

**ENVIRONMENTAL ASSESSMENT
(INITIAL STUDY)**

**Replacement Bus Operation
and Maintenance Facility
for Division 18**

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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**REPLACEMENT BUS OPERATION
AND MAINTENANCE FACILITY FOR
DIVISION 18**

APRIL 1981

PREPARED FOR:

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION AND OVERVIEW	1
SECTION 1: DESCRIPTION OF PROPOSED ACTION	5
SECTION 2: NEED FOR AND ALTERNATIVES TO THE PROPOSED ACTION	17
SECTION 3: ENVIRONMENTAL IMPACTS	23
SECTION 4: LIST OF AGENCIES AND PERSONS CONSULTED	37
REFERENCES	39
APPENDIX	41

INTRODUCTION AND OVERVIEW

This report documents the environmental assessment findings for a new Bus Operation and Maintenance Facility to replace the existing Division 18 facility, which is currently located on an 8.3-acre leased site in South Los Angeles. The existing facility accommodates about 125 buses and is unable to expand on its present site. The new facility, to be located on a 13.3-acre site in the City of Carson, would allow for a fleet of up to 250 buses in order to support the expanded service planned for the South-Southwest Service Area.

Background

As part of its 1980 Sector Improvement Program, the Southern California Rapid Transit District (SCRTD or District) has embarked on a long-range program to expand bus service, as well as expanding and modernizing the necessary support facilities.

In October 1980, a "Bus Operating Facility Needs Study" was completed for the South-Southwest Service Area. This study presented results of technical studies, determination of alternate studies, refinement of candidate alternatives, and community information meetings conducted for the purpose of finding a suitable replacement for the existing Division 18 operating and maintenance facility.

As a result of this earlier work, one candidate site emerged which had the following benefits: (1) near-optimum location; (2) compatible zoning and adjacent land use; (3) vacant parcel; (4) favorable access; (5) acceptable size and soil conditions; and (6) a willing seller.

Based on these factors, the District entered into an Option Agreement with the owner (Wilmington Investments, Inc.) in March 1981.

Federal Environmental Assessment Guidelines

Section 14 of the Urban Mass Transportation Act requires that every major project application include an analysis of the environmental impacts of projects for which capital assistance is sought. In fulfilling its responsibility under this Act, the Urban Mass Transportation Administration (UMTA) requires that the SCRTD submit, as part of a capital grant application, an assessment of environmental impacts that the project may have.

As a result, this report has been prepared in accordance with UMTA Guidelines for Preparing Environmental Assessments (UMTA C 5620.1). Under these guidelines, construction of new bus storage and maintenance facilities in areas predominantly zoned for industry and located on or near an arterial street with capacity adequate to handle anticipated bus traffic, are normally classified as Class 2 actions and as such, are categorically excluded from the requirement to provide either Environmental Impact Statements or Environmental Assessments. All that is required is that a detailed description of the proposed project and its setting be provided in order to enable UMTA to verify that the proposed project is indeed a categorical exclusion.

However, based on uncertainty regarding the potential air quality, noise, and traffic impacts which the proposed project might produce, the District determined that an Environmental Assessment should be prepared.

State Environmental Review Requirements

The California Environmental Quality Act (CEQA) requires that an Initial Study of Environmental Effect be conducted for projects which may have a significant effect on the environment. This document fulfills the CEQA requirements of an Initial Study as well as meeting Federal requirements for an Environmental Assessment.

Report Format

This report follows the format of the more detailed Class 3 Environmental Assessment, rather than the simpler Class 2 Project Description and Setting, in order to clarify any areas in which doubt may exist regarding the proposed Bus Maintenance and Storage Facility's impact on environmental quality. This

document will assist UMTA in its determination relative to the categorical exclusion status of this project, or a "Finding of No Significant Impact."

The District will file a Negative Declaration of Significant Environmental Impacts according to CEQA following notification of concerned persons.

SCRTD DIVISION 18 REPLACEMENT FACILITY NOISE IMPACTS

Noise emissions related to the operation of a bus maintenance facility would result from the travel of buses and employee vehicles on arterials adjacent to the facility, as well as from stationary on-site activities such as engine run-ups, cyclone vacuuming and tire changes. In the case of the proposed Division 18 facility, the only sensitive receptors located in the vicinity of the facility is a major residential development located south of Victoria Street and east of So. Main Street. Several homes in this development would be located adjacent to Victoria Street (one of the access routes for buses and employees to the facility). Also, several homes located in this development would have a direct unobstructed line of sight to the facility. The distance between these homes and the facility would be approximately 1,200 feet.

Noise Effects of Buses and Employee Vehicles on Victoria Street

In an effort to determine the effect bus and employee vehicle activity would have on noise levels at this residential location, a worst case condition was developed. This worst case was determined by the following:

- o Hour of the day with the maximum number of bus trips
- o Hour of the day when bus trips constituted the greatest proportion of facility-generated traffic
- o Hour of the day when total facility-generated traffic constituted the greatest proportion of total traffic

The results of this investigation concluded that the hours between 5 AM and 6 AM would represent the worst case. Specifically, the segment of Victoria Street just east of So. Main Street adjacent to the residential receptors would carry an hourly traffic volume of 160 vehicles including 10 to 20 percent trucks. Facility-related traffic on this street segment would include 14 buses and 13 employee vehicles.

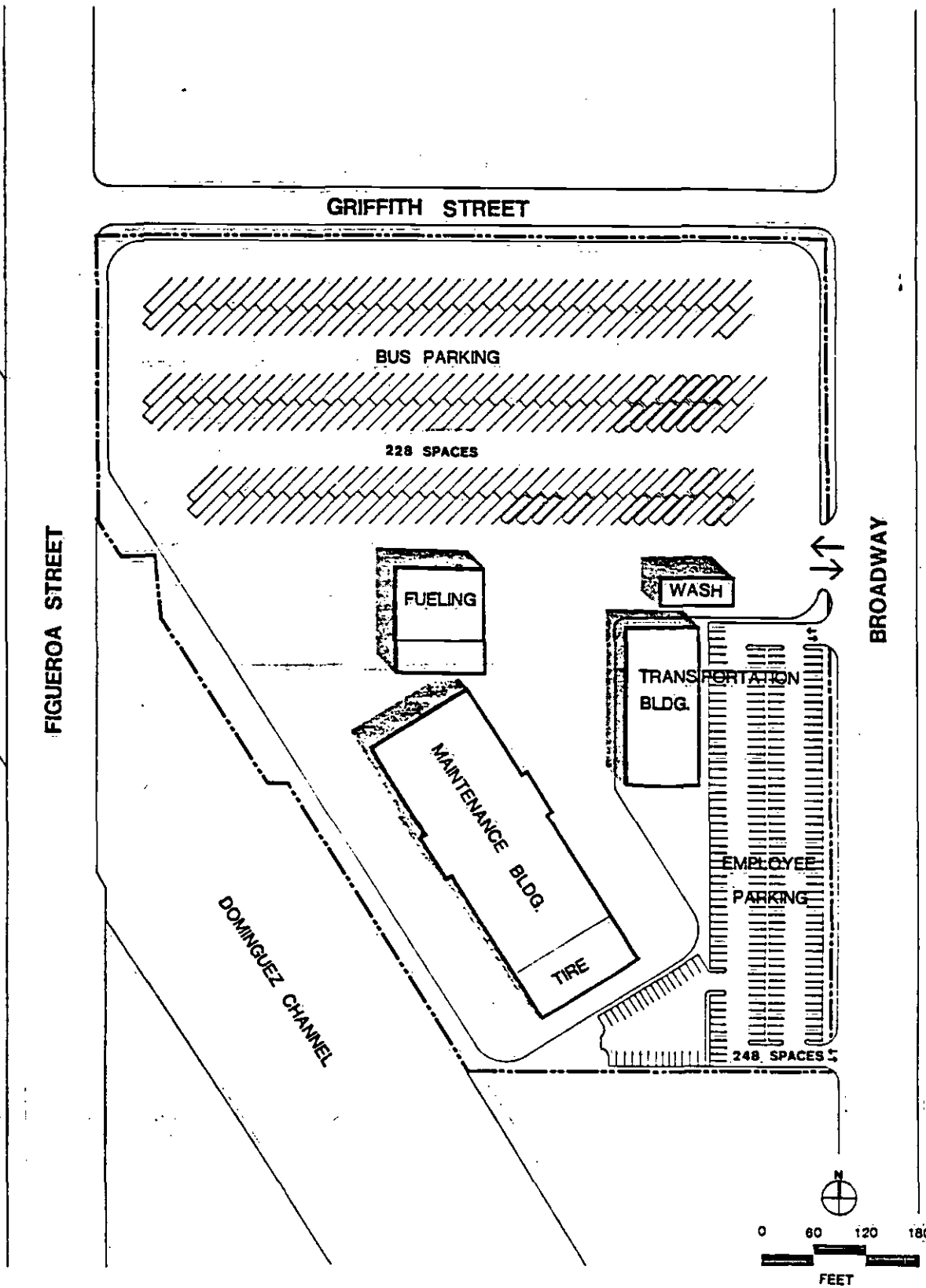


Figure 5
Site Plan Concept 2

The effect of intermittent noise emissions resulting from engine run-ups, vacuuming and tire changes is determined through a computation procedure developed by the Environmental Protection Agency.¹ The formula is as follows:

$$L_{eq} = L_b + 10 \text{ Log } \left[(1-x) + x \frac{10^{L\Delta}}{10} \right]$$

Where

L_{eq} = The resultant noise level

L_b = Ambient noise level

x = Duration of new emissions (in fractions of an hour)

$L\Delta$ = Difference between maximum emissions of the new source and the ambient level

Computations for each site activity are shown below.

Engine Run-Ups

- o One event with a duration of 20 seconds
- o Maximum noise level produced is 63 dBA at 1,200 feet
- o Ambient noise level is 51 dBA.

$$L_{eq} = 51 + 10 \text{ Log } \left[\left(1 - \frac{20}{3600}\right) + \frac{20}{3600} \frac{10^{12}}{10} \right]$$

$$L_{eq} = 51 + 0.3$$

$$L_{eq} = 51.3$$

Cycle Vacuum

- o One event with a duration of 240 seconds
- o Maximum noise level produced at 1,200 feet is 55 dBA
- o Ambient noise level is 51 dBA

$$L_{eq} = 51 + 10 \text{ Log } \left[\left(1 - \frac{240}{3600}\right) + \frac{240}{3600} \frac{10^4}{10} \right]$$

$$L_{eq} = 51 + 0.4$$

$$L_{eq} = 51.4$$

¹ U.S. EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety, March 1979, p. A-7.

Using the Federal Highway Administration Traffic Noise Prediction Model (nomograph) and applying it to background traffic and facility traffic produced negligible changes in noise levels (1-2 decibels) at residential receptors located off of Victoria Street.¹ Specifically, background traffic noise levels were estimated to have an L_{eq} 64-65. Traffic generated by the Division 18 facility would produce an L_{eq} 59. The addition of these sources yielded 64-66. It should also be noted that the resultant L_{eq} falls within the L_{eq} 67 standard established by FHWA for residential (category B) land uses.

