

OFFICE OF THE MAYOR

February 9, 2018

Metro Board
One Gateway Plaza
Los Angeles, CA 90012

Re: SR-710 Early Action Projects in City of Pasadena

Honorable Chair Garcetti and Members of the Board:

At our meeting of January 29, 2018, the City Council reviewed a list of projects that the Pasadena Department of Transportation is proposing to be included in the City's SR-710 Early Action Projects funding request to the Los Angeles Metropolitan Transportation Authority (Metro). After receiving public comments the City Council unanimously approved a motion to authorize the Mayor to send a letter to Metro on behalf of the City of Pasadena transmitting the City's list of projects.

On behalf of the City, we applaud Metro Board's decision to select the Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative as the Locally Preferred Alternative for the SR-710 North Study and to allocate the remaining project's Measure R funds to new mobility improvement projects in the San Gabriel Valley.

The following list summarizes the list of projects that that City is proposing for the Early Action Projects to significantly improve mobility in the region, enhance various modes of transportation and decrease reliance on autos as the sole source of traveling. These projects are chosen with the goal of improving safety for all road users including pedestrians and bicyclists.

The details and descriptions of each individual project in the following list is provided in the attached Memorandum Report prepared by the Consulting firm Nelson\Nygaard which has been assisting both the City of Pasadena and City of South Pasadena

in formulating projects that meet both jurisdictions' goals of improving mobility in the region.

SR-710 EARLY ACTION PROJECTS FUNDING ESTIMATES

Project	Preliminary Cost Estimate
Gold Line Grade Separation at California Boulevard	\$105M
I-210 Stub Ramp Modifications	\$10-\$50M
<i>Traffic Calming Programs</i>	--
Pasadena Avenue/St. Johns Avenue Complete Streets	\$15M
Allen Avenue Complete Streets	\$1.5M
Hill Street Corridor Complete Streets	\$1.5M
Avenue 64 Complete Streets	\$2M
Gold Line At-Grade Crossing Enhancements	\$950k
Pedestrian and Bicyclist Automated Data Collection	\$1.4M
High-Resolution Traffic Signal Data	\$8.5M
Walnut Street Corridor Upgrades	\$4.1M
I-210 Connected Corridors Expansion	\$5M
Rapid Bus Improvements	\$1-\$10M/mi.
Rose Bowl Shuttles (non-service)	<\$1M
Rose Bowl Shuttles (ASMAF service and analytics)	\$200k/yr.
Student Transit Passes (Pasadena Transit only)	\$175k/yr.
Electric Transit Vehicles	\$28M
Short Range Transit Plan (service enhancements)	\$4M/yr.
Short Range Transit Plan (additional vehicles)	\$5M
Transit Operations and Maintenance Facility	\$33M
Bicycle Transportation Action Plan Projects	\$5M
Arroyo Link	\$1-2M
Bike Share Expansion	\$400k/yr.
Mobility Hubs	\$10M

Metro Board
February 9, 2018
Page 3 of 3

The City of Pasadena looks forward to working with Metro staff in a collaborative process to implement these projects in an effective manner, thereby reducing traffic congestion in the SR-710 corridor and enhancing mobility for all users.

If you have any questions or comments, please feel free to contact Mr. Frederick Dock, Director of Transportation at fdock@cityofpasadena.net or at (626) 744-4650.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry Tornek". The signature is fluid and cursive, with the first name "Terry" being larger and more prominent than the last name "Tornek".

TERRY TORNEK
Mayor

TT: bj

c: Phillip Washington, Metro CEO
Abdollah Ansari, Metro Managing Executive Officer, Highway Programs
Michelle Smith, Metro Project Manager, Highway Programs
Steve Mermell, City Manager, Pasadena
Frederick Dock, Director of Transportation, Pasadena

Attachment A:

Nelson\Nygaard Memorandum Report:
"City Funding Request to Metro (SR-710 Early Action Projects)"



MEMORANDUM

To: Fred Dock and Bahman Janka

From: Paul Moore and Steve Boland

Date: February 6, 2018

Subject: City Funding Request to Metro (SR-710 Early Action Projects)

This memorandum briefly describes the projects the City of Pasadena Department of Transportation is proposing to include in the City's SR-710 Early Action Projects funding request to Metro.

The projects were selected based on:

- review of the SR-710 North Environmental Impact Report/Statement (EIR/EIS);
- recommendations of the SR-710 Working Group;
- other existing City plans, including the Mobility Element of the General Plan;
- additional project development by City staff;
- Nelson\Nygaard evaluation;
- discussions with representatives of the Cities of South Pasadena and Alhambra; and
- discussions with the Transportation Advisory Commission in its October 26 meeting.

Consistent with Metro direction, many of the proposed projects are Transportation System Management/Transportation Demand Management (TSM/TDM) projects, while others are multimodal in nature. Many of the projects are in advanced stages of project development or are part of adopted policies, while others are newer concepts requiring further community discussion and project development (note that cost estimates for these projects are by necessity preliminary, based on professional judgment).

The projects are presented in no particular order. Given the scale of funding available, it is our hope that most if not all projects can be funded by Metro.

GOLD LINE GRADE-SEPARATION

This project would consist of grade-separation of the existing at-grade Metro Rail Gold Line crossing at California Boulevard. This segment of the Gold Line intersects two arterial streets with relatively high traffic volumes – California and Del Mar Avenue – resulting in substantial delay and congestion. Moreover, because a number of other area streets terminate at the Gold Line, these at-grade crossings contribute to a lack of pedestrian and bicycle connectivity between neighborhoods east and west of the Gold Line. While providing regional connectivity and access for Pasadena residents, the Gold Line acts as a physical barrier in central Pasadena.

Grade-separation of the Del Mar intersection would be challenging due to the proximity of the existing at-grade Del Mar station and adjacent transit-oriented development spanning the Gold

SR-710 Early Action Projects Funding Request to Metro
[City of Pasadena]

Line right-of-way. However, a very preliminary plan has been developed for grade-separation of the California intersection that would have far fewer impacts, including no interruption in Gold Line service (either space is available, or certain properties could be acquired for the purpose of providing for a shoofly on adjacent properties during the construction of the project).

This project has preliminary been estimated to have a capital cost of \$105 million. We understand that Metro may wish to evaluate this project in the context of other potential grade separations of existing at-grade Gold Line crossings, including intersections in South Pasadena and Los Angeles. Therefore, our initial request is for a broader study of Gold Line grade separations, with funding set aside for implementation of priority projects.

210 RAMP MODIFICATIONS

This project would remove the existing I-210 “stub” on- and off-ramps north of California and make operational improvements to Del Mar and Fair Oaks to accommodate traffic shifted to those streets.

The I-210 stub, while less than one mile long, currently features two pairs of on- and off-ramps: north of California, and just north of Del Mar. The northbound on-ramps at Del Mar and north of California (between Bellevue and Waverly Drives) are less than 800 feet apart.

