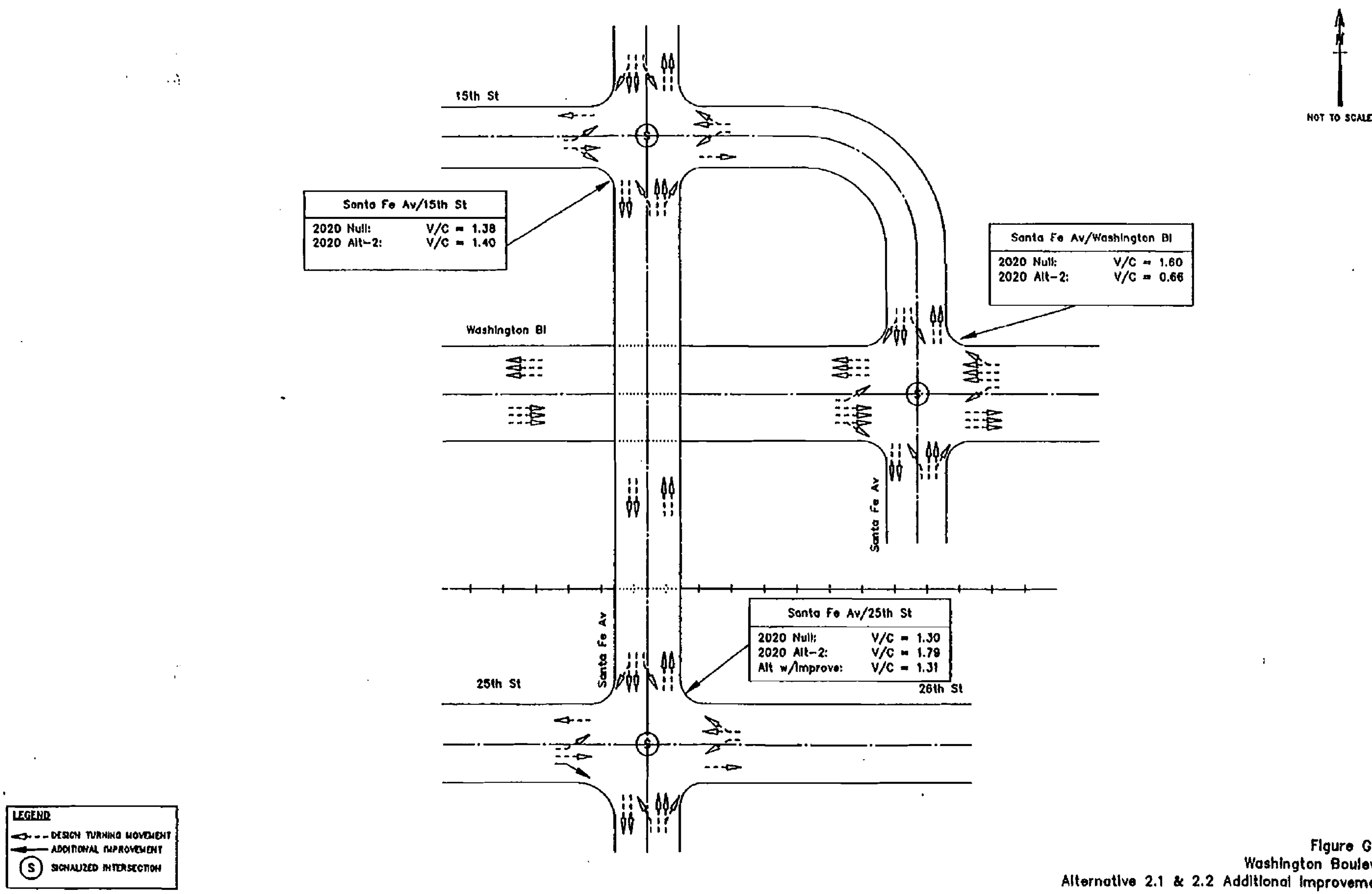


Figure G-18
Washington Boulevard
Alternative 2.1 & 2.2 Additional Improvements

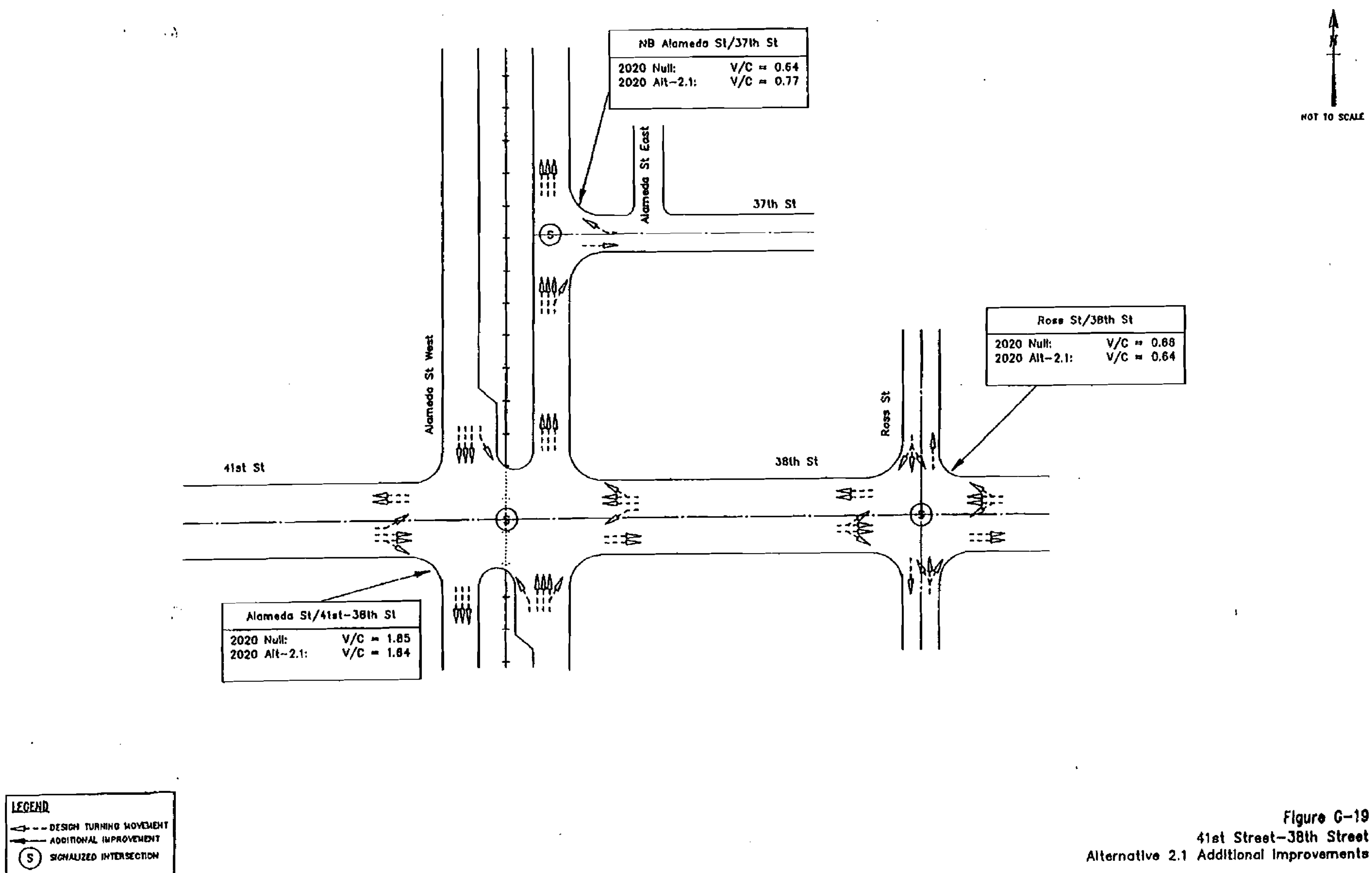


Figure G-19
41st Street-38th Street
Alternative 2.1 Additional Improvements

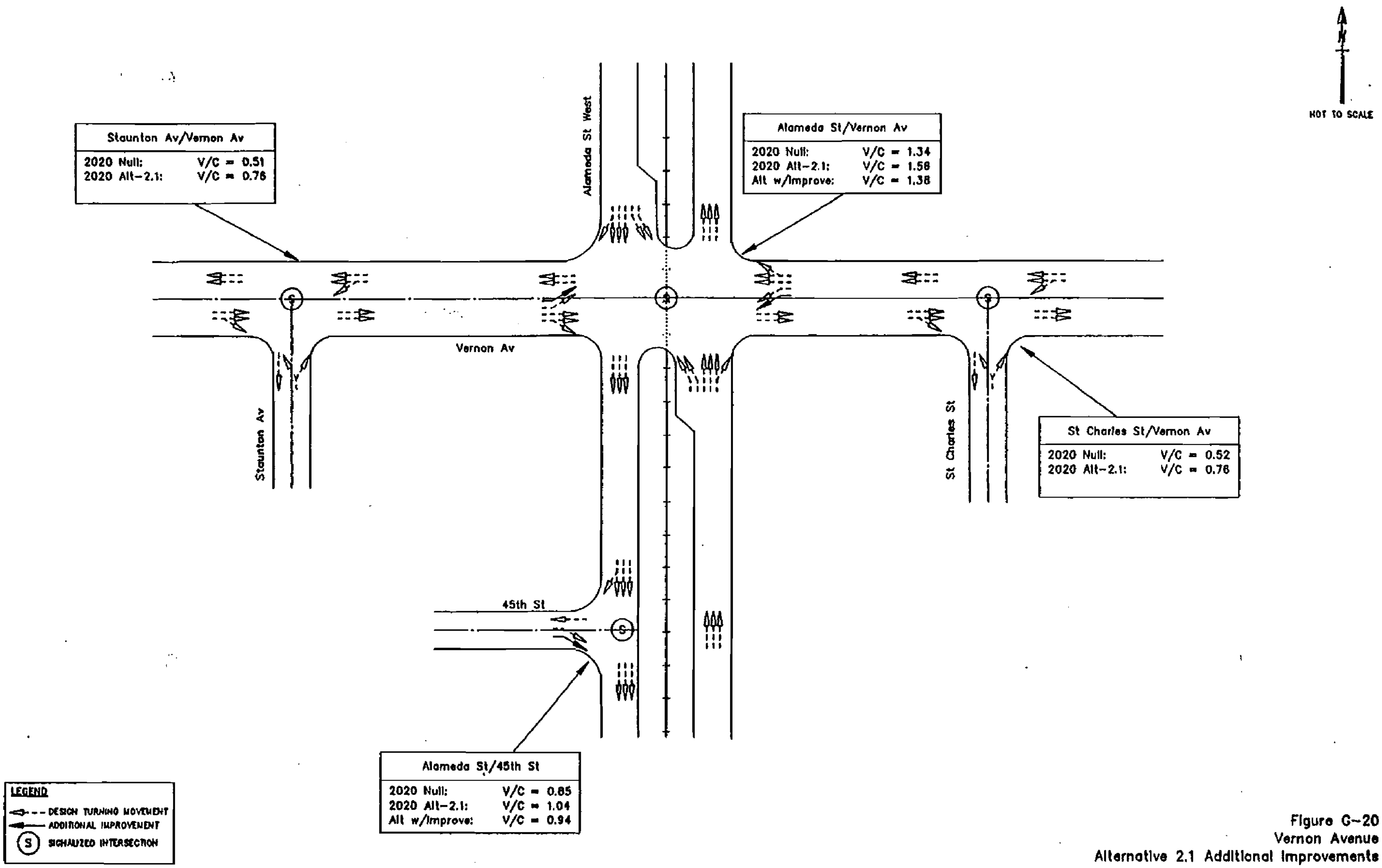