Noise Effects of On-Site Sources

The following analysis illustrates the negligible effect of noise emissions originating from engine run-ups, cyclone vacuuming, and tire changes at the proposed bus maintenance facility. Specifically, in the night and early morning hours increases in noise levels at residential receptors located approximately 1,200 feet east of the facility would be as follows:

<u>Activity</u>	<u>Ambient Noise Level At Receptor</u>	<u>Increase Due To Facility (Decibels)</u>	<u>Remarks</u>
Engine Run-ups	51	0.3	Changes less than 3 decibels Imperceptible change
Cyclone Vacuuming	51	0.4	Changes less than 3 decibels are imperceptible
Tire Changes	51	1.3	Changes less than 3 decibels are imperceptible

This analysis assumed events occurred at 4 A.M. An ambient noise level of 51 dBA was developed through the application of the Federal Highway Administration Traffic Noise Prediction Model (nomograph) to an assumed 4 A.M. traffic volume of 50 vehicles per hour for S. Main Street (adjacent to the residential receptors). Noise level input data was developed from the operating experience of SCRTD's El Monte Bus Maintenance Facility. No barrier wall was assumed in this analysis.

¹ U.S. DOT, FHWA, Traffic Noise Prediction Model, FHWA-RD-77-108, December 1978.

Proposed Site and Surrounding Land Uses

The proposed site for the facility is a 13.3-acre site two blocks to the east of the present facility. The site is zoned MH-D (Manufacturing, Heavy Design Overlay) and has been cleared and graded for industrial development. The site adjoins the Dominguez Channel (as does the current site) and it is surrounded by predominantly industrial land uses. (Figure 2). Immediately to the south of the site is a trucking-heavy machinery storage yard. To the east of the site between Broadway and South Main Street are several auto-wrecking yards, parts warehouses and vehicle repair services. Beyond South Main to the south-east is the Goodyear Blimp Airfield, while to the east and northeast is a single-family residential neighborhood. (The closest houses to the proposed bus maintenance facility are located at a distance of approximately 1,000 feet.) To the north of the site along Griffith Street are various light industrial firms, while to the northwest is the American corporate headquarters of Datsun/Nissan Corporation. Across the Dominguez Channel along Figueroa Street to the west and southwest are situated several industrial firms including Goodyear Rubber, Pacific Trading Company and a storage yard for a house-moving concern.

Soil borings taken from the proposed site indicate that most of the site is composed of natural soils or compacted fill materials. Only the northwest portion (Figure 3) is made up of uncompacted fill. As a result, preliminary site design configurations (Figures 4 and 5) have sought to avoid placing buildings in this area. A storm sewer has also been installed by the present owner, Wilmington Investments, Inc. (Figure 3).

Major Elements

Primary components of the proposed facility are shown in two site plan concepts shown in Figures 4 and 5. Those components would include the following:

- Maintenance Building (47,500 square feet)
To maintain and service the coaches assigned to the Division including bus inspection, engine tuneups, minor overhaul, tire repair, engine steam cleaning and automobile repair. The maintenance building also contains the following facilities: supply rooms, lunch and locker rooms for mechanics and office space for maintenance administration.