We understand that proposed projects may not interfere with eventual construction of an SR-710 North tunnel, if that is the direction Caltrans and Metro eventually decide to pursue. However, removal of the existing ramps at California should not interfere with that project, and would provide a number of benefits.

Most importantly, removal of the California ramps would effectively shift north-south regional traffic (particularly southbound traffic) away from the one-way couplet of St. John and Pasadena avenues, relatively narrow residential streets, to Del Mar, Fair Oaks and Arroyo Parkway, broad commercial arteries that are designed to accommodate such traffic. This would be consistent with the City of South Pasadena’s accompanying effort to shift regional traffic from Fremont Avenue to Fair Oaks, and would enable traffic calming improvements to St. John and Pasadena (see following section).

As part of this project, the City is requesting funding for a new traffic signal at Fair Oaks and Bellevue. The City has recently completed a number of throughput improvements to both Fair Oaks and Arroyo, including implementation of adaptive traffic control systems (ATCS) technology at signalized intersections.

As an alternative to this project, regional traffic could be shifted from St. John and Pasadena to Fair Oaks and Arroyo Parkway using modifications to the intersection of the I-210 southbound off-ramp and California including restriping (removal of one westbound lane on California) to accommodate dual left-turn lanes and signal timing adjustments. If this direction were pursued, the City would request funding for accompanying pedestrian improvements on California, including sidewalk widening.

However, the City’s strong preference is for removal of the California ramps, as this would much more effectively divert regional traffic away from Pasadena and St. John while maintaining local and regional access to and from I-210.

Cost estimates have not been developed for this project, but costs for removal of two freeway ramps, along with attendant changes to roadway striping, signals and signage, could reasonably be expected to exceed \$10 million.

TRAFFIC CALMING/COMPLETE STREET PROGRAMS

A number of “complete streets” projects are proposed to: improve safety for pedestrians and bicyclists by reducing auto speeds; reduce the impacts of regional traffic diverted to local residential streets from adjacent freeways; and work toward encouraging non-auto travel throughout the City and the northern segment of the 710 North corridor.

St. John Avenue/Pasadena Avenue/Orange Grove Complete Street Program

Removal of the I-210 on- and off-ramps north of California (see previous section) would enable traffic calming improvements to the residential streets of St. John and Pasadena Avenue. Residents along these streets must currently bear a disproportionate share of the burden of accommodating regional traffic in the 710 North corridor.

Specifically, the City proposes to restore both St. John and Pasadena to their previous configurations, before they were converted to a one-way couplet accommodating higher vehicular throughput. In addition to converting both streets to two-way traffic, this would result in restoration of removed sidewalks, and resulting narrower rights-of-way further improving pedestrian conditions by shortening street crossings.

As a corollary to this project, the City is also requesting funding for traffic calming improvements to Orange Grove Boulevard, which parallels St. John and Pasadena Avenue to the west. A community process to identify desired improvements is currently underway.

The preliminary cost estimate for this project is approximately \$15 million.

Allen Avenue Complete Street Program

The City of Pasadena also wishes to enhance pedestrian walkability and bicyclist safety along the critical north-south Allen Avenue corridor, between Villa Street and Colorado Boulevard. A wide variety of travelers, including pedestrians, bicyclists, transit users and motorists, use the corridor due to its proximity to the I-210 Freeway, the Allen Gold Line Station, and Pasadena City College. Proposed improvements to improve safety and walkability may include narrowing of streets by widening sidewalks, raised landscaped medians, “road diet” lane reconfiguration, constructing curb extensions/bulb outs at some intersections, upgrading traffic signal equipment, and modifying roadway signing and striping.

The preliminary cost estimate for this project is approximately \$1.5 million.

Hill Avenue Complete Street Program

Hill Avenue between Villa Street and the northern city limit at Topeka Street was evaluated for potential safety enhancements through a City-sponsored program in 2016- 2017. This program began with the development of a working group that included residents and other stakeholders, and culminated with a list of potential enhancements to reduce vehicular speed and enhance pedestrian, bicyclist and motorist safety. The list of potential enhancements includes bulb outs at twelve intersections and traffic circles at the intersections of Hill Avenue with Topeka Street and Elizabeth Street. The I-210 freeway has both eastbound and westbound on-ramps and off-ramps at Hill Avenue, making it a heavily traveled corridor. Design is currently underway for these enhancements, but construction funding has not yet been identified. Measure R funds would be

SR-710 Early Action Projects Funding Request to Metro
[City of Pasadena]

used to construct a shovel-ready project that has been developed through a community-based working group and has received neighborhood support.

The preliminary cost estimate for this project is approximately \$1.5 million.

Avenue 64 Complete Street Program

Similarly to Hill Avenue, improvements to Avenue 64 have been identified based on feedback obtained through a community process. This project would provide for the installation of bulb outs and median islands at the intersections of Avenue 64 with Church Street, Melrose Avenue, Nithsdale Road and other locations, as well as a traffic signal at Avenue 64 and Nithsdale Road and small median islands south of Burleigh Drive.

The preliminary cost estimate for this project is approximately \$2 million.

GOLD LINE AT-GRADE CROSSING ENHANCEMENTS

This project would provide for enhanced performance monitoring, data collection and analytics at intersections adjacent to the at-grade Gold Line crossings of Glenarm Street, California Boulevard and Del Mar Boulevard. Currently, the Gold line operates at six-minute headways in peak periods, resulting in a train crossing these intersections every three minutes during the time of day with the highest vehicular and pedestrian volumes. The City of Pasadena has been actively working on enhancements to reduce delay, including the ongoing implementation of Adaptive Traffic Control System (ATCS) along the corridors adjacent to the Metro Gold line alignment (see below).

This project would allow for greater reduction in delay through the implementation of a performance monitoring system that collects vehicular, bicyclist and pedestrian data and uses advanced analytics to report on performance measures and provide an analysis tool for making informed decisions. The project would provide for the installation of hardware at up to 25 signalized intersections and central system hardware and software to implement a performance monitoring system. This project also provides for redundant communications infrastructure to handle the higher volumes of data and provide reliable reporting. This project has preliminary been estimated to have a capital cost of \$950,000.

INTELLIGENT TRANSPORTATION SYSTEMS PROJECTS

The City has implemented ATCS signal technology on Fair Oaks Avenue and is in the process of expanding ATCS to other major corridors including Arroyo Parkway, Raymond Avenue, Marengo Avenue, California Boulevard and Del Mar Boulevard. As a complement to this, the City is requesting funding for Intelligent Transportation System (ITS) projects including a redundant communication path, data analytics capability, controller upgrades to provide high-resolution data, and pedestrian and bicycle video detection installations. In order to prepare for accommodation of autonomous vehicles on city streets, the City is also requesting funding for Dedicated Short Range Communication (DSRC) and signal preemption technology.