Figure G-20
Vernon Avenue
Alternative 2.1 Additional Improvements

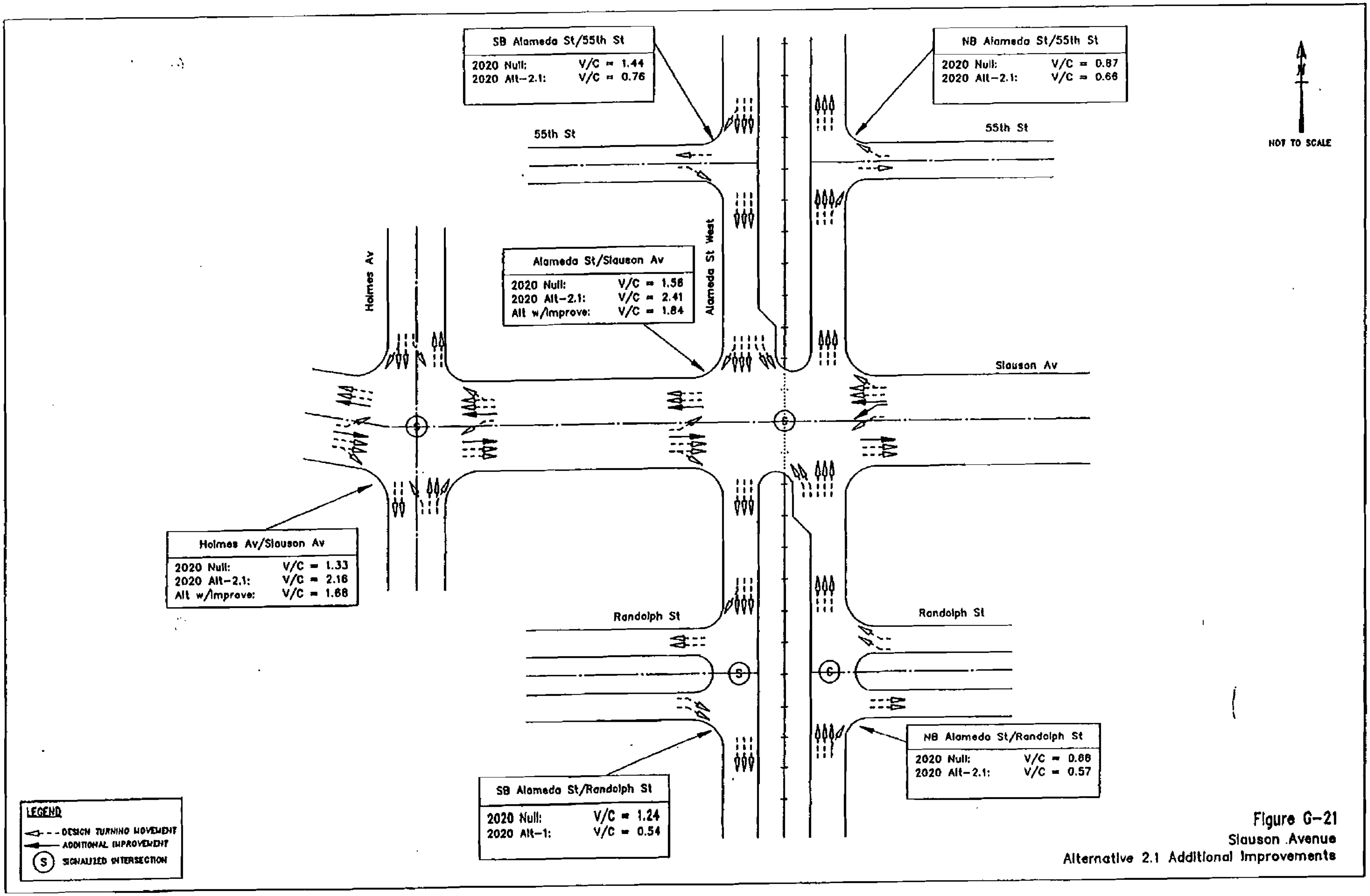


Figure G-21
Slauson Avenue
Alternative 2.1 Additional Improvements

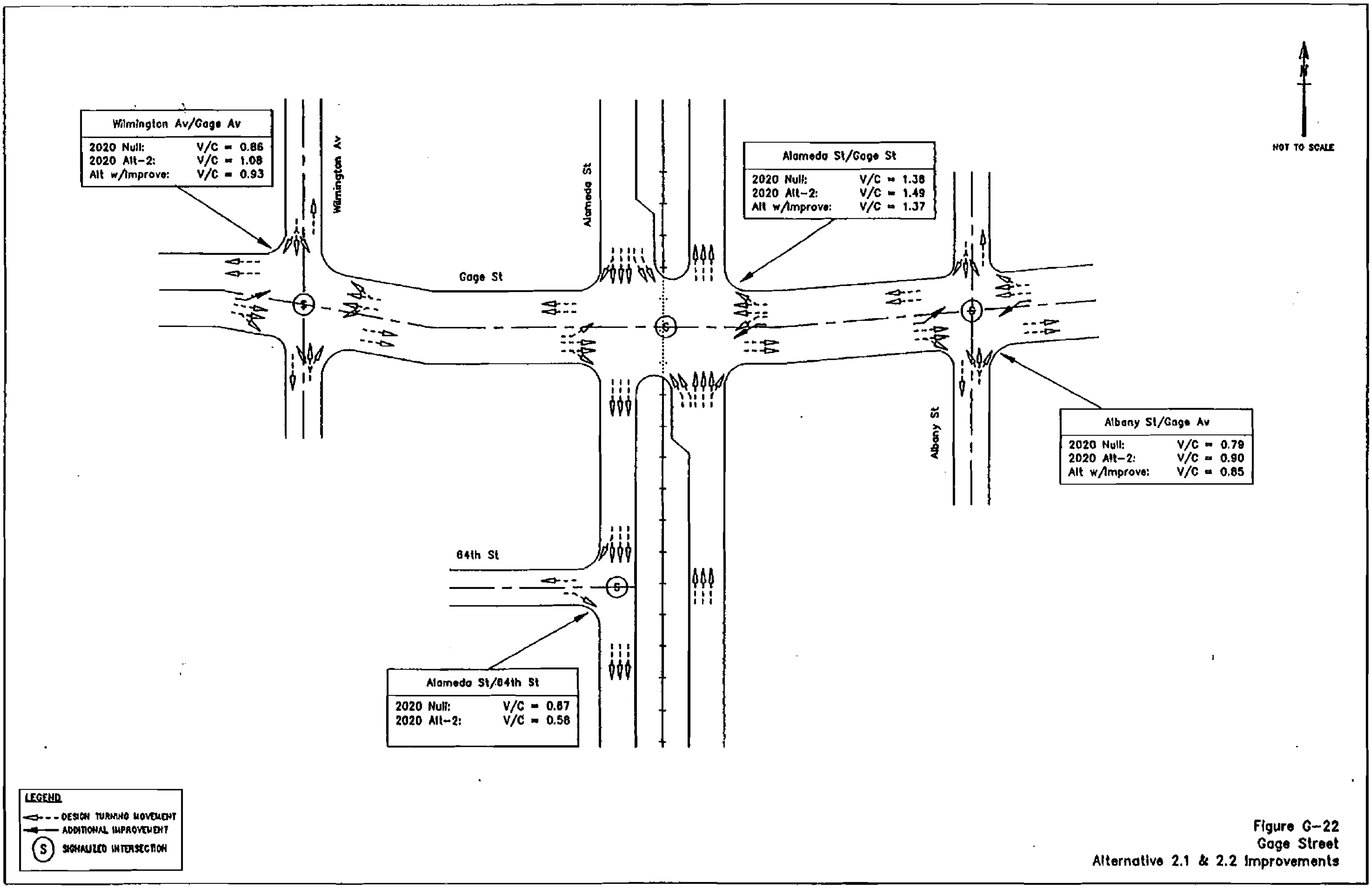


Figure G-22
Gage Street
Alternative 2.1 & 2.2 Improvements