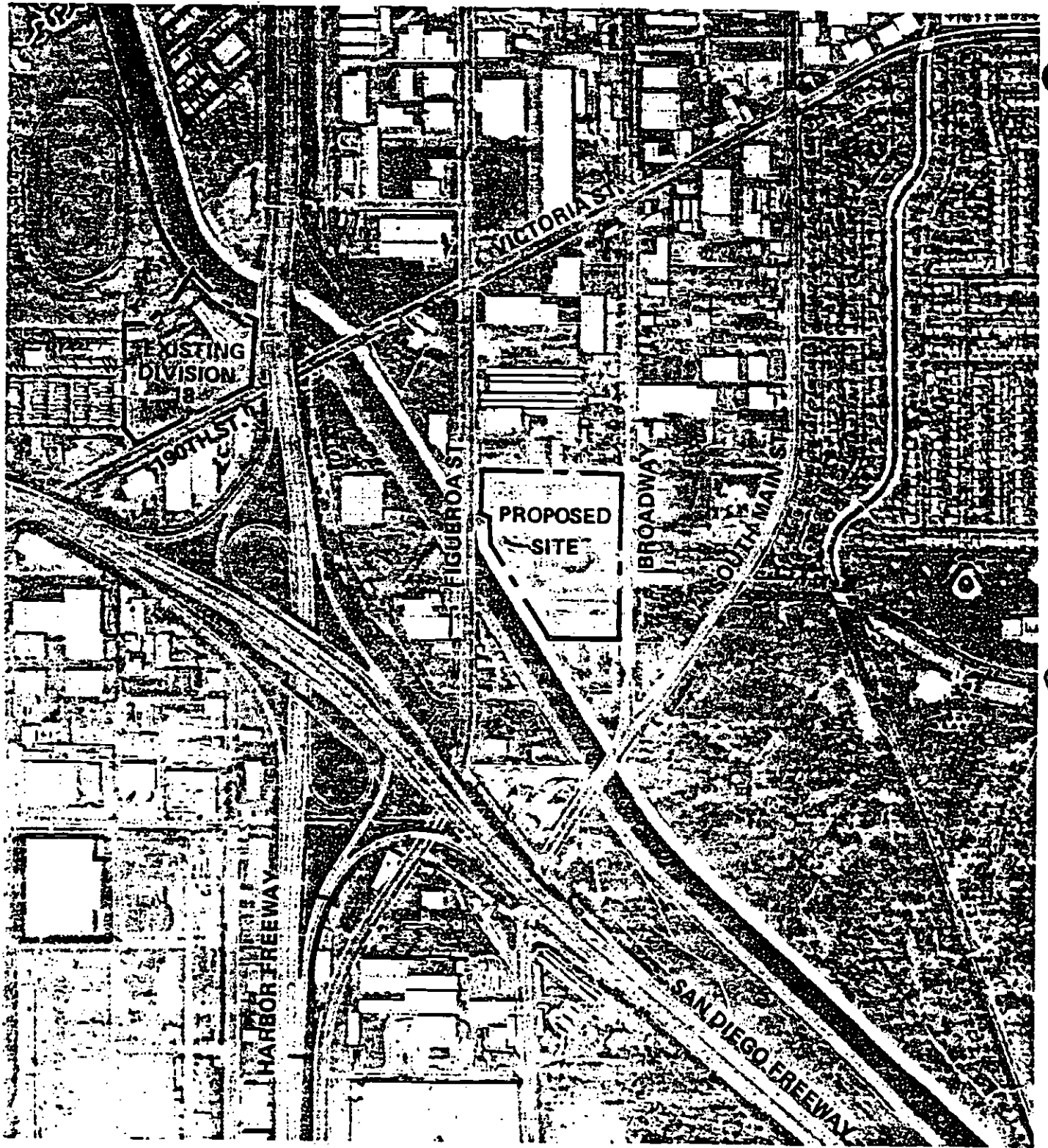


Figure 1
Site Locations: Existing and Proposed Facilities

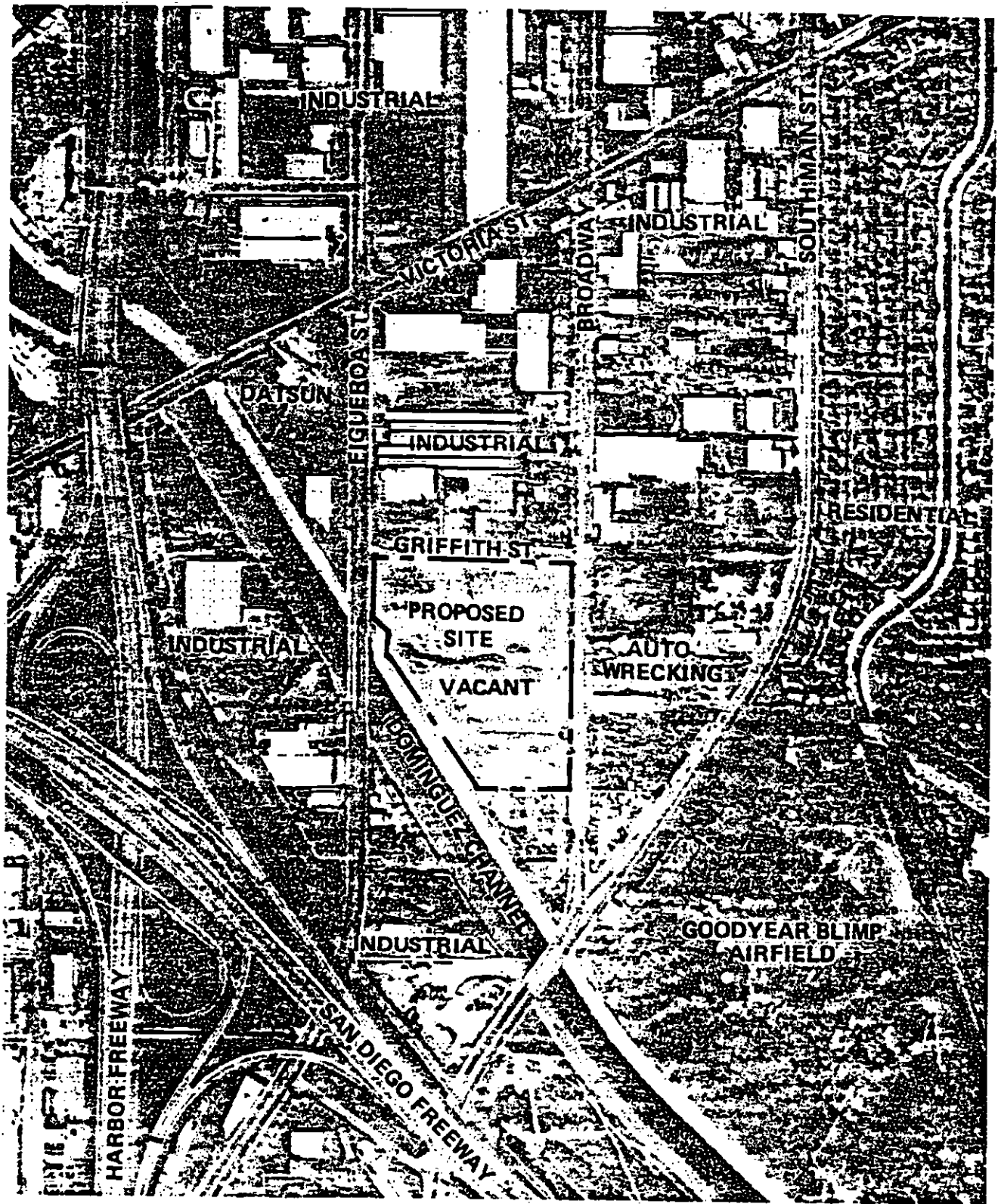


Figure 2
Surrounding Land Uses-Proposed Site

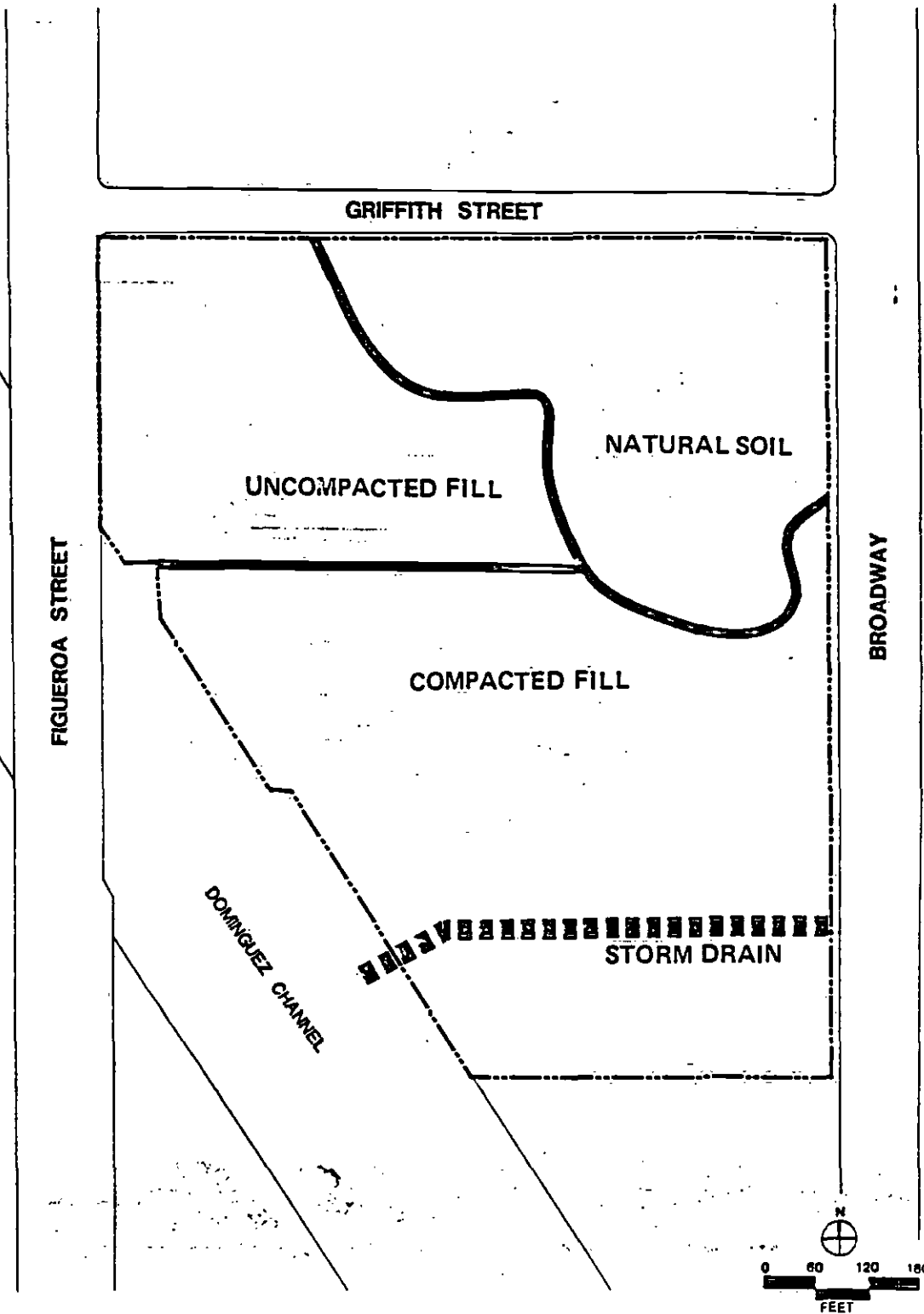


Figure 3
Site Conditions

SOURCES:

- Soils – LeRoy Crandall and Associates
- Storm Drain – Psomas and Associates

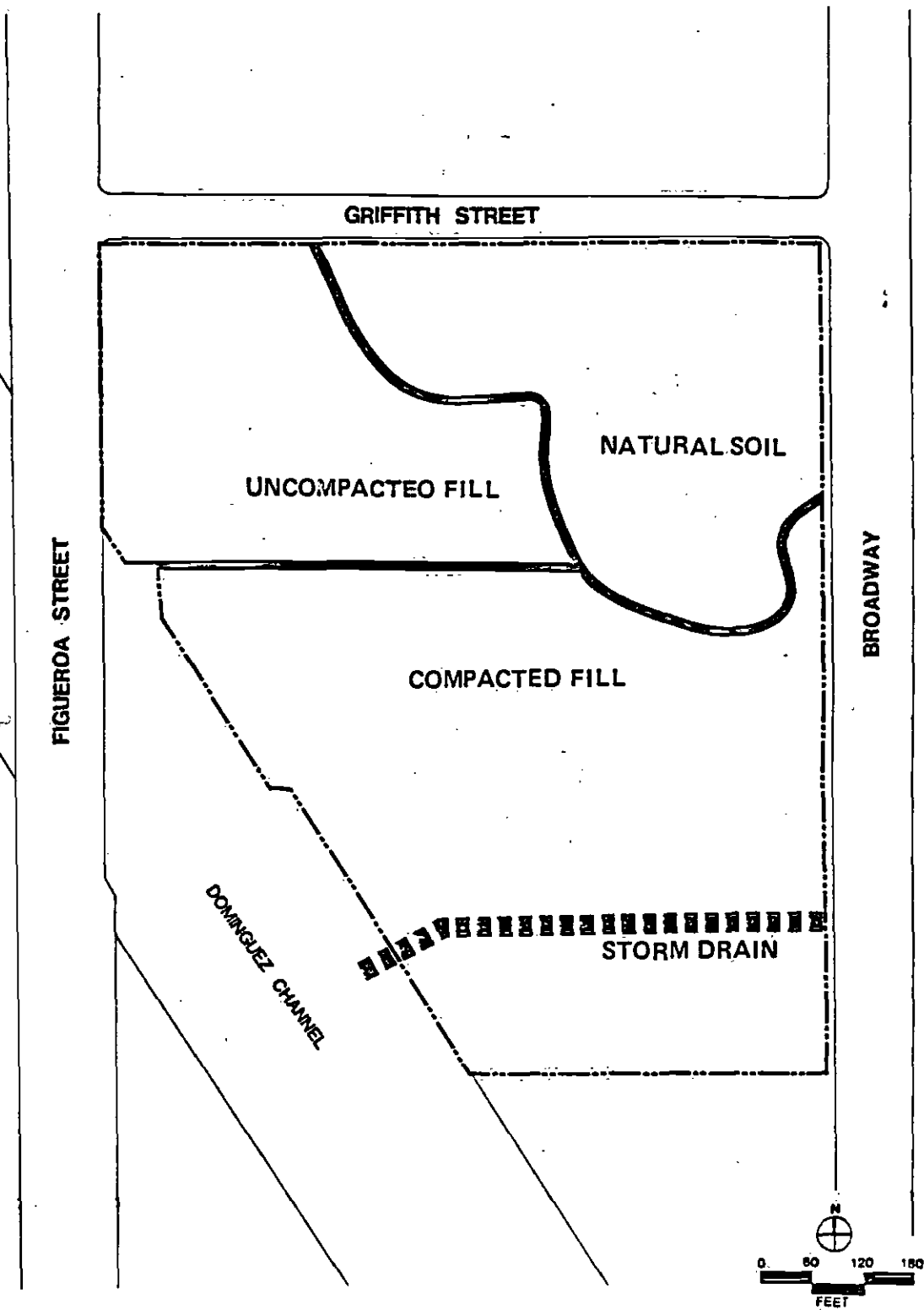


Figure 3
Site Conditions

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Soils — LeRoy Crandall and Associates
 Storm Drain — Psomas and Associates

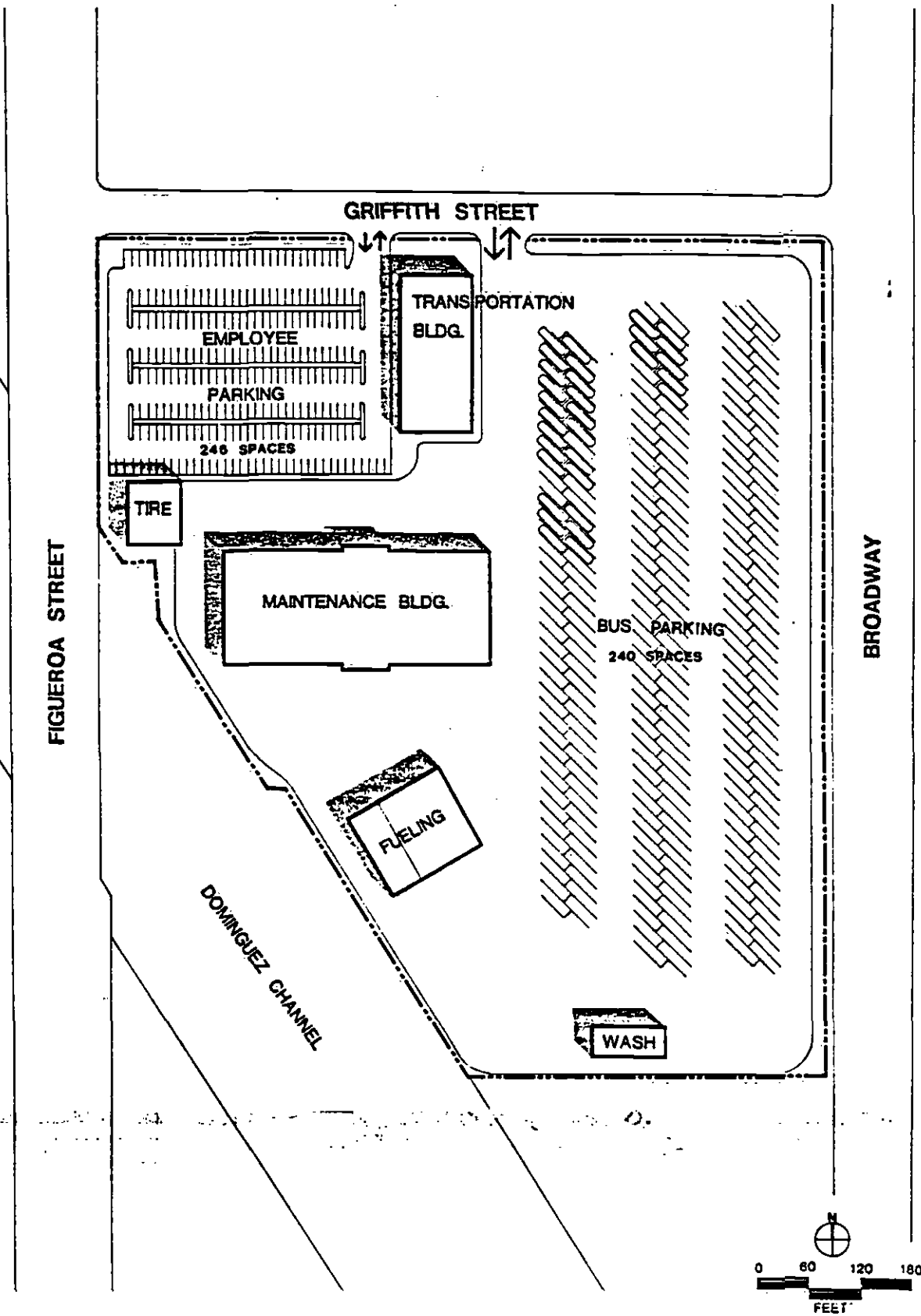


Figure 4
Site Plan Concept 1

- Transportation Building (15,300 square feet)
Operators' lounge area, showers, locker room, classroom and offices for administrative personnel.
- Fuel and Vacuum Facility (13,200 square feet)
The fuel and vacuum facility has four fuel islands with the capability of fueling and vacuuming four buses simultaneously in less than four minutes. The cleaning system consists of a dry vacuum system, dust ; separation and bailer. There are four 20,000-gallon diesel fuel tanks, two 10,000-gallon gasoline tanks and one 10,000-gallon oil tank, and one 100,000-gallon reserve diesel fuel tank.
- Bus Washer (2,600 square feet)
The bus washer is fully automatic and will wash each bus in less than one minute. The system includes a water circulation system that allows reuse of washer water. The only fresh water used in the system is for the final rinse.
- Parking for approximately 250 buses.
- Parking for approximately 250 employees.
- Tire/Storage Building (7,100 square feet)

A facility similar in function to this project is operating in El Monte, California. Major components of this existing facility are similar to those which will be employed in the new project, with the exception of double-deep, angle-row parking which will be utilized at the new facility.