Pedestrian and Bicyclist Automated Data Collection

As the City of Pasadena continues to pursue the complete streets policies identified in the Mobility Element of its General Plan, the ability to collect, analyze and process pedestrian and bicyclist data takes on a more important role. This project provides for the installation of multimodal count stations that would collect motorist, pedestrian and bicyclist counts at 36

SR-710 Early Action Projects Funding Request to Metro
[City of Pasadena]

locations within a half-mile of the six Gold Line stations in Pasadena. The project would create an extensive database of multimodal traveler information, and would provide the analysis tools to report out on performance measures and make informed decisions based on advanced analytics. This project has preliminary been estimated to have a capital cost of \$1.4 million.

High-Resolution Traffic Signal Data

While the City is currently updating some corridors to ATCS, the vast majority of the signalized intersections in the City continue to be controlled by hardware and software unable to collect high-resolution vehicle arrival data. This project would allow the City to upgrade traffic signal controllers citywide to collect such high-resolution data. The ability to collect and analyze high-resolution data would allow for the development of improved coordination plans, reducing delay for roadway users while simultaneously providing the ability to manage traffic speeds. In addition, high-resolution data would provide a foundation for arterial performance monitoring and reporting.

This project would also include the installation of DSRC infrastructure, providing the ability to share traffic signal phase and timing data with vehicles equipped to receive the information.

This project would provide for traffic signal controller upgrades at up to 300 intersections, the upgrade of up to 100 traffic signal cabinets and the installation of fiber optic communication infrastructure to provide a redundant high bandwidth network. In addition, this project provides for the use of cost-effective network communication hardware to allow for IP communication over existing copper infrastructure where the cost to install fiber optic communication cable would be prohibitive. This project has preliminary been estimated to have a capital cost of \$8.5 million.

Walnut Street Corridor Upgrades

Walnut Street is a major east-west corridor south of the I-210 freeway serving as a connector between the major north-south corridors of Orange Grove Boulevard and Fair Oaks Avenue and the I-210 on- and off-ramps at Lake Avenue, Hill Avenue, Allen Avenue and Sierra Madre Boulevard. This project would replace the decades-old traffic signal controller infrastructure and communications equipment along Walnut Street and allow for bicycle detection and differentiation, collection of high-resolution data, the ability to reduce delay through updated signal coordination, and the ability to manage traffic speeds.

The project provides for the installation of up to 15 new traffic signal cabinets, traffic signal controllers, video detection equipment, two CCTV cameras and three miles of fiber optic communication, associated hardware and software, as well as curb ramp accessibility improvements at fifteen intersections. This project has preliminary been estimated to have a capital cost of \$4.1 million.

I-210 CONNECTED CORRIDORS EXPANSION

A pilot for the California Department of Transportation's Connected Corridors program of integrated corridor management (ICM) measures is already underway in the I-210 corridor east of SR-134. This program includes measures such as:

- Integration of freeway ramp meters and arterial signal systems
- Arterial signal coordination

SR-710 Early Action Projects Funding Request to Metro
[City of Pasadena]

- Traffic re-routing due to incidents or events
- Traveler communication (via changeable message signs, 511, radio, social networks, mobile app) of traffic conditions, transit services, parking, alternate route/trip/mode options
- System coordination/communication between Caltrans (freeway operator) and local jurisdictions (arterial operators)

The I-210/SR-134 interchange has experienced a number of long-term closures resulting from collisions on the connector ramps. Additional funding would allow this innovative program to be expanded to the I-210 segment north of SR-134, facilitating the management of traffic resulting from the closure of the connector ramps at this interchange. The estimated cost of providing these improvements is approximately \$5 million.

RAPID BUS IMPROVEMENTS

The Sr-710 North EIR/EIS included a Bus Rapid Transit Alternative featuring a BRT line running north-south from Pasadena to East Los Angeles, in the Fair Oaks/Atlantic Boulevard corridor currently served by Metro Rapid Route 762. While the City's position is that Fair Oaks cannot accommodate bus-only lanes, the City wishes to join South Pasadena in expressing support for Metro study of "rapid" or "enhanced" bus service and capital improvements in the Route 762 corridor. Consistent with recommendations of the SR-710 Working Group, the City also requests similar study of Rosemead Boulevard south of the Sierra Madre Villa Gold Line Station.

ROSE BOWL SHUTTLES

Transit access to the Rose Bowl, a major regional destination, is somewhat limited. The nearest bus stop is one mile from the stadium, and the Gold Line Memorial Park Station is 2.4 miles away. However, during events at the Rose Bowl shuttle service is provided from the parking lot of Parsons Corporation, roughly a quarter-mile walk from Memorial Park. Depending on the event, this service may be free or may charge a fare.

The City would like to improve the utility, attractiveness and effectiveness of Rose Bowl shuttle service by: providing subsidies to make all service free, regardless of event; expanding marketing and awareness efforts in collaboration with Metro; providing additional wayfinding signage on the platforms and at exits to Memorial Park Station, as well as on the pedestrian path between the station and Parsons parking lots (Holly Street); and potentially providing additional service at events with relatively higher demand for transit, in order to reduce wait times. The first three improvements should have a total, combined cost of less than \$1 million per year. Operating costs for increased service would vary depending on the extent of the increase. Prior analyses indicate that adding service for the multi-day Arroyo Seco Music and Arts Festival (ASMAF) would require approximately \$150,000 annually. For now, the City is requesting funding for two years of ASMAF service and funding to conduct data collection and analysis on patterns of demand, in order to better determine the need for increased service.

STUDENT TRANSIT PASSES

Pasadena Transit is currently conducting a one-year pilot program providing free service to students at CalTech, Pasadena City College, Fuller Seminary and Pasadena ArtCenter College of Design. Based on usage so far, the program would cost approximately \$30,000 per year to continue. Additionally, the City would like to pilot expansion of the program to Pasadena Unified

SR-710 Early Action Projects Funding Request to Metro
[City of Pasadena]

School District students, at an estimated cost of approximately \$145,000 for one year. As part of the pilot, staff would conduct data collection to determine the cost-benefit and overall merit of making the program permanent. (Note that PCC students are currently offered \$80 per semester Metro passes; Metro might also consider making these passes free.)

ELECTRIC TRANSIT VEHICLES

Complete replacement of the Pasadena Transit fixed-route and paratransit vehicle fleets by 2030 to exclusively operate battery-powered electric vehicles would cost approximately \$28 million for vehicles (not including additional costs for infrastructure or charging). Replacement of the fixed-route fleet would occur in three phases: in 2020 (nine vehicles), 2023 (12 vehicles) and 2030 (eight vehicles). Replacement of 15 dial-a-ride vehicles would occur in 2024.