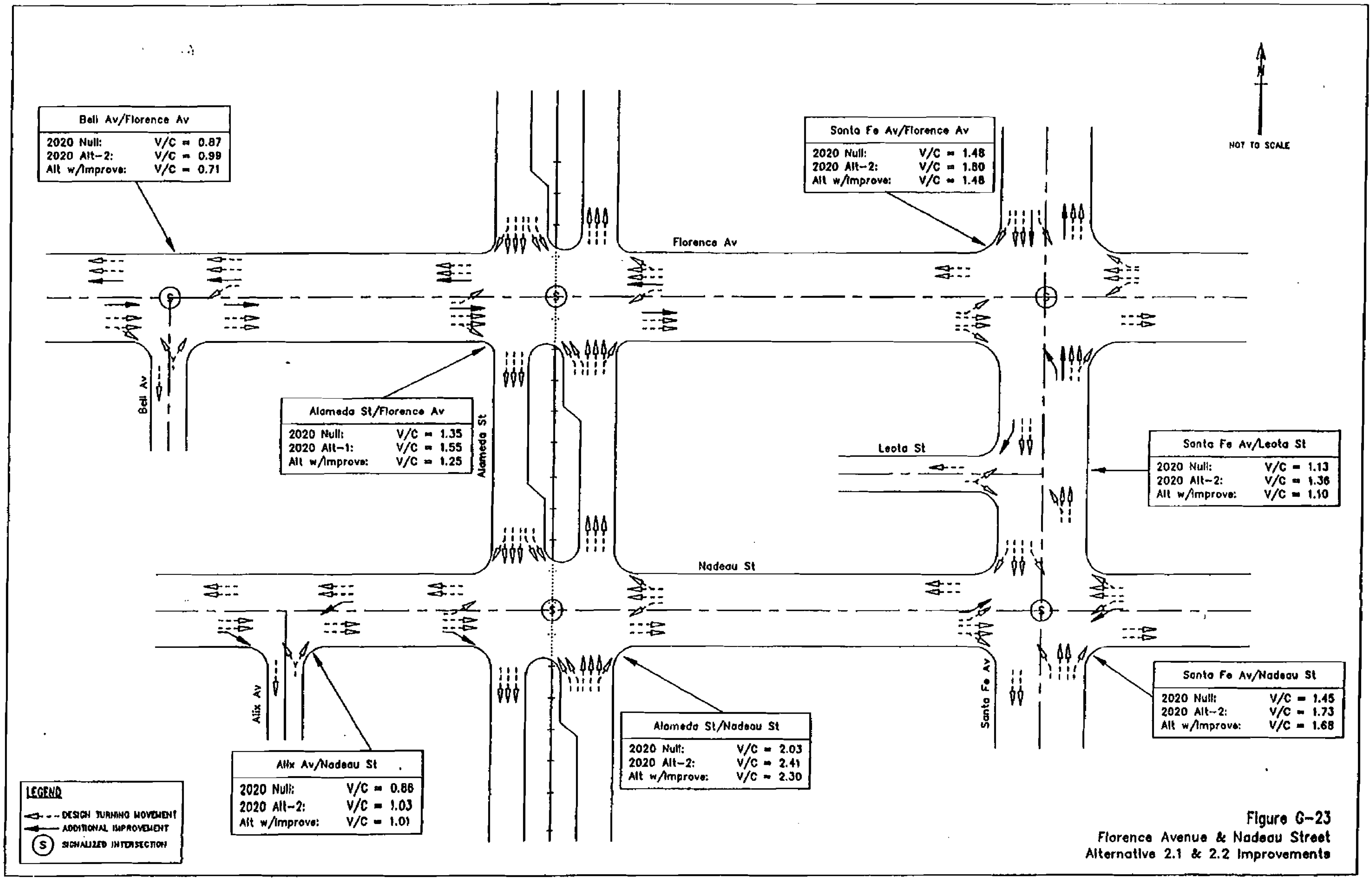


Figure G-23
Florence Avenue & Nadeau Street
Alternative 2.1 & 2.2 Improvements

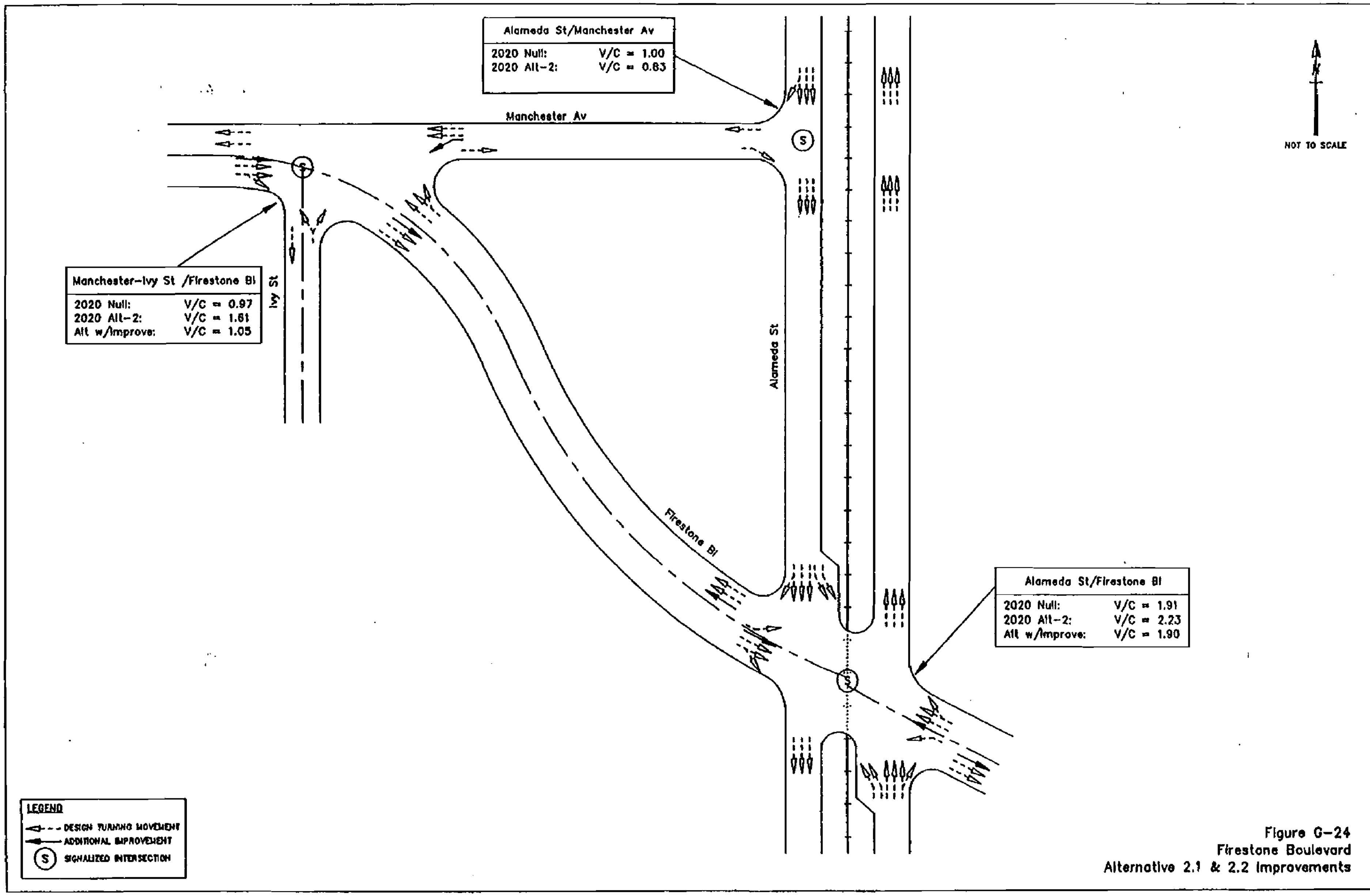


Figure G-24
Firestone Boulevard
Alternative 2.1 & 2.2 Improvements

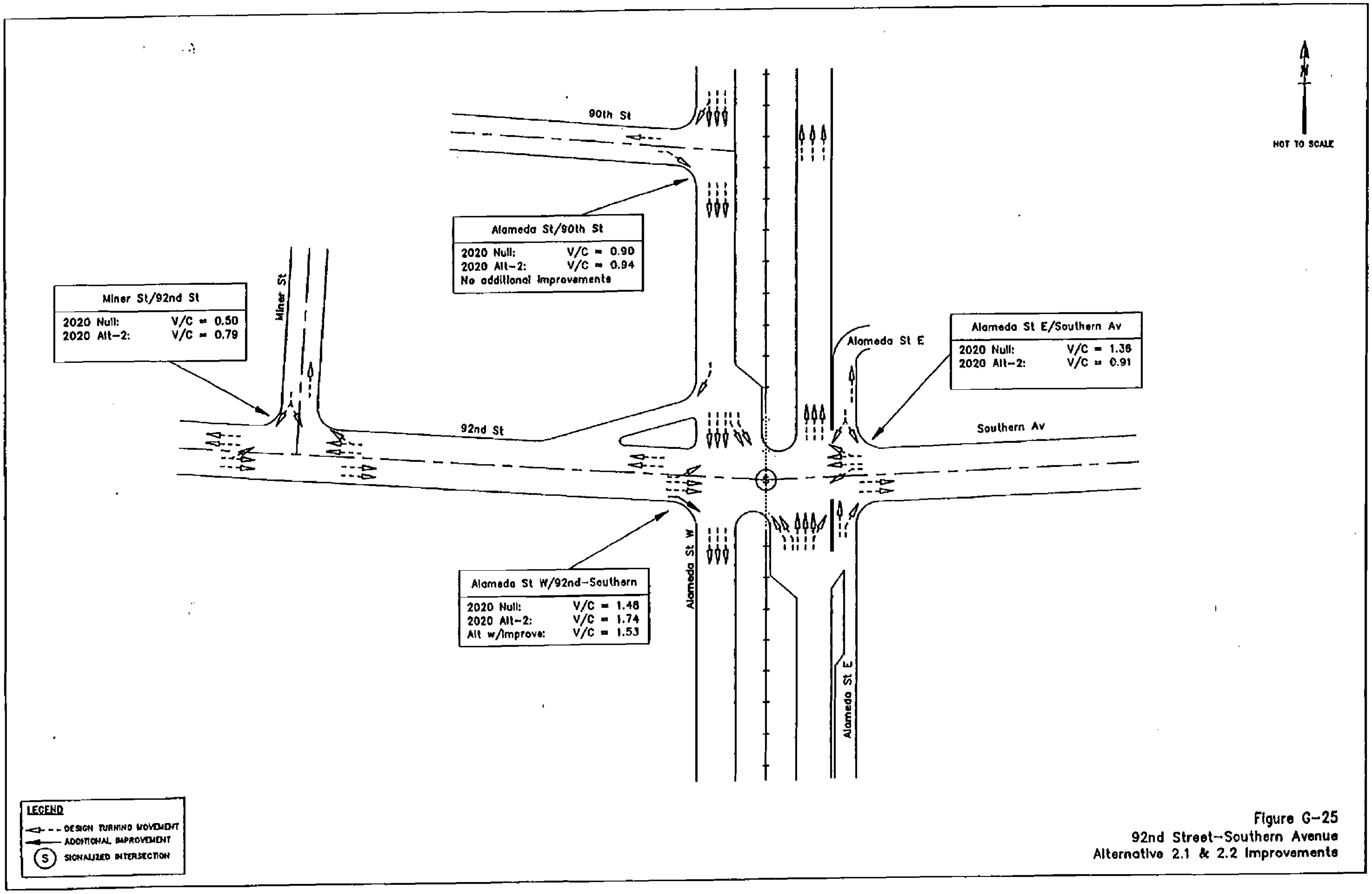