Facility Operations

Upon completion of construction, the 125 buses from the existing Division 18 facility would be transferred to the new facility. The full capacity of 250 buses would then be made up by transfers from other facilities and new buses purchased to coincide with SCRTD expansion plans. Major activities conducted at the facility include:

- Departures and arrivals of buses in service on SCRTD routes.
- Arrivals and departures of employees, including bus drivers, mechanics, and administrative personnel. (Some drivers work split shifts, accounting for two arrival and departure cycles during the day.)
- Vacuuming and fueling of buses.
- Exterior washing and cleaning of buses.
- Service operations, including both routine maintenance and repairs, as required.

The daily sequence of these events, somewhat generalized for purposes of approximating a typical day's activities, is presented in Figure 6. This diagram represents the order of magnitude of events which would be generated when the facility is operating at full capacity (i.e., 250 buses.) Also noted on the diagram are the morning and afternoon peak-hour traffic occurrences.

Mitigation Measures

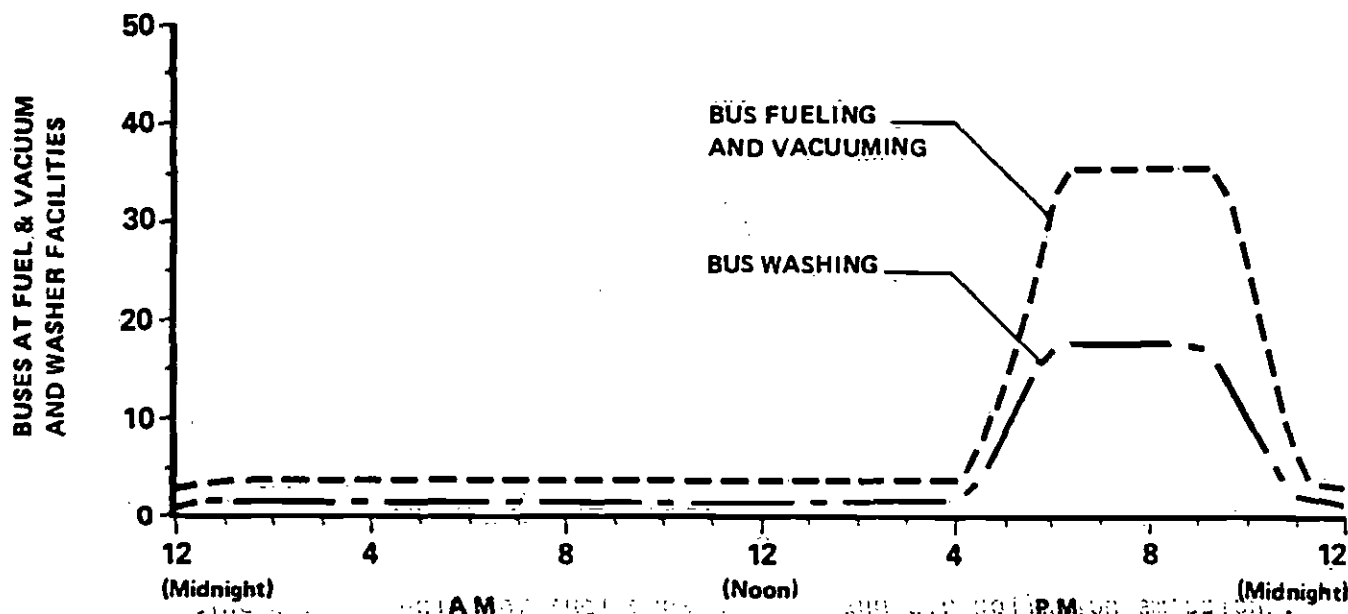
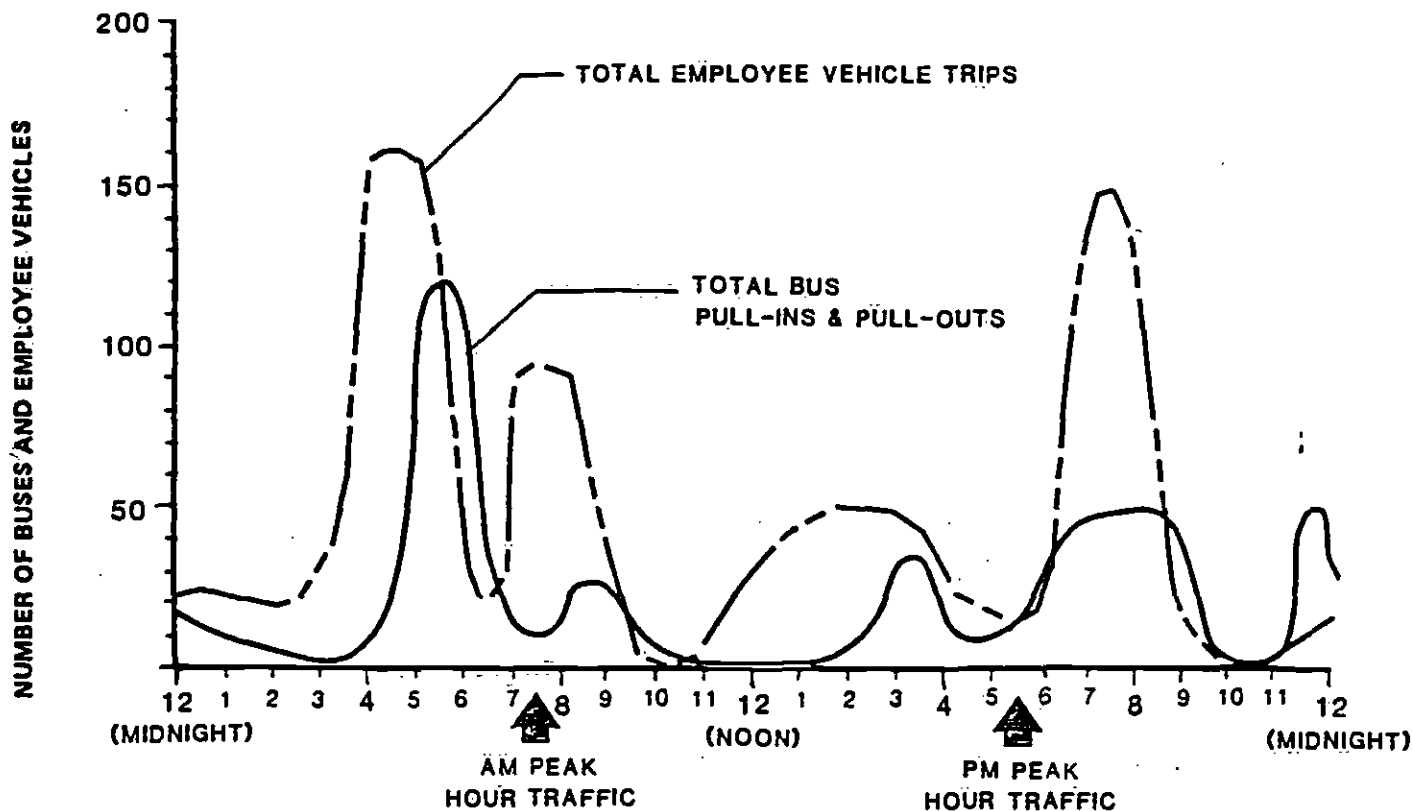
Features have been incorporated into initial planning work for the proposed new bus maintenance facility that are intended to mitigate adverse environmental impacts. They include the following:

1. Reduced Deadheading

This site is the closest of 21 candidate sites to the theoretical point of minimum deadheading mileage. This reduces the amount of mileage traveled by buses when not in service, thus reducing operating costs (including fuel consumption) and air pollution emissions.

2. Bus Routing

Bus travel to and from the maintenance/operations facility has not been directed onto South Main Street, thus avoiding potential impacts to adjacent residential land uses. In addition, easy access to freeways imposes a lesser burden on local streets.



Legend

- TOTAL BUSES (DEPARTING AND ARRIVING)
- - - TOTAL EMPLOYEE VEHICLES (ARRIVING AND DEPARTING)
- - - BUSES AT WASHER FACILITY
- - - BUSES AT FUEL & VACUUM FACILITY

Notes

1. There are approximately 20 engine run-ups per day: 10 run-ups between 8:00 a.m. and 4:00 p.m.; 5 run-ups between 4:00 p.m. and 12:00 (midnight); and, 5 run-ups between 12:00 (midnight) and 8:00 a.m.
2. There are approximately 20 tire changes per day between the hours of 4:00 a.m. and 4:00 p.m.

Figure 6
Bus Facility-24 Hour Diagram

3. Landscaping

A ten-foot landscaped strip has been incorporated along the perimeter of the property. Appropriate planting and noise barrier walls would be provided as necessary to lessen noise impacts and enhance the visual character of the facility.

4. On-Site Parking

All buses and most employee vehicles would be accommodated on site, ; thus minimizing demands on local street parking.

5. Energy Conscious Design

Buildings would be designed to high standards of energy efficiency, including possible utilization of passive solar design and potential earth-sheltered transportation building.

SECTION 2: NEED FOR AND ALTERNATIVES TO THE PROPOSED ACTION

Summary of Needs Study

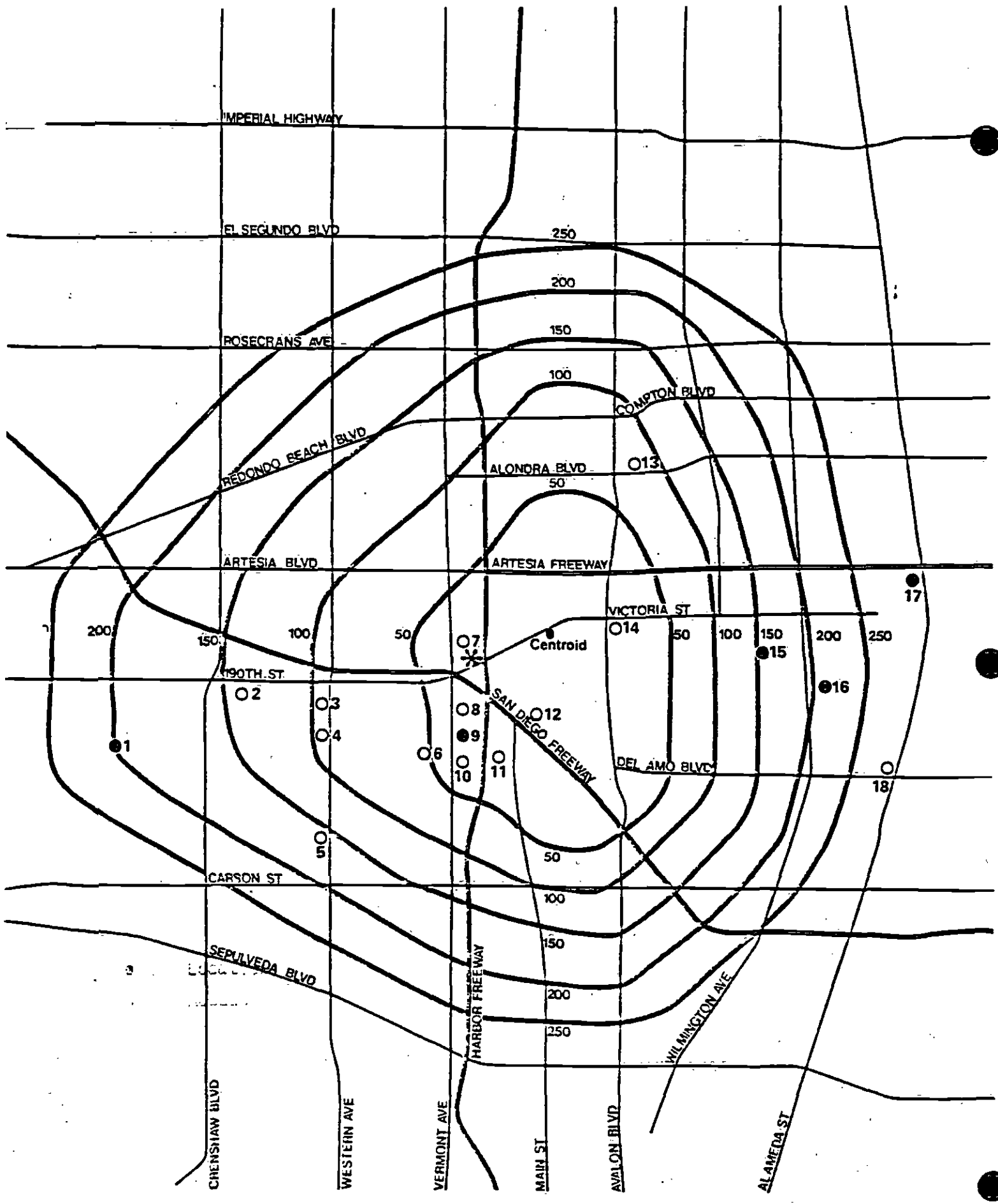
In order to evaluate the need for expanded facilities in the South-Southwest Service Area, SCRTD commissioned a Bus Operating Facility Needs Study. The study was conducted by Gruen Associates, in association with DeLeuw, Cather & Company and Edward C. Barker and Associates, and was completed in October, 1980.