SHORT RANGE TRANSIT PLAN

The Pasadena Transit SRTP calls for 10-minute service on major corridors including those providing connections to Metro Rail stations. This and other recommendations in the Plan would cost approximately \$4 million per year to implement. Another \$5 million would be needed for additional electric vehicles to operate the increased service levels (see above).

TRANSPORTATION OPERATIONS AND MAINTENANCE FACILITY

The programs described above (student passes and SRTP service increases) would serve to greatly increase Pasadena Transit's capacity needs. Additionally, the City's current operations and maintenance facility is leased, and that lease will expire in four years. Construction of a new facility on City-owned property to accommodate these needs would cost an estimated \$33 million.

BICYCLE TRANSPORTATION ACTION PLAN PROJECTS

The City completed an updated bicycle master plan in 2015. While a few of its recommended projects are in development, most remain unfunded. The estimated cost to complete all projects in the plan – including facilities along bike routes (lanes, bicycle boulevards, etc.) as well as bike parking and other amenities – is about \$5 million, a relatively small figure for a program that would result in comprehensive improvements citywide. (Note that most projects would require additional community discussion and project refinement.)

The Arroyo Link

The Arroyo Link would be a combination of Class III and Class I paths connecting the in-progress bike facilities on Union Street (a protected cycle track) to the existing Arroyo Seco Path. Upon future completion of the Arroyo Seco Path to the Los Angeles River path, the Link could provide a key connection in the regional bicycle network to Old Pasadena, Pasadena Civic Center and Pasadena City College.

This project has not yet been designed, and cost estimates have not yet been developed. However, most of the project would utilize city streets, and only about 1,000 feet of new, off-street path would be required. This segment – between Orange Grove Boulevard and the Arroyo Seco Path – presents design challenges including topography and existing infrastructural constraints (primarily the Colorado Boulevard access to the Colorado Street Bridge). New bridges and/or

SR-710 Early Action Projects Funding Request to Metro
[City of Pasadena]

tunnels would likely be required. Nonetheless, we believe the project cost should not exceed \$1-2 million, including costs for an initial feasibility study.

BIKESHARE EXPANSION

As currently configured, Metro funds up to 35 percent of operating and maintenance costs for the Metro Bike Share program. We believe that setting aside a small portion of the 710 TSM/TDM funding to fully subsidize five additional bike stations, increasing the total in Pasadena from 32 to 37, and funding these stations for a minimum of three years would be a worthwhile use of the funding. Combined capital and O&M costs for each station are currently \$80,000 per year.

MOBILITY HUBS

Consistent with recommendations of the SR-710 Working Group (recommendations that were based in turn on previous concepts developed by the City of Pasadena), the City is requesting funding for “mobility hub” first/last mile access improvements at Gold Line stations. Because Metro Rail station sites in Pasadena are generally constrained, analysis would need to be conducted of space requirements for different potential elements, as well as other factors including costs and benefits.

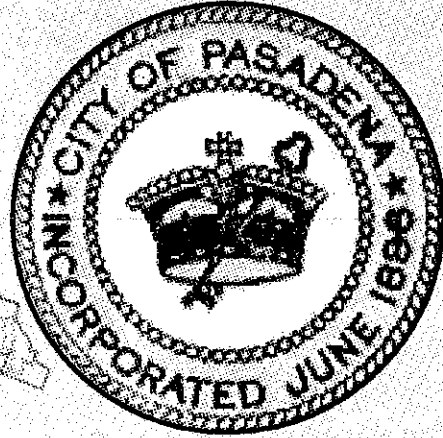
SR-710 Early Action Projects Funding Request to Metro
[City of Pasadena]

SR-710 EARLY ACTION PROJECTS FUNDING ESTIMATES

Project	Preliminary Cost Estimate
Gold Line Grade Separation at California Boulevard	\$105M
I-210 Stub Ramp Modifications	\$10-\$50M
<i>Traffic Calming Programs</i>	–
Pasadena Avenue/St. Johns Avenue Complete Streets	\$15M
Allen Avenue Complete Streets	\$1.5M
Hill Street Corridor Complete Streets	\$1.5M
Avenue 64 Complete Streets	\$2M
Gold Line At-Grade Crossing Enhancements	\$950k
Pedestrian and Bicyclist Automated Data Collection	\$1.4M
High-Resolution Traffic Signal Data	\$8.5M
Walnut Street Corridor Upgrades	\$4.1M
I-210 Connected Corridors Expansion	\$5M
Rapid Bus Improvements	\$1-\$10M/mi.
Rose Bowl Shuttles (non-service)	<\$1M
Rose Bowl Shuttles (ASMAF service and analytics)	\$200k/yr.
Student Transit Passes (Pasadena Transit only)	\$175k/yr.
Electric Transit Vehicles	\$28M
SRTP (service)	\$4M/yr.
SRTP (additional vehicles)	\$5M
Transportation Operations and Maintenance Facility	\$33M
Bicycle Transportation Action Plan Projects	\$5M
Arroyo Link	\$1-2M
Bike Share Expansion	\$400k/yr.
Mobility Hubs	\$10M

FINAL REPORT

SOUTHWEST PASADENA Traffic Study



Prepared
for:

City of Pasadena

December 1997

By:



Meyer, Mohaddes Associates, Inc.

Traffic Engineering • Transportation Planning

Table of Contents

1.0 INTRODUCTION 1
1.1 Purpose of the Study 1
1.2 Study Area and General Issues 1
1.3 Organization of the Report 1
1.4 Study Participants 3

2.0 EXISTING CONDITIONS/IDENTIFIED PROBLEMS 4
2.1 Daily Traffic Volumes 4
2.2 Intersection Levels of Service 4
2.3 Traffic Speeds 9
2.4 Through Traffic Analysis 9
2.5 Other Concerns Identified by the Public 13

3.0 IDENTIFIED ALTERNATIVE IMPROVEMENT/TRAFFIC CONTROL MEASURES . . . 17
3.1 Alternatives Considered 17
3.2 Summary of Plans 17
3.3 Disadvantages of the Specific Elements of Plan A 19

4.0 RECOMMENDED PLAN 21
4.1 Traffic Calming Measures 21
4.2 Traffic Diversion Measures 26
4.3 Measures for Pasadena/St. John 27
4.4 Costs 28
4.5 Implementation and Monitoring Plan 28
4.6 Environmental Review and Impact 28
4.7 List of Public Meetings/Hearings 29

List of Figures

Figure 1. Boundaries of the Study Area 2
Figure 2. Study Intersections/ADT Volumes 5
Figure 3. Existing Intersection Levels of Service 8
Figure 4. Spot Speed Survey Results 10
Figure 5. Summary of Estimated Through Traffic 14
Figure 6. Comparison of Volumes and Through Traffic 15
Figure 7. Proposed Traffic Management Plan 24
Figure 8. Effects of Proposed Traffic Management Plan 25

List of Tables

Table 1. Existing Intersection Levels of Service 6

1.0 INTRODUCTION

1.1 Purpose of the Study

In 1994 the City of Pasadena initiated a comprehensive study to examine the magnitude of traffic problems affecting the neighborhoods in the southwestern part of the City and to develop solutions through a consensus-building process. During a two-year process, the consultant team and City staff, working directly with a community Ad Hoc Committee established by the City Council, developed a series of recommendations to manage traffic in the this part of the City of Pasadena. The objective of these Southwest Pasadena traffic management strategies is to provide a 10-year traffic management plan which will de-emphasize auto traffic on certain streets as listed in the Mobility Element and encourage use of the City's designated Mobility Corridors. The ultimate goal of the plan is to prevent the degradation of the circulation system in Southwest Pasadena caused by through traffic in the area.