Figure G-25
92nd Street-Southern Avenue
Alternative 2.1 & 2.2 Improvements

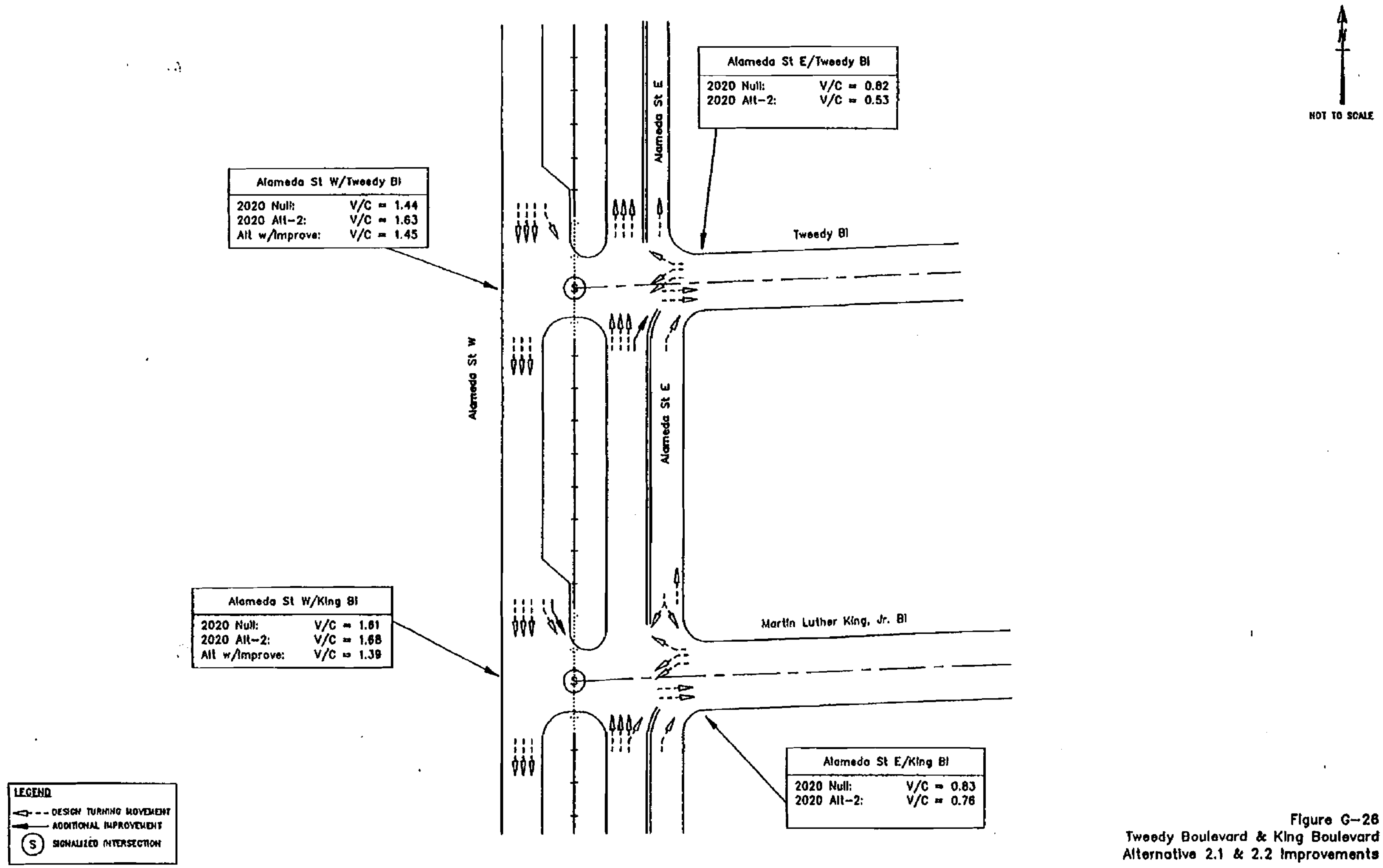


Figure G-26
Tweedy Boulevard & King Boulevard
Alternative 2.1 & 2.2 Improvements

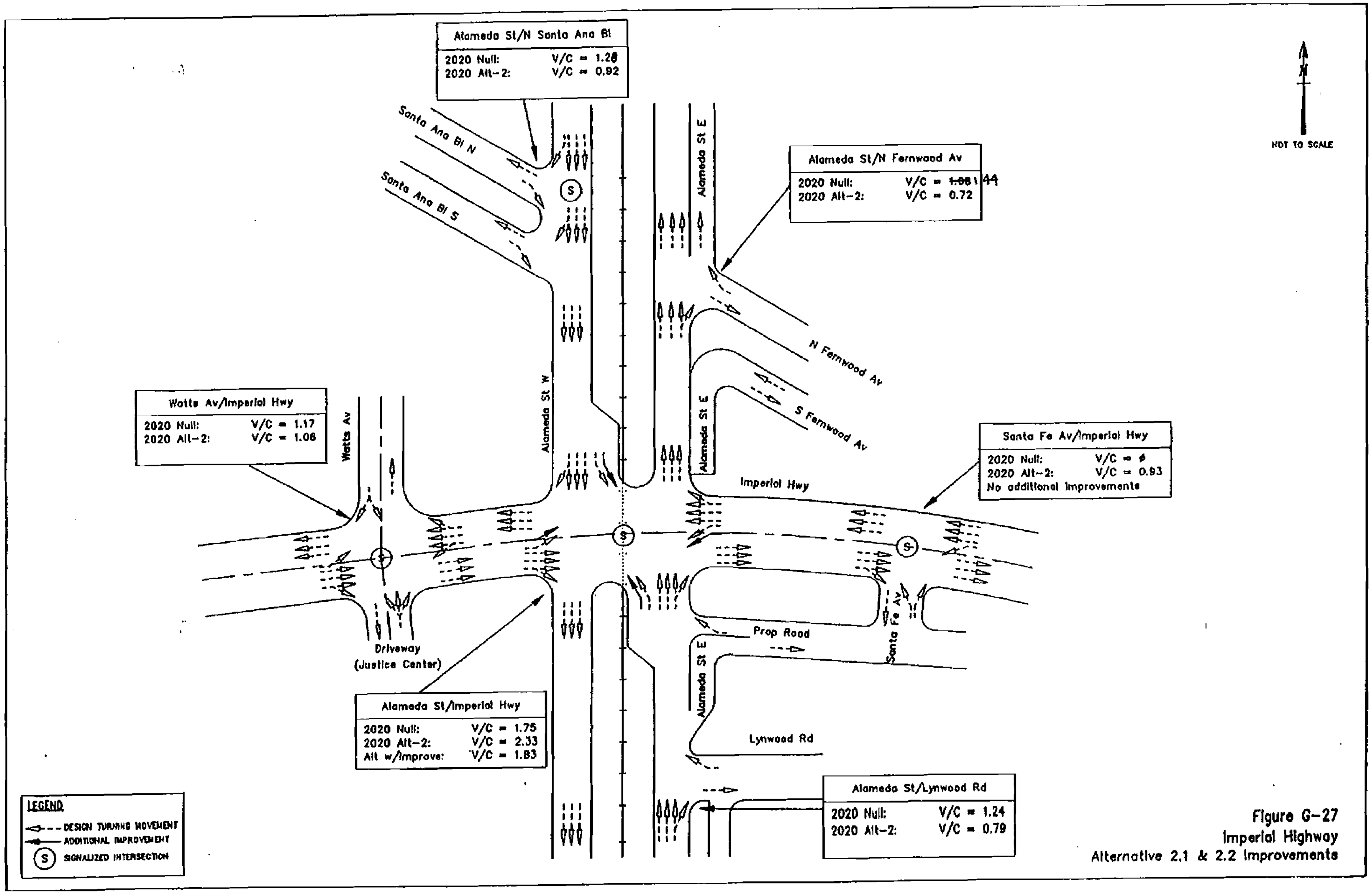


Figure G-27