The objective of the planning study was to determine the most cost-effective approach for operating the District's existing and future bus fleet. In the process of achieving the most cost-effective solution, it was recognized that physical environmental impacts and community impacts were key considerations in achieving a workable solution. The study consisted of the following major technical efforts:

- Determination of the optimum location for the facility, including consideration of economic trade-offs related to non-revenue bus mileage and locational costs.
- Determination of alternative sites--utilizing optimum location information and established site selection criteria.
- Refinement of candidate alternatives, including illustrative facility site plans and cost, traffic, and environmental considerations.

Figure 7 shows the eighteen potential project site locations, in addition to the existing Division 18 location, that were initially evaluated. These sites were selected according to the following criteria:

- Location
- Access
- Size
- Compatible Land Use
- Undeveloped Site
- Cost



- CANDIDATE SITES
- UNSUITABLE SITES
- * EXISTING DIVISION 18

Figure 7
Initial Project Sites Evaluated

Additionally, field observations were made, discussions were held with an independent real estate consultant, and research and discussions with property owners and their agents were conducted. The contour lines that are shown on Figure 7 represent additional one-way "deadhead" mileage per day for each bus route located at a facility away from the Division 18 centroid point.

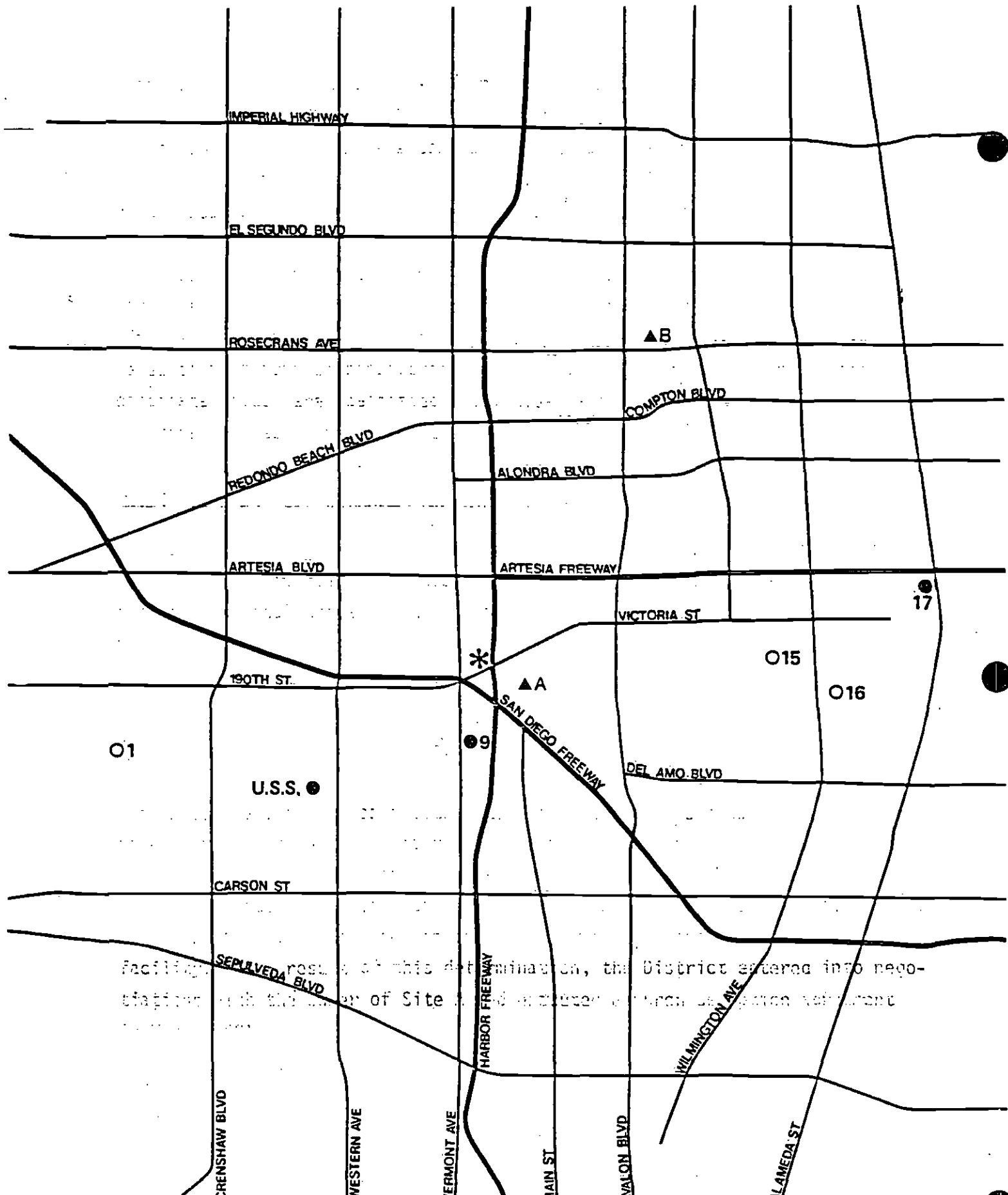
As a result of this initial analysis, five sites (numbers 1, 9, 15, 16 and 17) were identified by the SCRTD Board for further study and presentation to the affected communities. Following the community meetings, three sites were rejected from further consideration (numbers 1, 15 and 6) and three additional candidate sites were identified (U.S. Steel and Sites A and B). Figure 8 shows the final project sites that were evaluated.

Alternatives and Decision-Making Process

The Needs Study resulted in the identification of six candidate site locations which met the site selection technical criteria previously noted. The following non-technical criteria then became crucial in the final site selection process:

1. Lack of citizen opposition
2. Lack of local government opposition
3. Willingness of owner to sell property

Site A became the only candidate site which met the technical, as well as non-technical, selection criteria. All other final sites evaluated were deficient in one or more of the non-technical criteria. The District determined that site acquisition difficulties related to the other five sites would have a significant, adverse affect on the timing and cost of the replacement facility. As a result of this determination, the District entered into negotiations with the owner of Site A and executed a purchase option agreement in March 1981.



- PROPOSED SITES
- REJECTED SITES (AFTER COMMUNITY MEETINGS)
- ▲ ADDITIONAL CANDIDATE SITES
- EXISTING DIVISION 12

Figure 8
Final Project Sites Evaluated



PHOTO A — LOOKING EAST ON GRIFFITH ST. SITE IS LOCATED TO RIGHT.