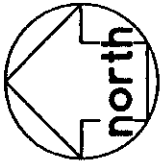
1.2 Study Area and General Issues

The Southwest Pasadena Study area is generally defined as the southwestern quadrant of the City of Pasadena which is south of the 134/210 freeways and west of Lake Avenue. Figure 1 shows the boundaries of the study area. The area is comprised of a mixture of land uses with commercial, industrial, office and residential uses. The majority of the land use in the area, and the focus of this study, are the residential neighborhoods. Typically, the residential areas are located away from the primary mobility corridors identified in the General Plan Mobility Element. However, because of the availability of a grid system of parallel neighborhood streets that provide good circulation and capacity for vehicles, traffic intrusion into residential neighborhoods and cut-through traffic have historically been a source of traffic issues in the Southwest Pasadena area.

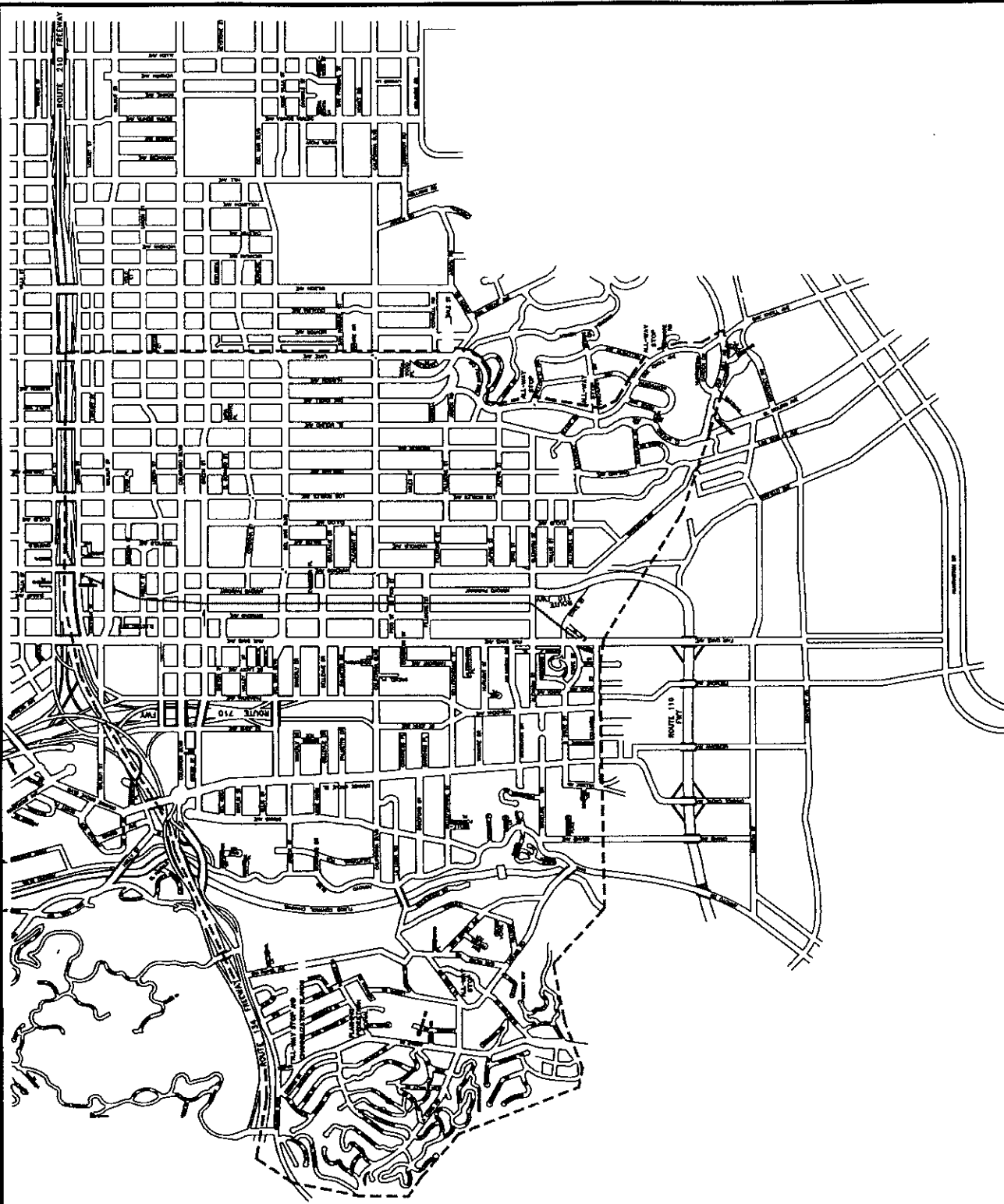
The Southwestern Pasadena area is affected by a number of historically unique traffic conditions. The Pasadena Freeway (SR-110), the oldest freeway in the West, which begins as the Harbor Freeway at the Port of Los Angeles some 30 miles away, terminates at a surface street intersection in this area. The Long Beach Freeway (I-710), another important regional facility connecting the ports area to the north, has a nearly half-a-century old 6-mile gap, with its northern terminus in this area. The southwest area is also affected by traffic during the Tournament of Roses Parade and athletic events at the Rose Bowl, as well as visitor traffic to the Old Pasadena area, which is a popular tourist attraction. On the other hand, the area houses some of the oldest residential neighborhoods in Pasadena, with many of the homes fronting residential streets which function like collector and arterial facilities and are greatly affected by the commuter and visitor through traffic.

1.3 Organization of the Report

This report summarizes the results of the Southwest Pasadena Traffic Study. It consists of four chapters. Chapter One introduces the study, its purpose and goals and the study participants. Chapter Two presents a brief summary of the existing conditions, identified circulation problems and key findings from the study. Chapter Three identifies the alternative improvement/traffic control measures. A list of the considered alternatives is presented along with a summary of each alternative and why certain alternatives were not recommended for implementation. Chapter Four presents the details of the recommended plan.