Imperial Highway
Alternative 2.1 & 2.2 Improvements

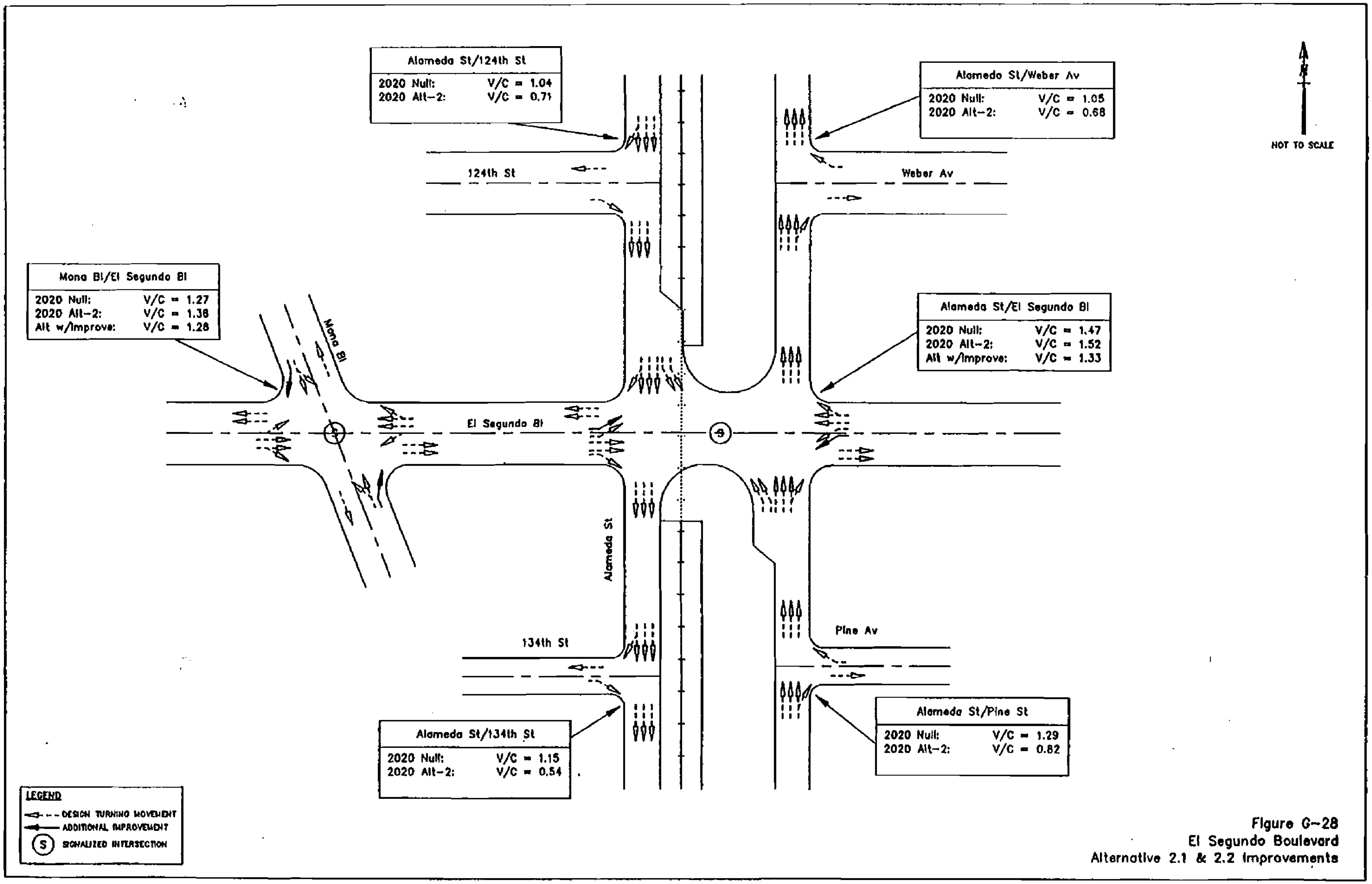


Figure G-28
El Segundo Boulevard
Alternative 2.1 & 2.2 Improvements

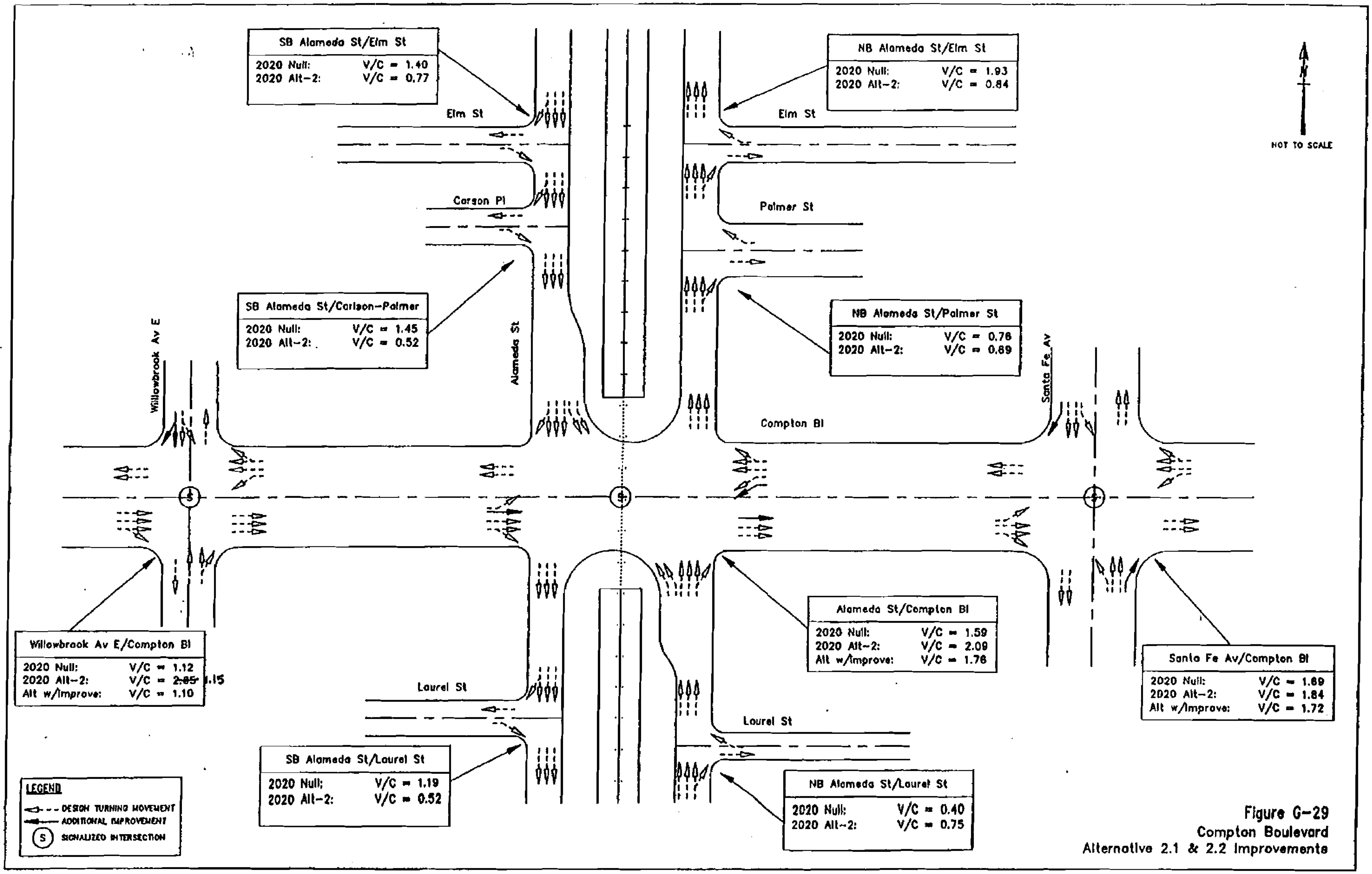


Figure G-29
Compton Boulevard
Alternative 2.1 & 2.2 Improvements