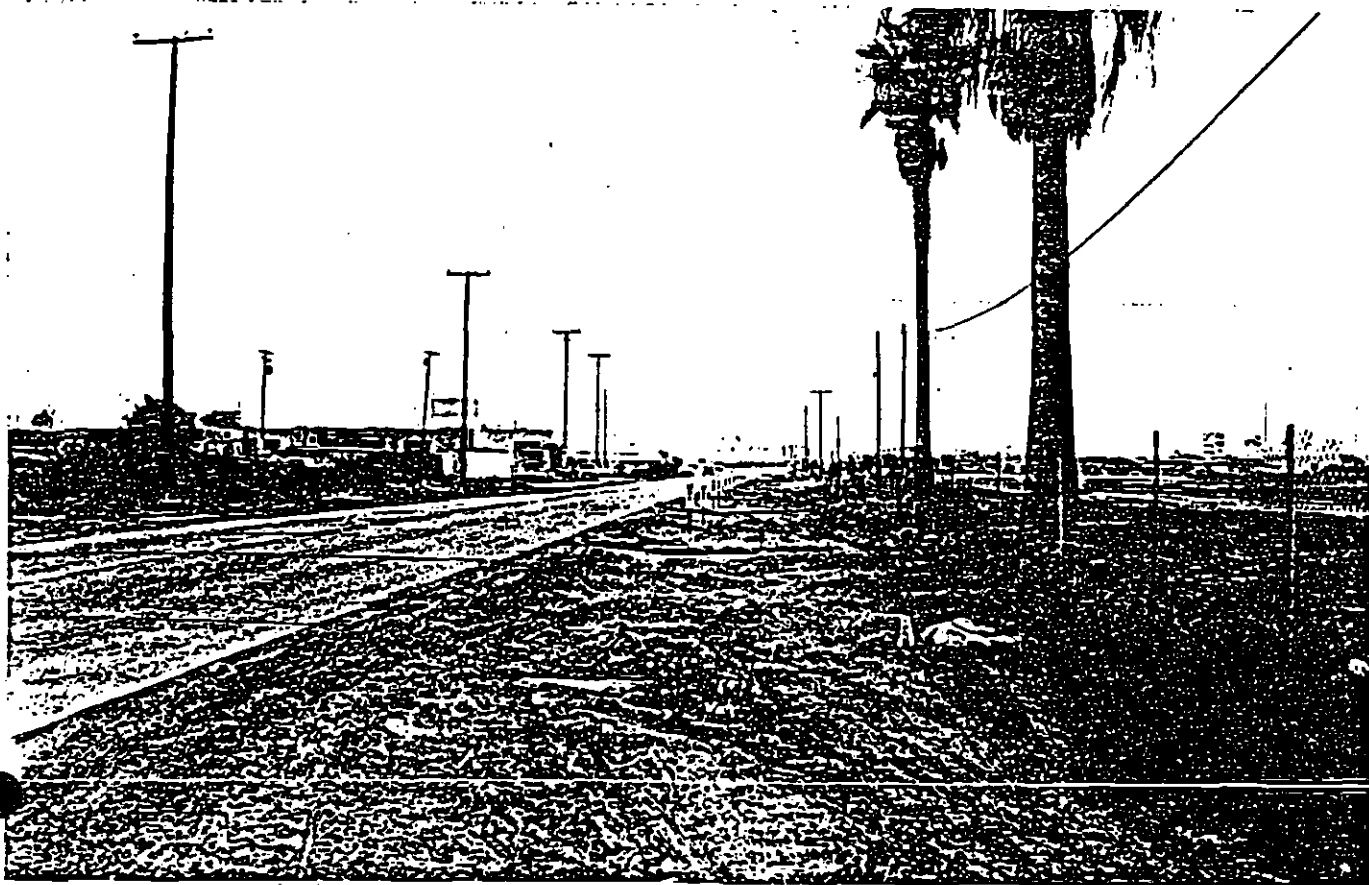
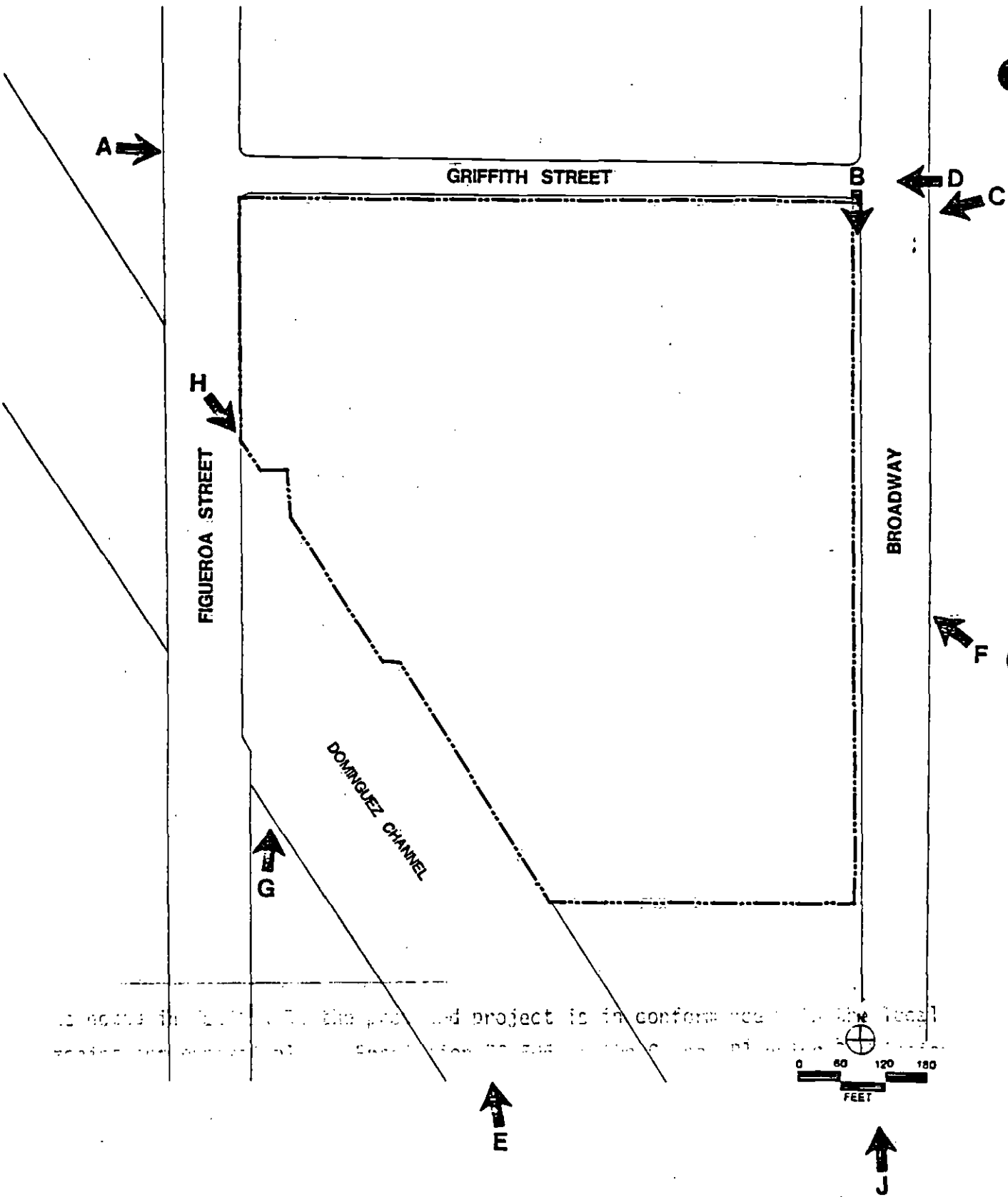


PHOTO B — LOOKING SOUTH ON BROADWAY. SITE IS LOCATED TO RIGHT.



is shown in Figure 9. The proposed project is in conformity with the local zoning regulations and the City of Los Angeles General Plan.

Figure 9
Proposed Site with Photo Key

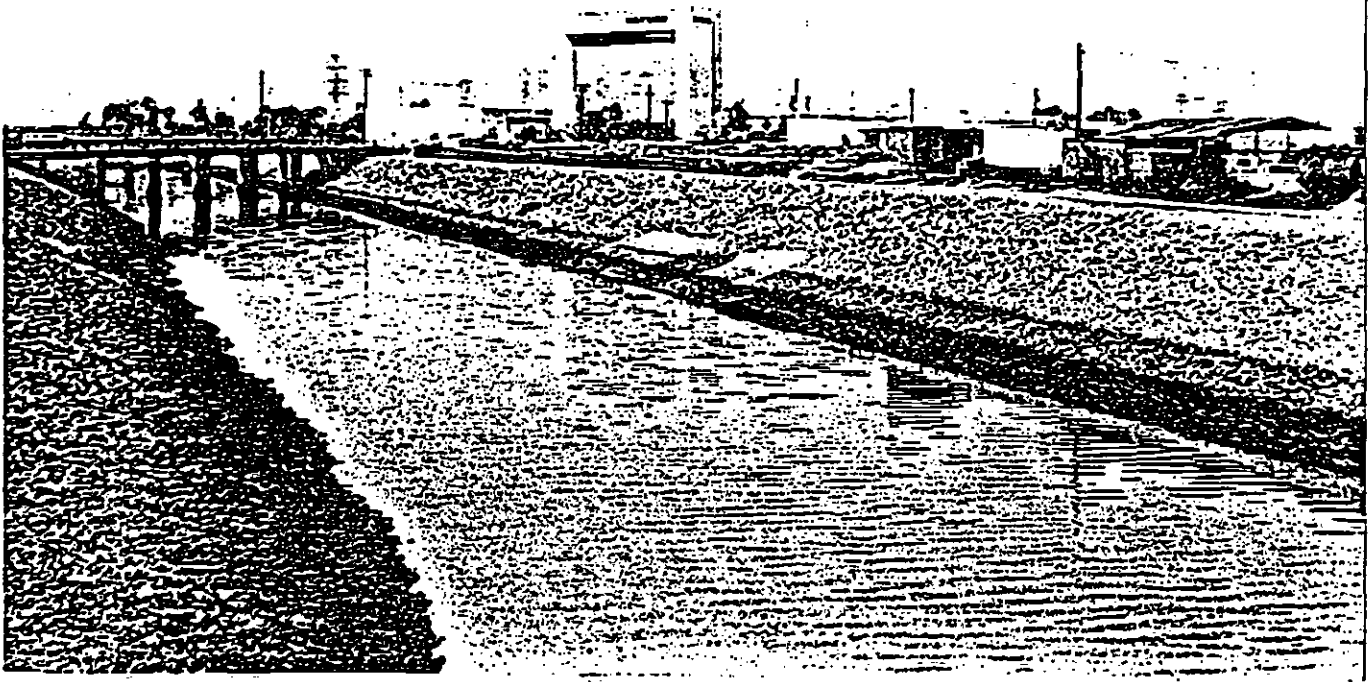


PHOTO E - LOOKING NORTH ALONG DOMINGUEZ CHANNEL TOWARD FIGUEROA STREET BRIDGE.

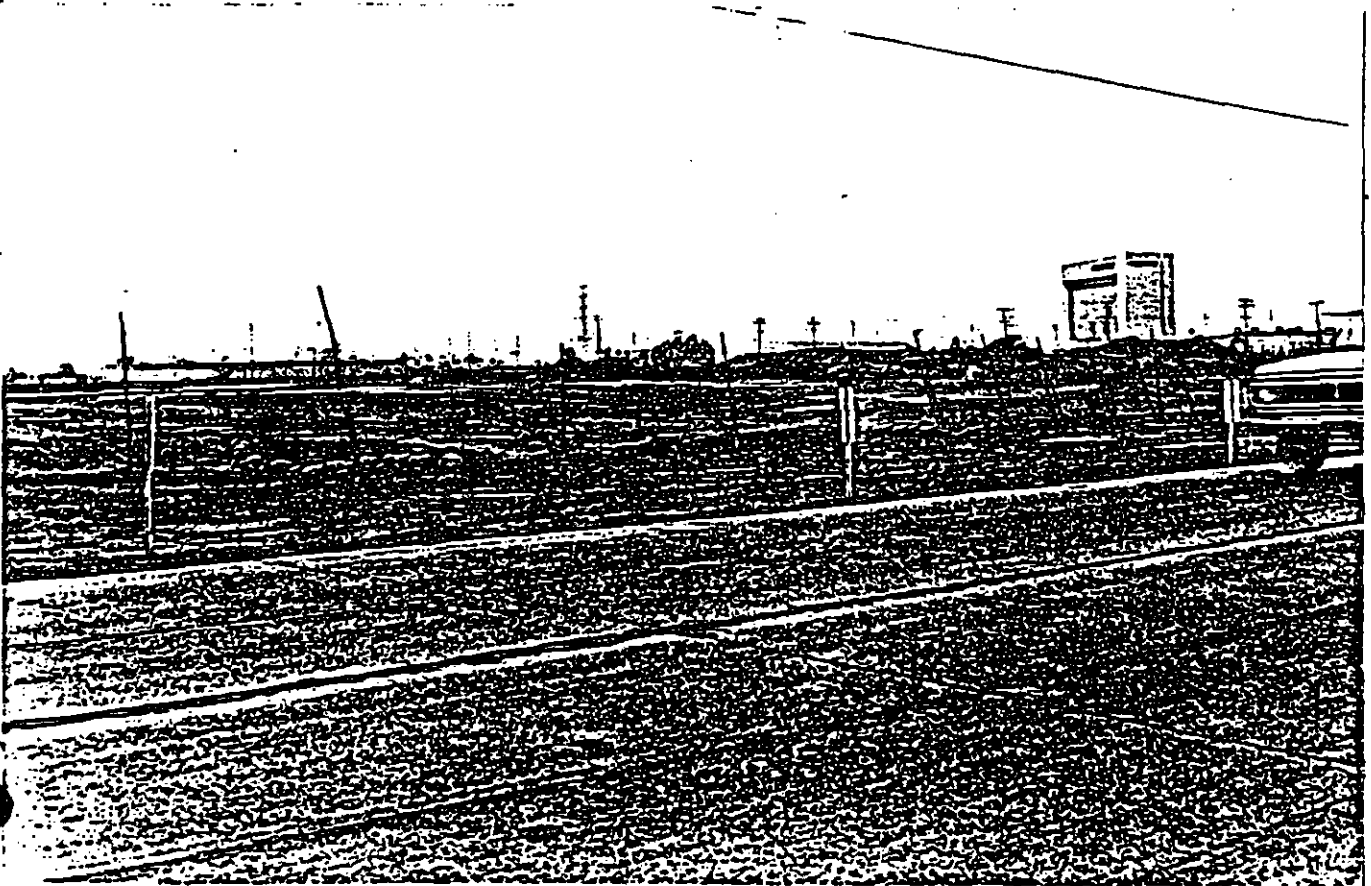


PHOTO F - SITE VIEW FROM BROADWAY.