NOT TO SCALE



LEGEND:

SOUTHWEST
STUDY
BOUNDARY



Meyer, Mohades Associates, Inc.
Traffic Engineering • Transportation Planning

Boundaries of the Study Area
Southwest Pasadena Traffic Study

FIGURE
1

Traffic calming/diversion measures are discussed in detail along with costs, implementation/monitoring plan and the possible need for environmental impact review. Details of all analysis and technical memoranda officially presented to the Ad Hoc Committee are included in the separate Technical Appendix to this report.

1.4 Study Participants

The Southwest Pasadena Traffic Management plan was developed through a collaborative effort. The study participants included the City of Pasadena Public Works Department, Traffic and Transportation Section staff, the consultants and members of the Citizens' Ad Hoc Committee. The Ad Hoc Committee also included members from various neighborhood groups in the Southwest Pasadena area including the Oak Knoll Improvement Association, the West Pasadena Residents' Association, Madison Heights, and others.

2.0 EXISTING CONDITIONS/IDENTIFIED PROBLEMS

2.1 Daily Traffic Volumes

As seen on Figure 2, daily two-way traffic volumes on north-south streets range from a low of 3,500 on El Molino Avenue South of Glenarm Street to nearly 41,000 on Arroyo Parkway south of California Boulevard. The one-way street pair of Pasadena Avenue and St. John Avenue together carry nearly 55,000 daily trips north of California Boulevard. Daily two-way traffic volumes on east-west streets are generally lower than the north-south streets. These volumes range from a low of 7,300 on Glenarm Street, east of Los Robles Avenue to 24,600 on California Boulevard, also east of Los Robles Avenue.

2.2 Intersection Levels of Service

A total of 32 key intersections within the study area were analyzed to determine peak hour traffic operating conditions. The summary results of AM and PM peak hour intersection analysis for all intersections are presented in Table 1 and Figure 3. Detailed results of intersection analyses are included in the Technical Appendix to this report. Table 1 shows the levels of service (LOS) and volume/capacity ratios for both AM and PM peak hours. In the AM peak hour, 23 of the 32 intersections operate at or better than LOS D. Three intersections operate at LOS E and six operate at LOS F. In the PM peak hour, operating conditions are generally worse than the AM, with 21 of the 32 intersections operating at or better than LOS D. Four intersections operate at LOS E and seven operate at LOS F. In both peak hours, the majority of the intersections which are at LOS E or LOS F are located west of Fair Oaks Avenue. In both peak hours, intersections with the worst operating conditions tend to be located along California Avenue and Columbia Street, again concentrated west of Fair Oaks. Five intersections operate at LOS F in both peak hours. These are: the intersection of El Molino at Del Mar, and the intersections of Columbia Street both at Pasadena and Fremont, Los Robles at California, and Lake at California.

In June of 1993, pursuant to the recommendations of the City's Mobility Element of the General Plan, traffic de-emphasizing measures were implemented on Los Robles Avenue, south of Del Mar Boulevard. Among other measures, these measures included a reduction in through traffic lanes from two lanes to one lane in each direction. A before and after study conducted by the City has indicated that traffic volumes on Los Robles south of Del Mar, have decreased between 2.7 percent (south of Glenarm) to 6.3 percent (between Del Mar and California). At the same time, traffic volumes on some parallel streets such as Marengo have increased, indicating a diversion of trips. Despite this reduction in traffic, as can be seen on Figure 3, some of the worst intersection levels of service in the PM peak are along the de-emphasized segment of Los Robles, between Glenarm and Del Mar. The intersection of California operates at LOS F, while Del Mar and Glenarm are at LOS E, indicating heavy congestion, which has also been verified through field observations.