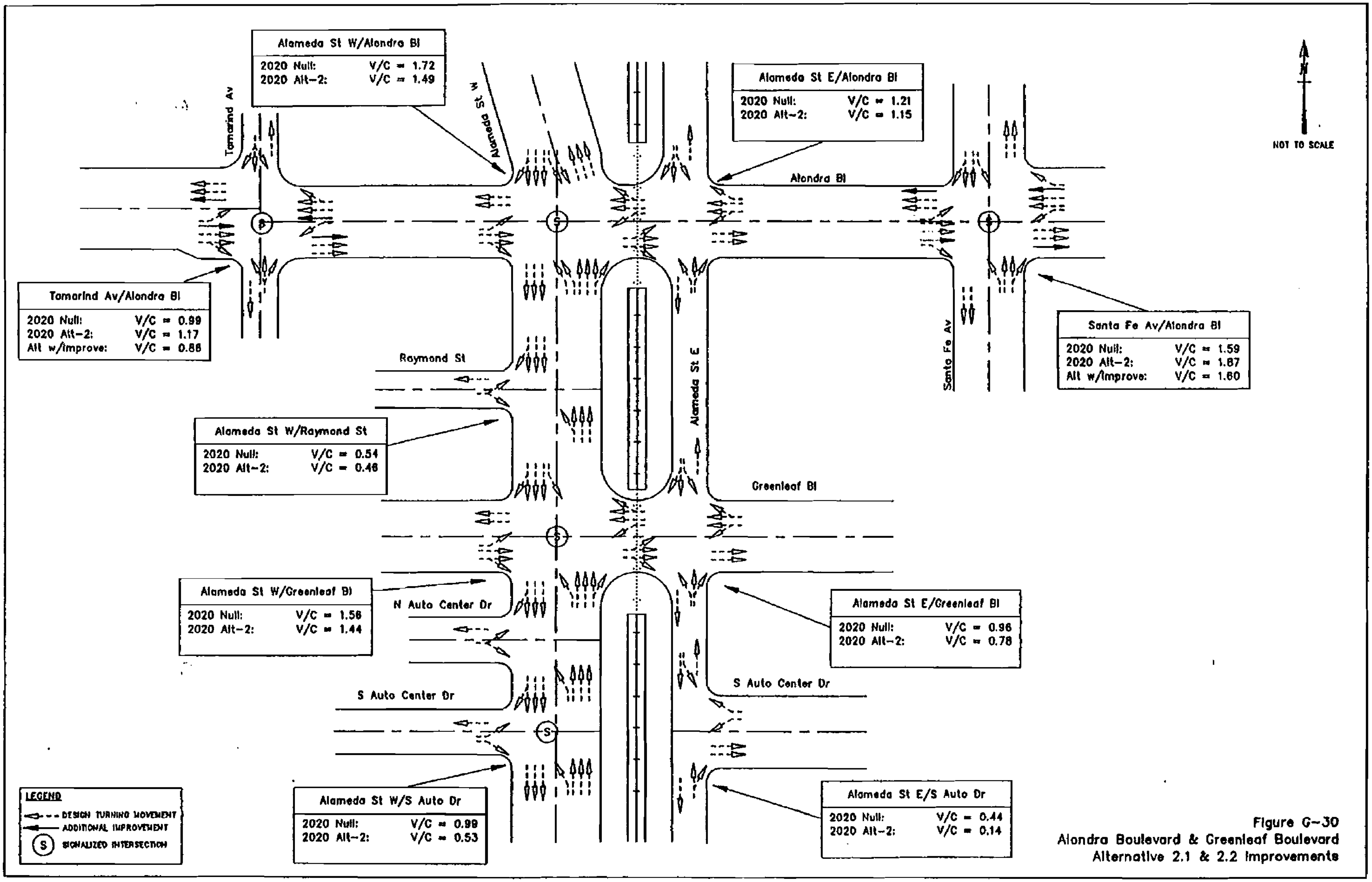


Figure G-30
Alondra Boulevard & Greenleaf Boulevard
Alternative 2.1 & 2.2 Improvements

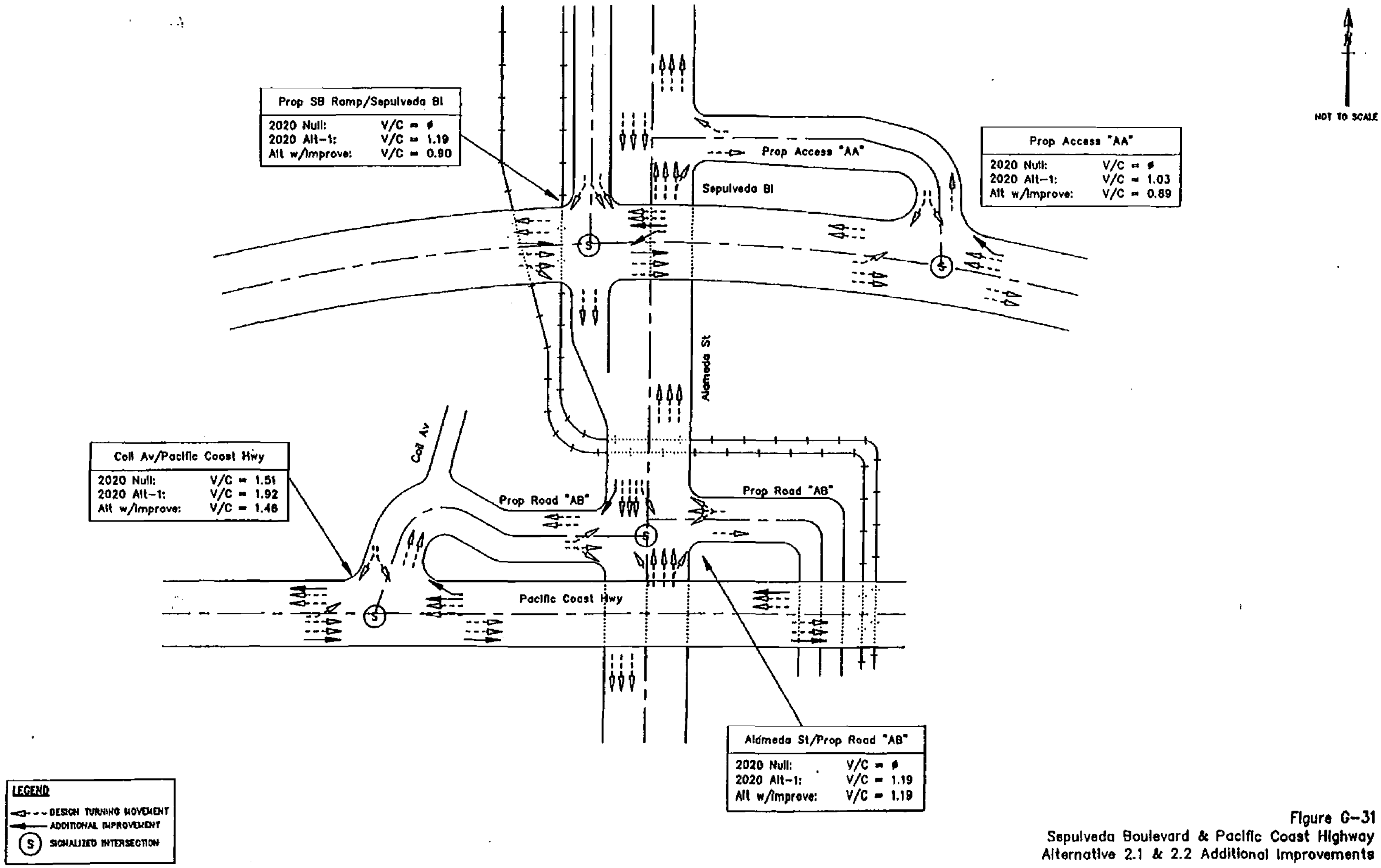


Figure G-31
Sepulveda Boulevard & Pacific Coast Highway
Alternative 2.1 & 2.2 Additional Improvements