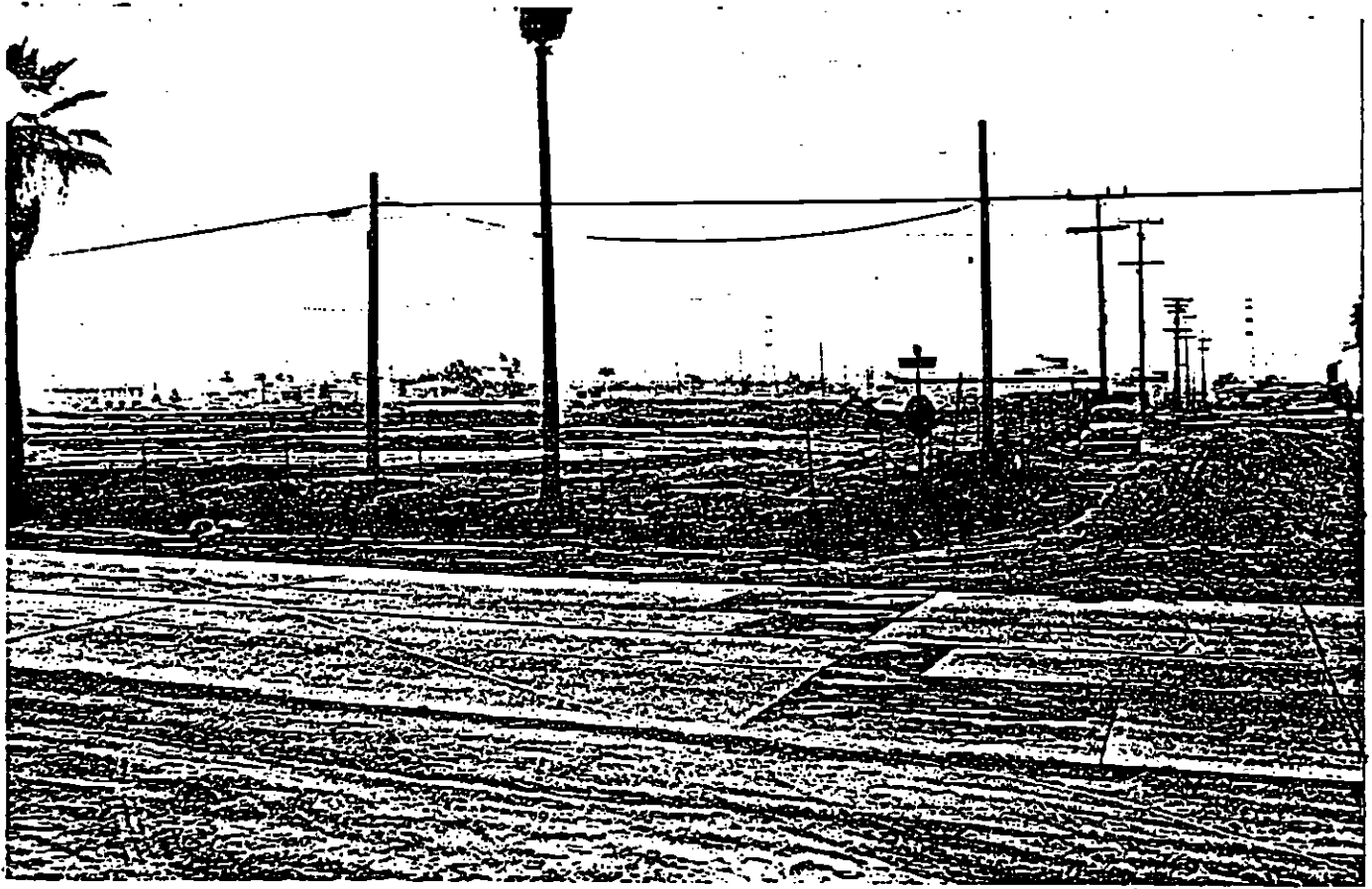


PHOTO C - SITE VIEW FROM GRIFFITH ST. AT BROADWAY.



PHOTO D - LOOKING WEST ON GRIFFITH ST. SITE IS LOCATED TO LEFT.

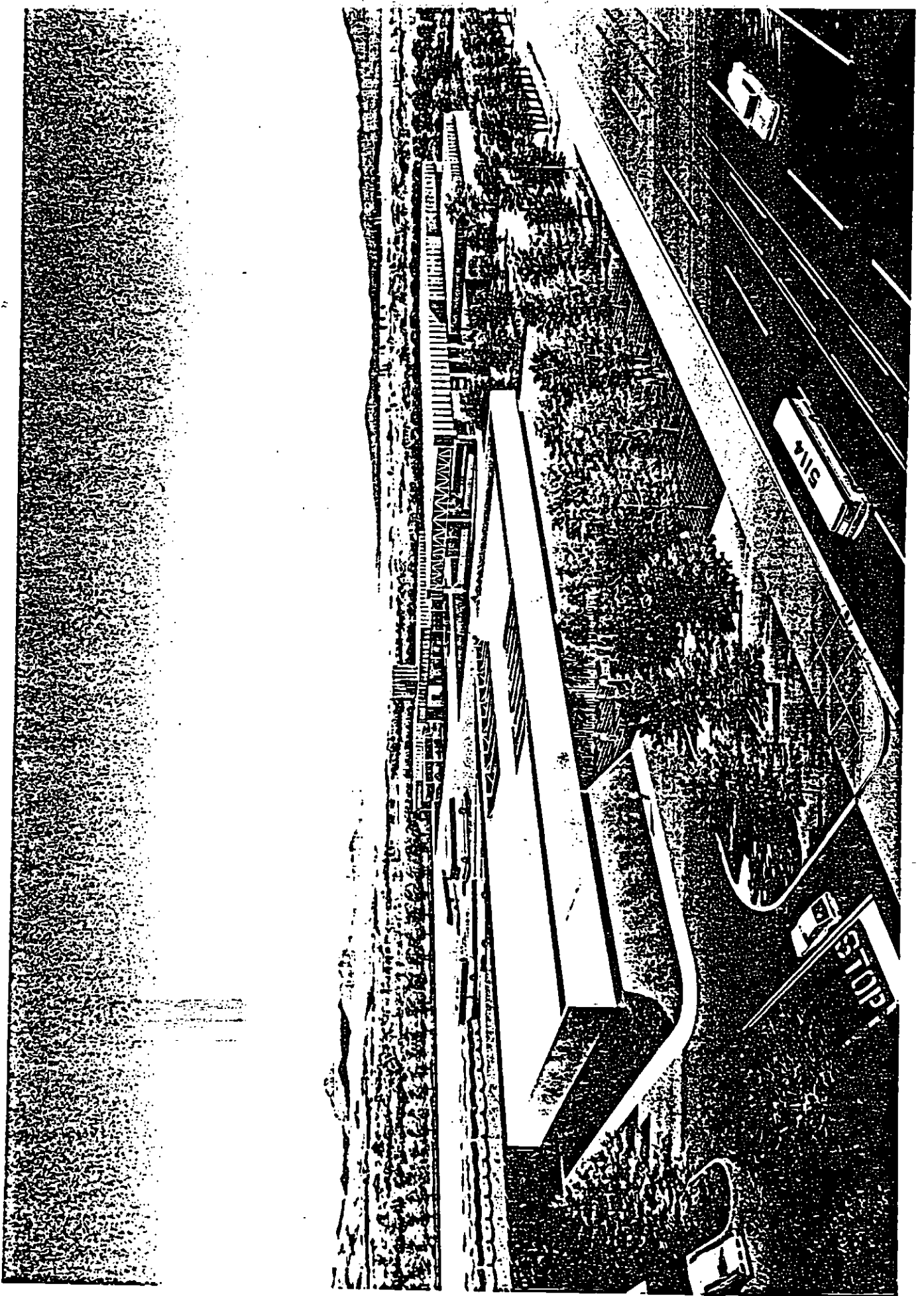


Figure 10 Rendering of Typical Bus Operations and Maintenance Facility

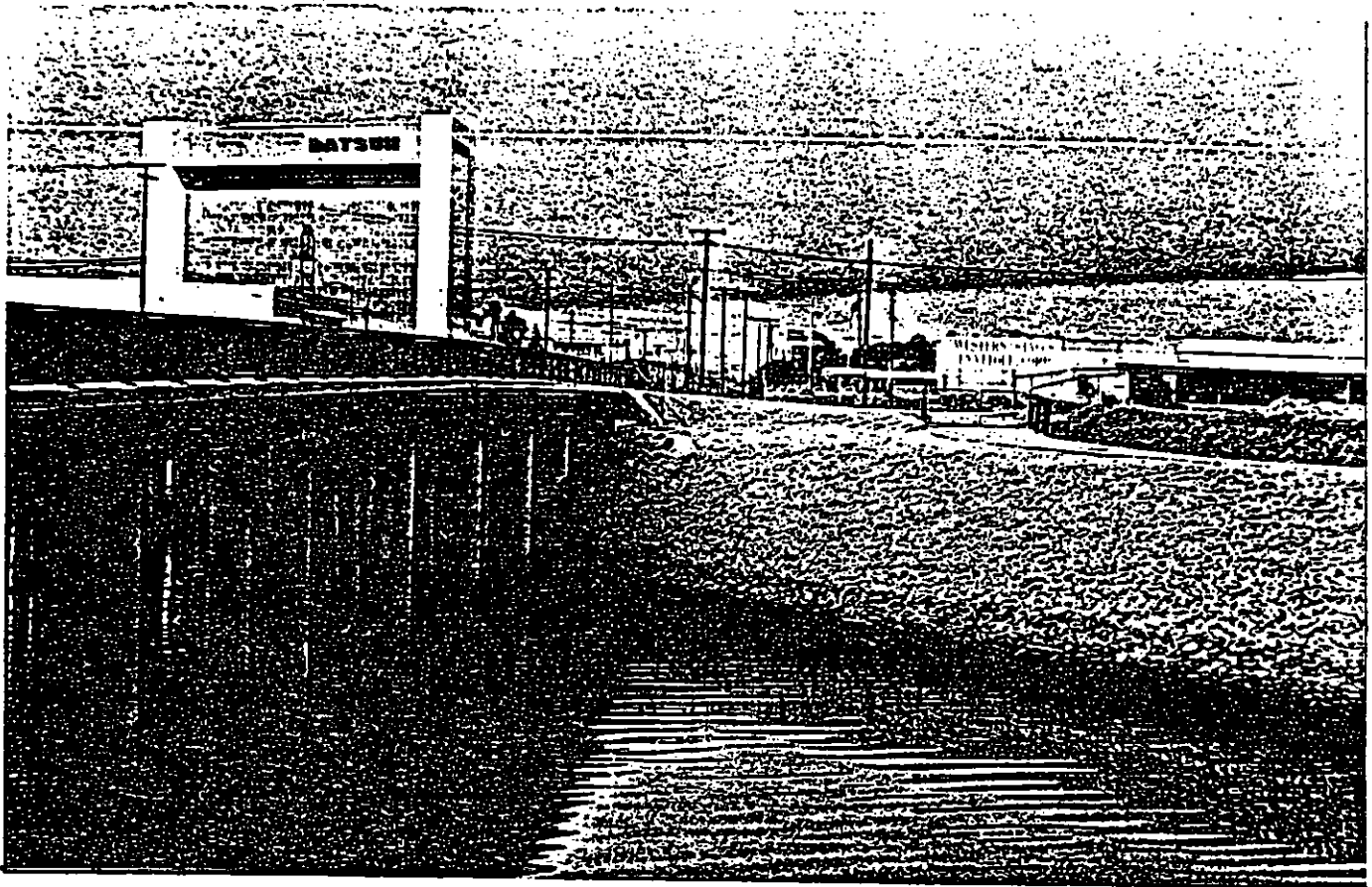


PHOTO G -- LOOKING NORTH ALONG FIGUEROA STREET BRIDGE. SITE IS LOCATED TO RIGHT.