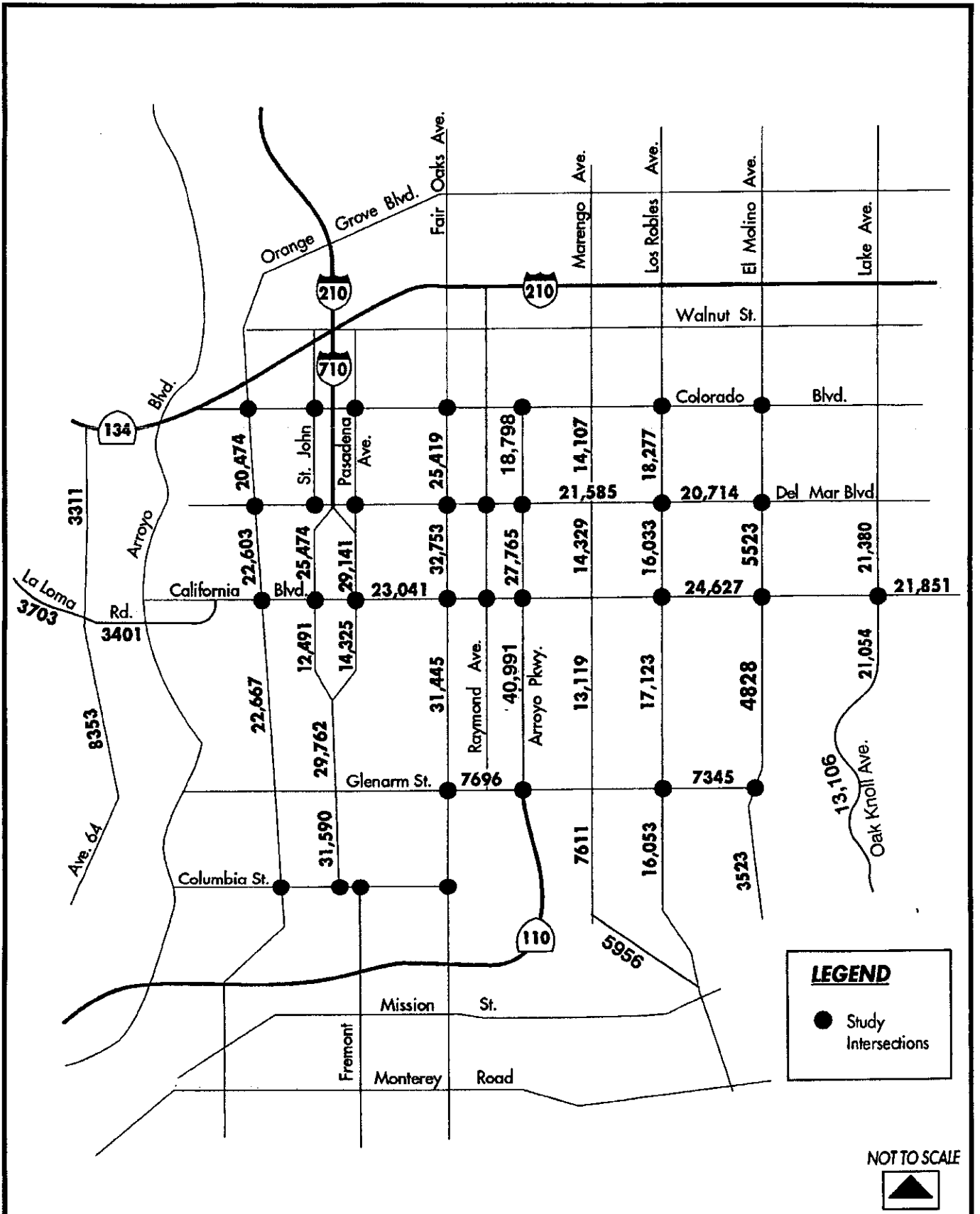
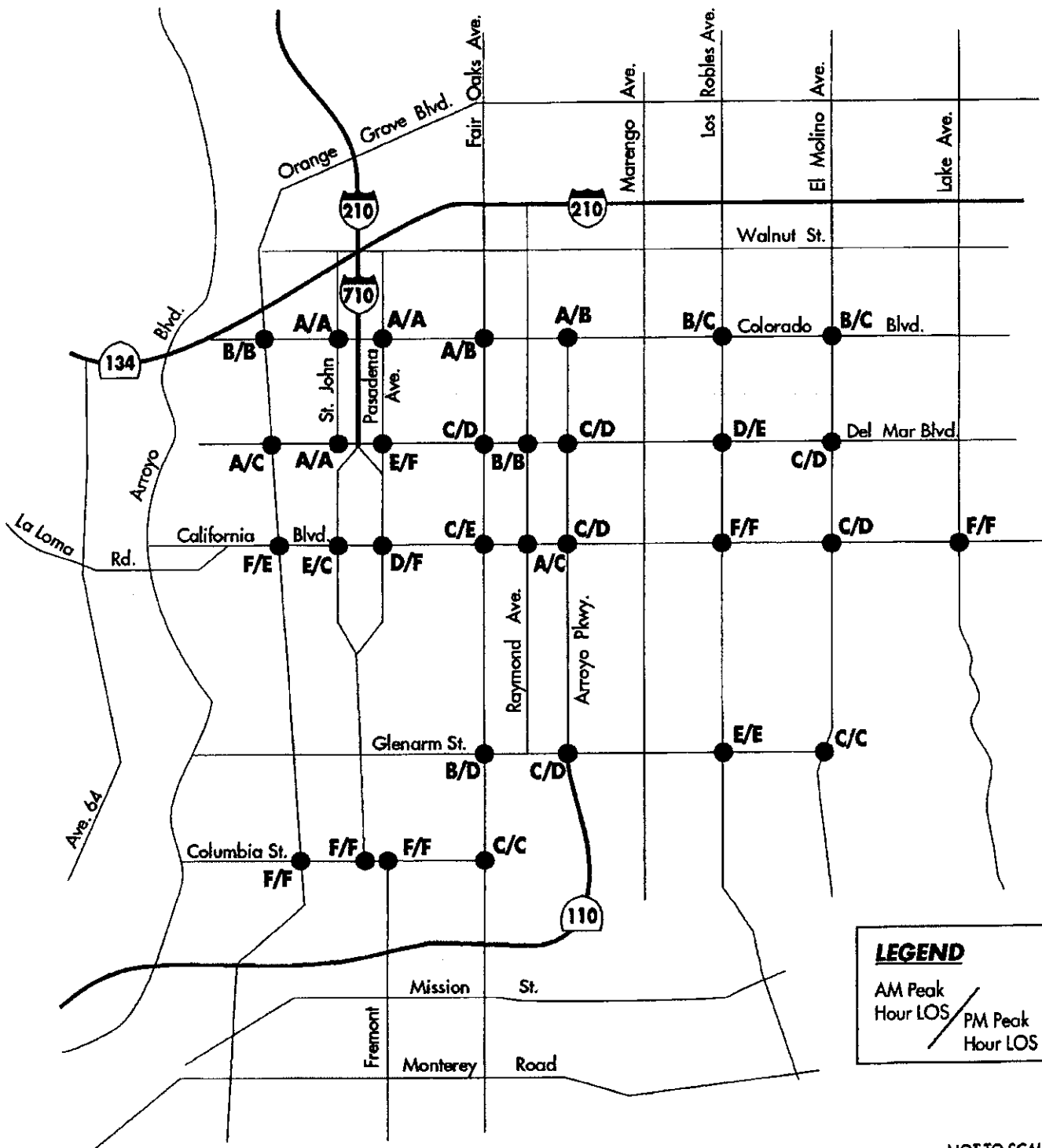


TABLE 1

EXISTING CONDITIONS - AM AND PM PEAK HOUR
LEVEL OF SERVICE AND VEHICLE/CAPACITY RATIO

Int. #	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	V/C	LOS	V/C
1	Orange Grove Bl./Colorado Bl.	B	0.637	B	0.672
2	St. John Ave./Colorado Bl.	A	0.327	A	0.549
3	Pasadena Ave./Colorado Bl.	A	0.293	A	0.402
4	Fair Oaks Ave./Colorado Bl.	A	0.532	B	0.618
5	Arroyo Pkwy./Colorado Bl.	A	0.466	B	0.617
6	Los Robles Ave./Colorado Bl.	B	0.604	C	0.740
7	El Molino Ave./Colorado Bl.	B	0.609	C	0.791
8	Orange Grove Bl./Del Mar Bl.	A	0.557	C	0.748
9	St. John Ave./Del Mar Bl.	A	0.413	A	0.356
10	Pasadena Ave./Del Mar Bl.	E	0.963	F	1.019
11	Fair Oaks Ave./Del Mar Bl.	C	0.769	D	0.834
12	Raymond Ave./Del Mar Bl.	B	0.601	B	0.681
13	Arroyo Pkwy./Del Mar Bl.	C	0.712	D	0.840
14	Los Robles Ave./Del Mar Bl.	D	0.824	E	0.933
15	El Molino Bl./Del Mar Bl.	C	0.789	D	0.854
16	Orange Grove Bl./California Bl.	F	1.016	E	0.916
17	St. John Ave./California Bl.	E	0.947	C	0.766
18	Pasadena Ave./California Bl.	D	0.898	F	1.001
19	Fair Oaks Ave./California Bl.	C	0.773	E	0.902
20	Raymond Ave./California Bl.	A	0.589	C	0.717
21	Arroyo Pkwy./California Bl.	C	0.744	D	0.861
22	Los Robles Ave./California Bl.	F	1.214	F	1.393
23	El Molino Ave./California Bl.	C	0.717	D	0.830

Int. #	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	V/C	LOS	V/C
24	Lake Ave./California Bl.	F	1.238	F	1.358
25	Fair Oaks Ave./Glenarm St.	B	0.693	D	0.838
26	Arroyo Pkwy./Glenarm St.	C	0.708	D	0.854
27	Los Robles Ave./Glenarm St.	E	0.915	E	0.901
28	El Molino Ave./Glenarm St.	C	0.890	C	0.934
29	Orange Grove Bl./Columbia St.	F	1.190	F	1.025
30	Pasadena Ave./Columbia St.	F	1.168	F	1.186
31	Fremont Ave./Columbia St.	F	1.231	F	1.161
32	Fair Oaks Bl./Columbia St.	C	0.703	C	0.755



2.3 Traffic Speeds

Spot speed surveys were compiled to evaluate the speed trends at some locations within the Southwest area where concerns existed regarding excessive speeds. The surveys were obtained from the City's existing database of radar speed surveys. The 85th percentile speeds at these locations were compared to the posted speed limits.