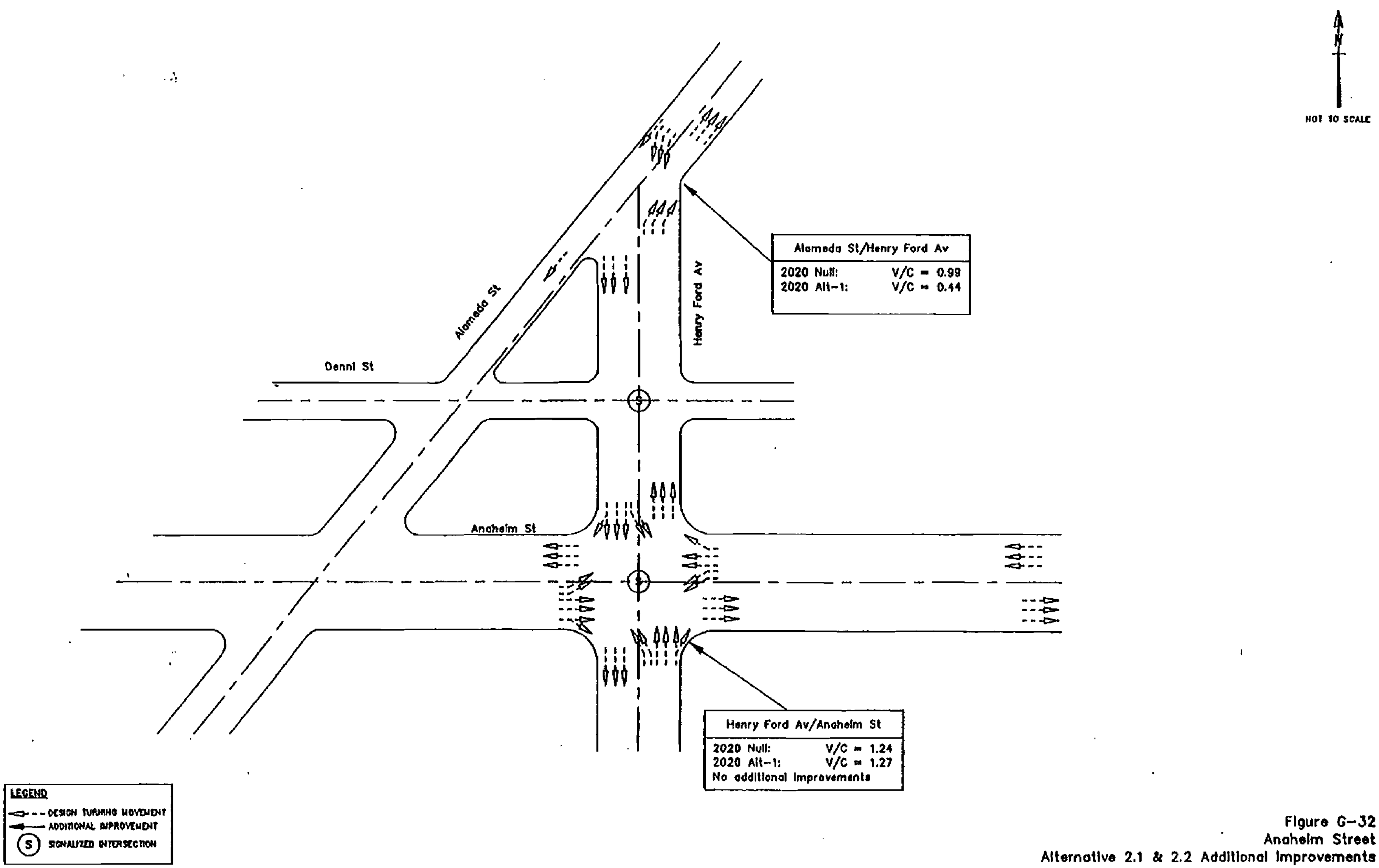


Figure G-32
Anaheim Street
Alternative 2.1 & 2.2 Additional Improvements

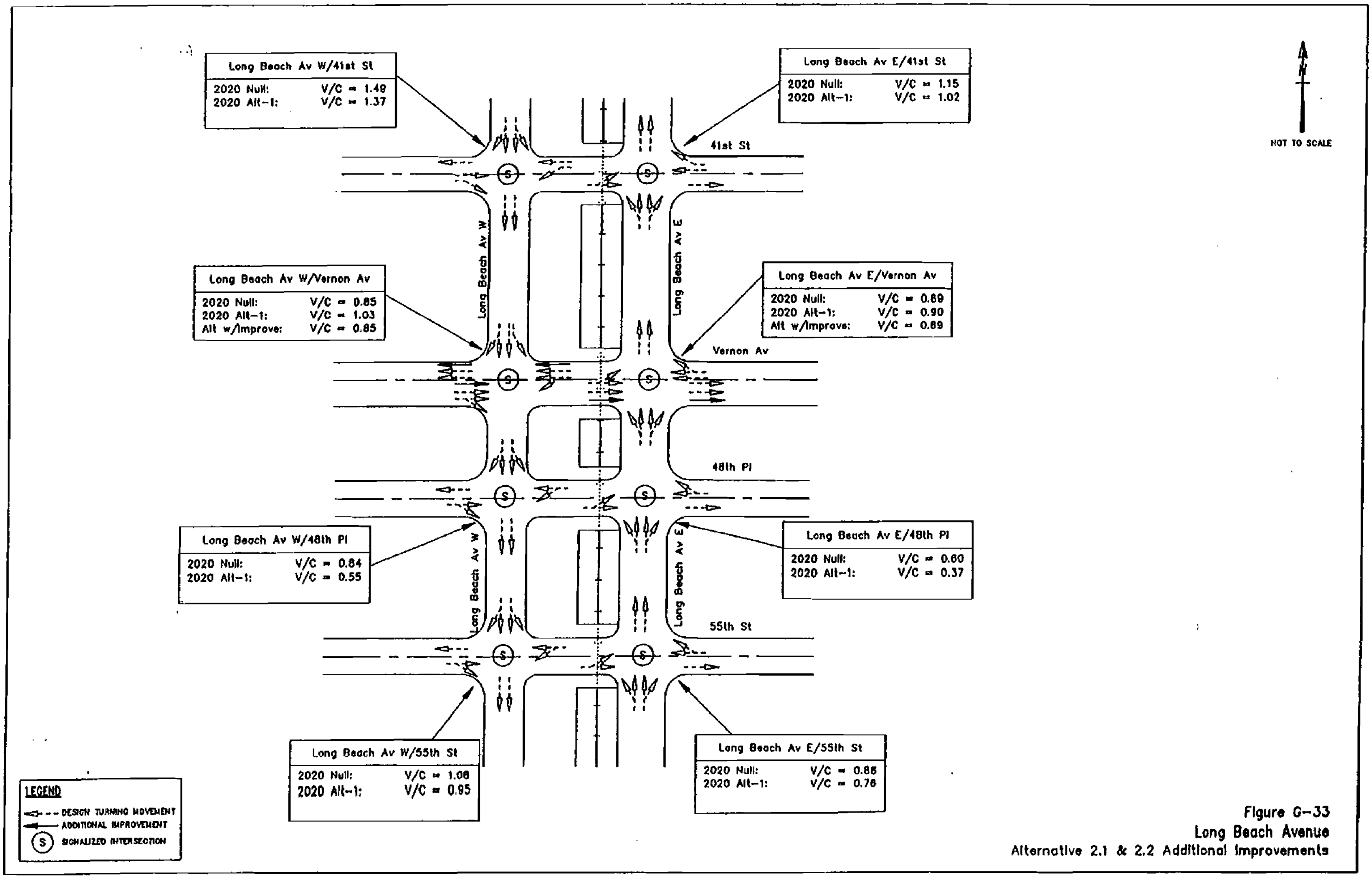


Figure G-33
Long Beach Avenue
Alternative 2.1 & 2.2 Additional Improvements

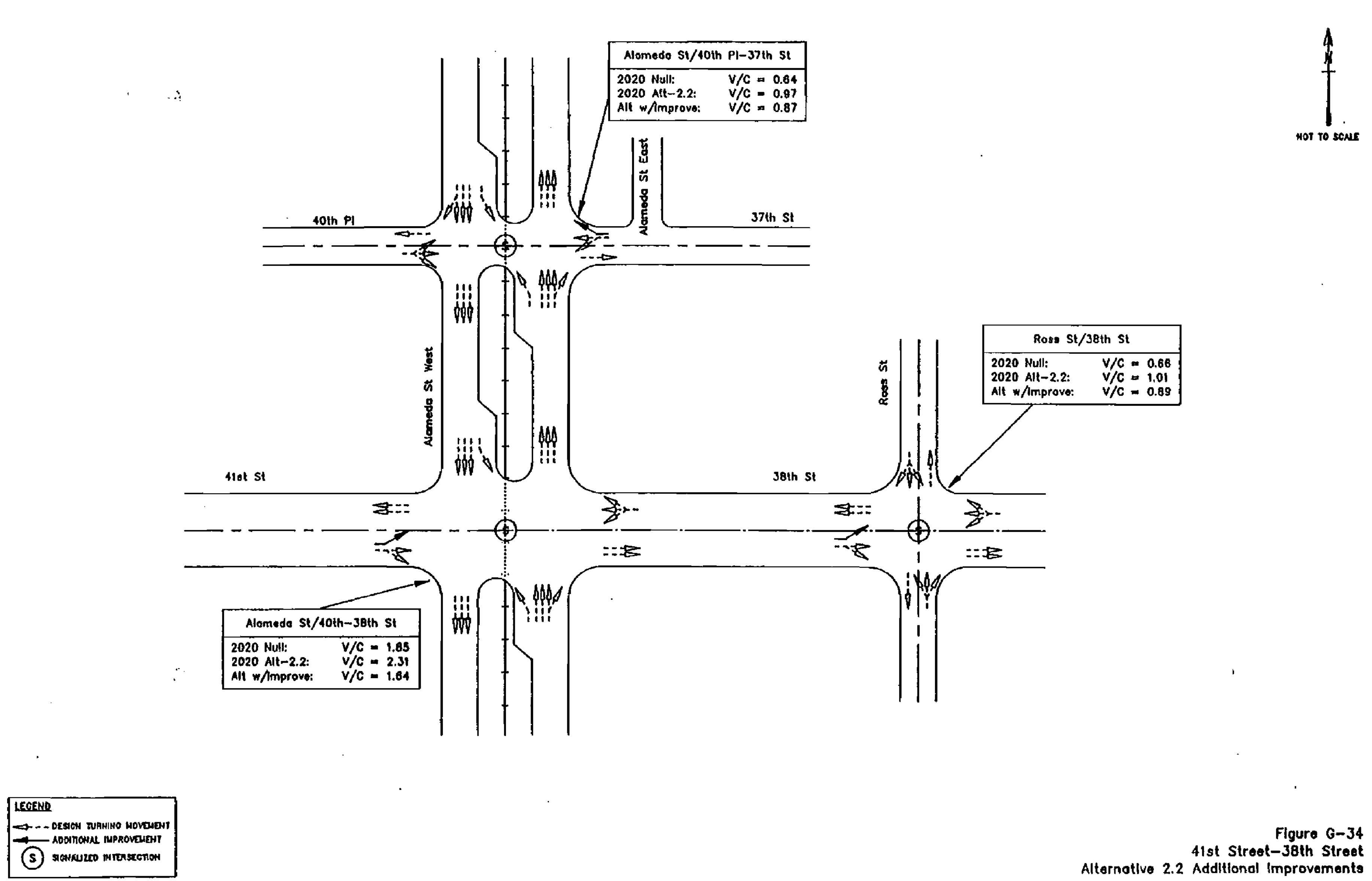


Figure G-34