The 85th percentile speed is the accepted standard for "representative" or prevailing speed of the roadway. This is the speed at which 85 percent of the vehicles will travel at or below on that roadway and is often higher than the posted speed limit. Typically, only vehicles traveling at speeds above the 85th percentile speed are considered traveling at excessive speeds. Figure 4 displays a summary of spot speed survey information for the southwestern area. As can be seen from the figure, 85th percentile speeds are all greater than the posted speed limits. In general, the speeds are between 4 and 12 MPH greater than the posted speed limit. There are no significant speed differences between the directions of travel at most locations and speeds are consistent throughout the length of the roadway in the southwest area.

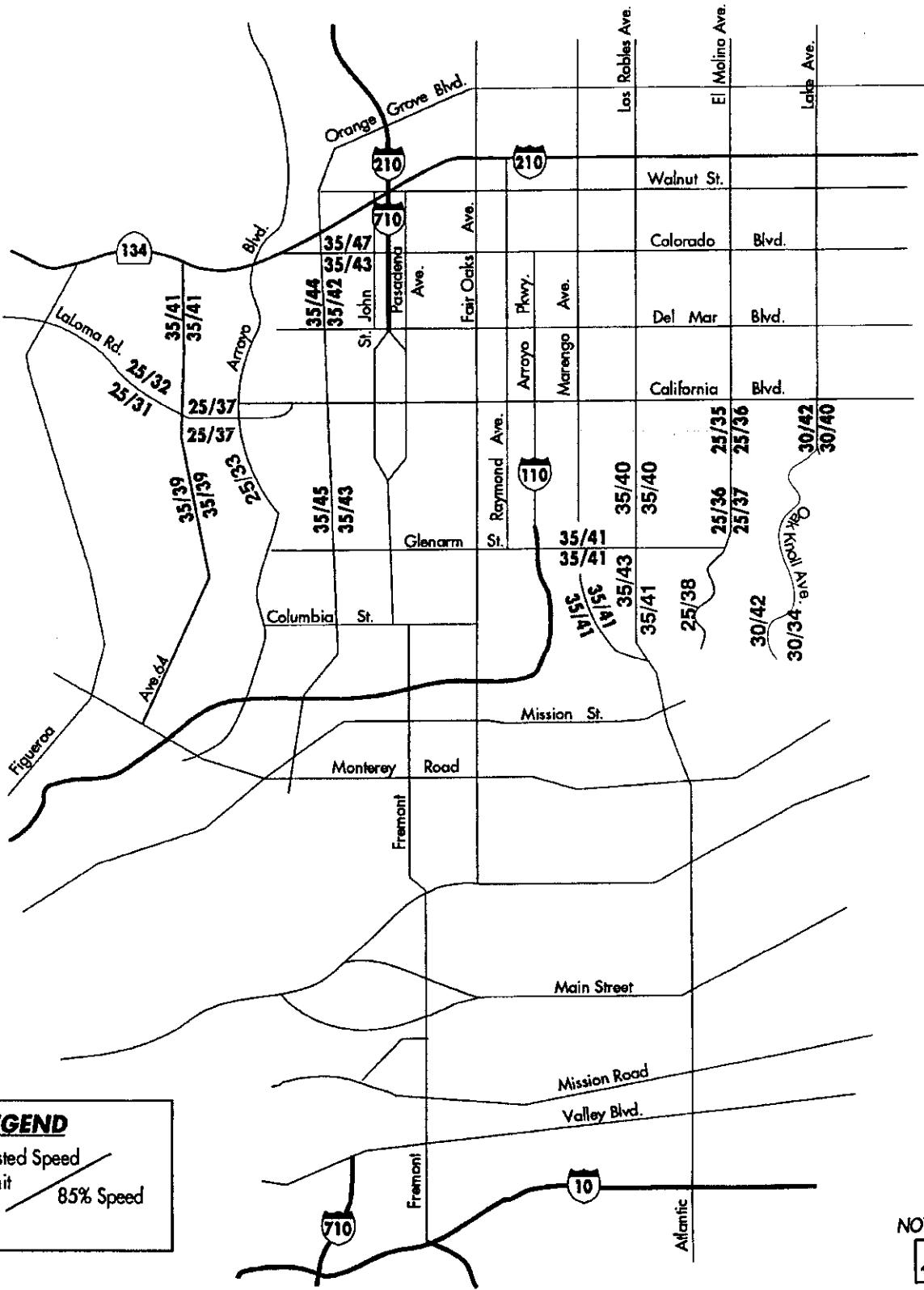
One of the largest difference between the 85th percentile speed and the posted speed limit occurs on the west side of the study area, on La Loma Road west of Avenue 64. The posted speed limit is 25 MPH and the 85th percentile speed is 37 MPH. In contrast, the 85th percentile speed on Avenue 64 south of La Loma Road is 39 MPH and the posted speed limit is 35 MPH. On the east side of the study area, similar large differentials between posted and 85th percentile speeds were observed on Oak Knoll Circle east of El Molino, and on El Molino south of Oak Knoll Circle. Both of these observations would suggest that speeding in the study area is less a function of the overall area as it is the facility type and the connection it provides.

Traffic de-emphasizing measures implemented on Los Robles Avenue in 1993 have had a significant impact on reducing speeds on this street. The before and after studies on Los Robles indicated that 85th percentile speeds on Los Robles have dropped by as much as 12 to 17 percent (between Del Mar and California) and 30 to 31 percent (between California and Glenarm) since the measures were implemented. The 85th percentile speeds, which were in the range of 35 to 39 MPH, have now been reduced to 27 to 30 MPH.

2.4 Through Traffic Analysis

Through Traffic West of Arroyo Parkway

To identify magnitude and patterns of through traffic on streets west of Arroyo Parkway, and traffic connecting between freeways which terminate within and near the study area an extensive through traffic analysis using license plate surveys was conducted on a typical weekday in May. License plates of over 12,000 vehicles passing specific entry check points were recorded in 10 minute intervals during the hours of 6:30-9:30 AM and 3:30-6:30 PM. The surveys were conducted for traffic in the predominant peak directions, which are southbound in the AM and northbound in the PM peak periods.



LEGEND
 Posted Speed Limit
 85% Speed

NOT TO SCALE