41st Street-38th Street
Alternative 2.2 Additional Improvements

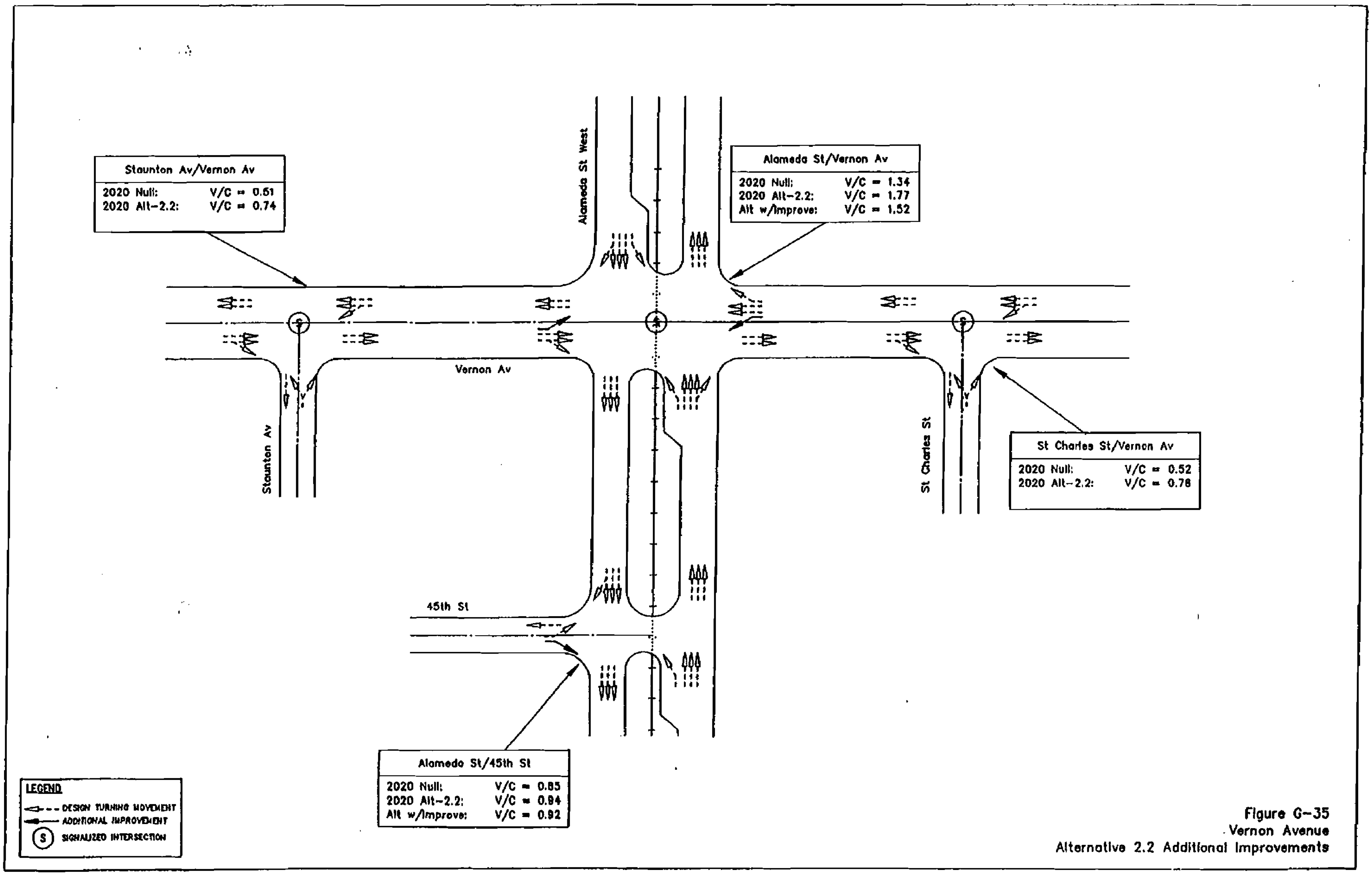


Figure G-35
Vernon Avenue
Alternative 2.2 Additional Improvements

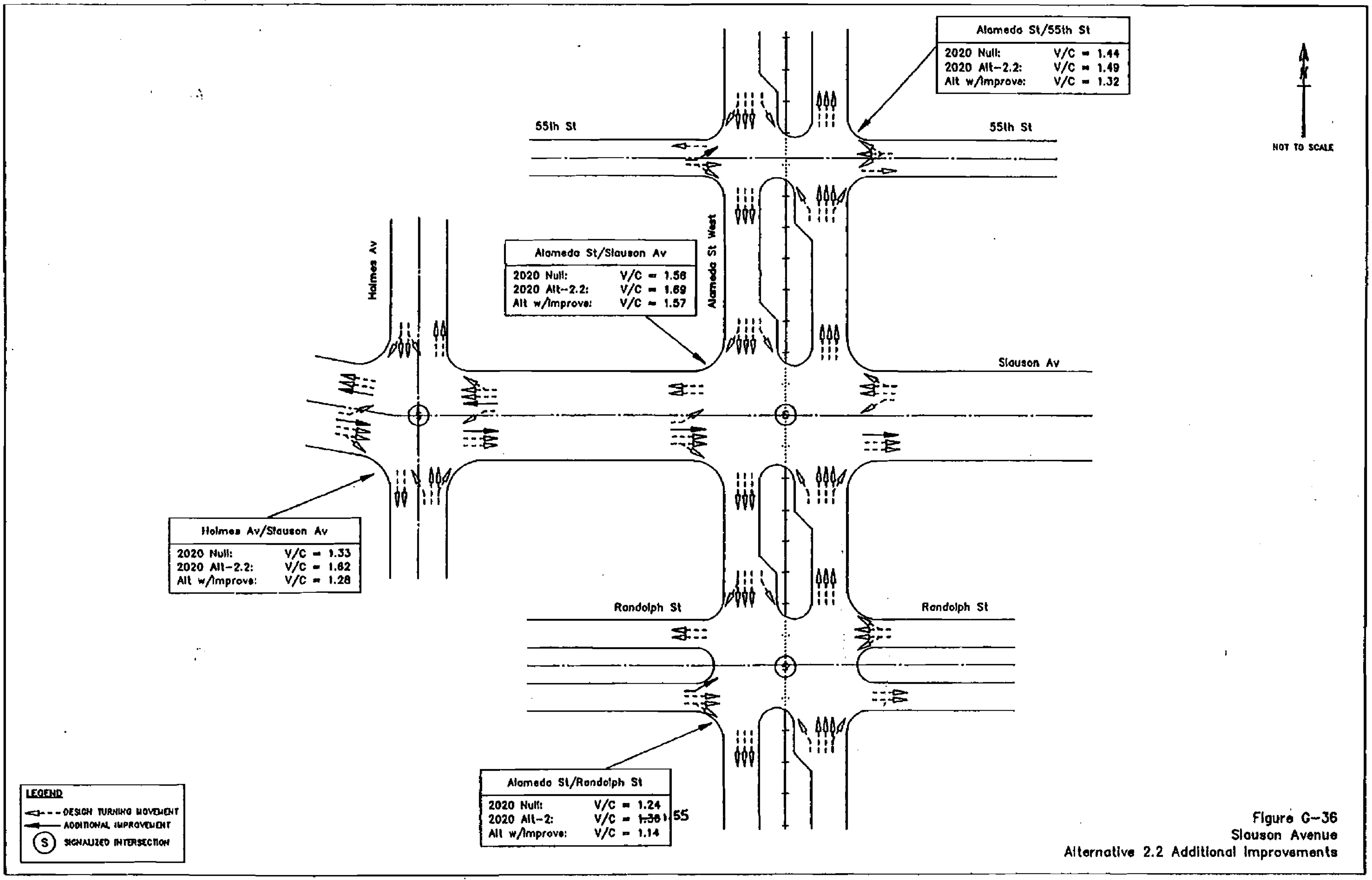


Figure G-36
Slauson Avenue
Alternative 2.2 Additional Improvements