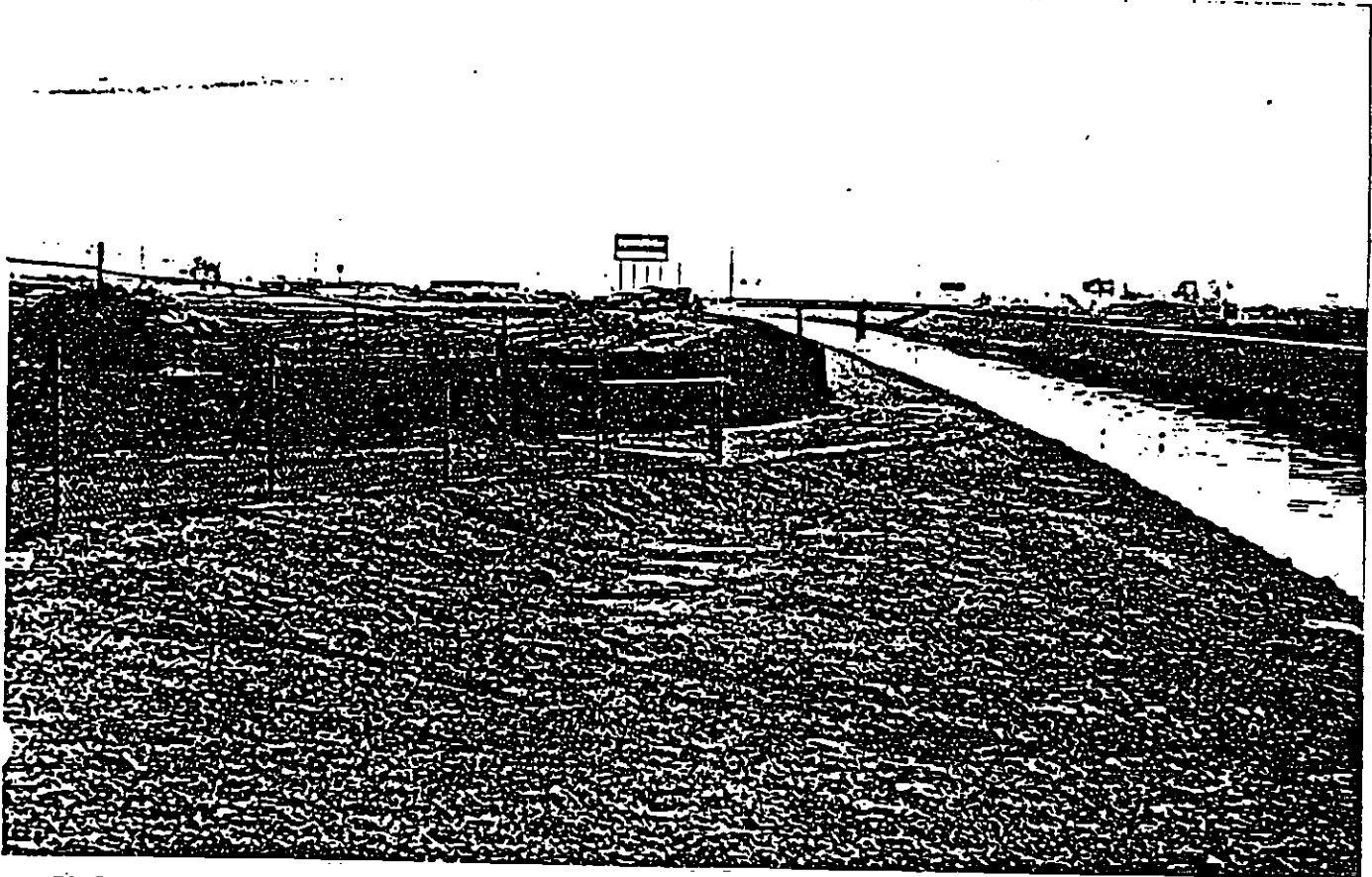


PHOTO H -- SITE VIEW FROM FIGUEROA STREET SHOWING LOS ANGELES COUNTY FLOOD CONTROL DISTRICT EASEMENT.

This Environmental Assessment documents the significant environmental findings for Site A. As previously indicated in Section 1 of this document, additional site plan refinement is contemplated after approval of the capital grant application. However, previous environmental and design experience throughout the District has been employed in the initial site plan concepts to further minimize potential impact to the adjacent community.

TABLE 1
IMPACT CATEGORIES

1. Land Acquisition and Displacements
 2. Land Use and Zoning
 3. Air Quality
 4. Noise
 5. Water Quality
 6. Wetlands
 7. Flooding
 8. Navigable Waterways and Coastal Zones
 9. Ecologically Sensitive Areas
 10. Endangered Species
 11. Traffic and Parking
 12. Energy Requirements and Potential for Conservation
 13. Historic Properties and Parklands
 14. Construction
 15. Aesthetics
 16. Community Disruption
 17. Safety and Security
 18. Secondary Development
 19. Consistency with Local Plans
-

SOURCE: UMTA C 5620.1, October 16, 1979.

A. Land Acquisition and Displacement

The size and configuration of the proposed parcel are described in Figure 3 of this report. The land has been cleared and graded by its current owner, Wilmington Investments, Inc., and no displacement would be required. SCRTD has signed an option to purchase the parcel at a final price that is still to be determined.

B. Land Use and Zoning

Figure 2 of this report shows the existing land uses of the properties adjacent to the project site. The property is zoned MH-D (manufacturing, heavy design overlay) which means that the proposed bus operations and maintenance facility would be in conformance with zoning regulations.

C. Air Quality

An air quality assessment, for both stationary^a and mobile sources, has been conducted. The results indicate that no significant impacts are anticipated. A letter which documents these findings, and seeking concurrence, has been forwarded to the South Coast Air Quality Management District (see Appendix).

D. Noise

A noise assessment was conducted considering both on-site (stationary^a) and off-site (buses and employee vehicles) sources. In addition, possible impacts in the early morning, low community ambient noise level period were investigated. Results of the assessment (see Appendix) indicate that noise impacts would not be significant and that a noise barrier would not be required on the eastern edge of the site.

E. Water Quality

The existing and proposed sites are located within two blocks of one another and are both adjacent to the Dominguez Channel, a tributary of the east basin of the Los Angeles Harbor. When the proposed site has been fully developed, it will result in an increase of approximately 4 acres of impervious surface area over that of the existing facility. Some oil and grease will be produced during operation and maintenance of the buses at the proposed bus yard. Inev-

itably, a portion of this oil and grease will remain on the paved surface of the yard. When rain falls in sufficient quantity, the pollutants will be washed into storm drains as part of the runoff. An increase from 125 to 250 buses will double the amount of pollutants being discharged into storm sewers, however, more efficient parking arrangement of the buses will increase the amount of impervious asphalt surface area by only about 35 percent. The owners of the proposed site have installed a new storm sewer to handle this anticipated increase in runoff (Figure 3).

Other features of the proposed bus facility designed to contain water quality pollutants include a bus washer water recirculation system in which fresh water is only utilized during the final rinse.

With regard to the ability of the site in general to handle waste discharge, the Carson City Planning Commission Resolution No. 79-506 dated September 11, 1979 (see Appendix) states in Section 3.7:

"The discharge of waste from the proposed subdivision into the existing sewer system will not result in the violation of the existing requirements prescribed by the Regional Water Quality Control Board as the existing sewer system has adequate capacity to handle any increased discharge of waste from the proposed subdivision."

F. Wetlands

The site was once part of a lagoon adjacent to the Dominguez Canal. This lagoon was filled with debris and uncompacted fill ranging in depth up to 25 feet. The channel now has concrete sidewalls and there are no wetlands in the vicinity of the proposed site.

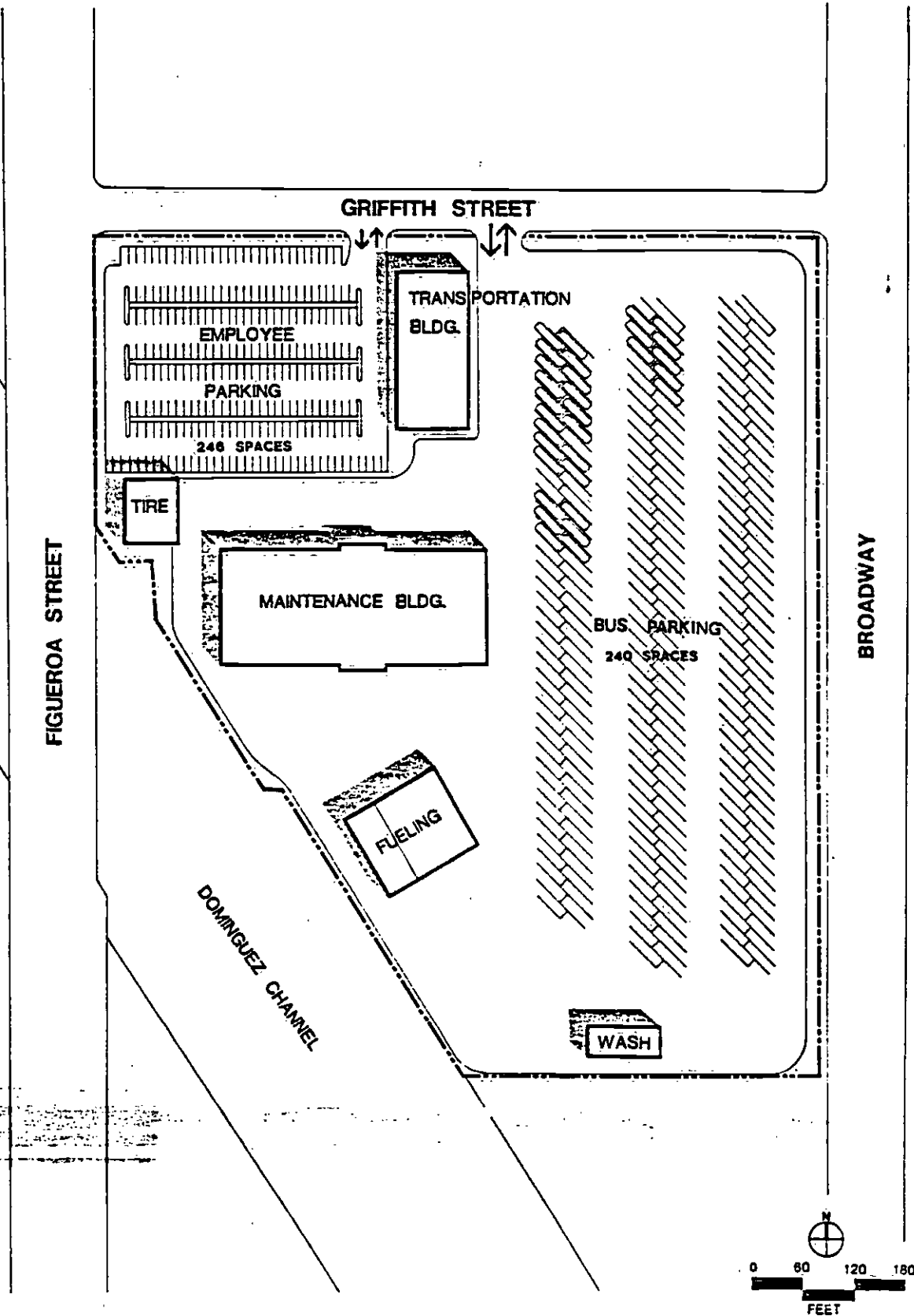


Figure 4
 Site Plan Concept 1

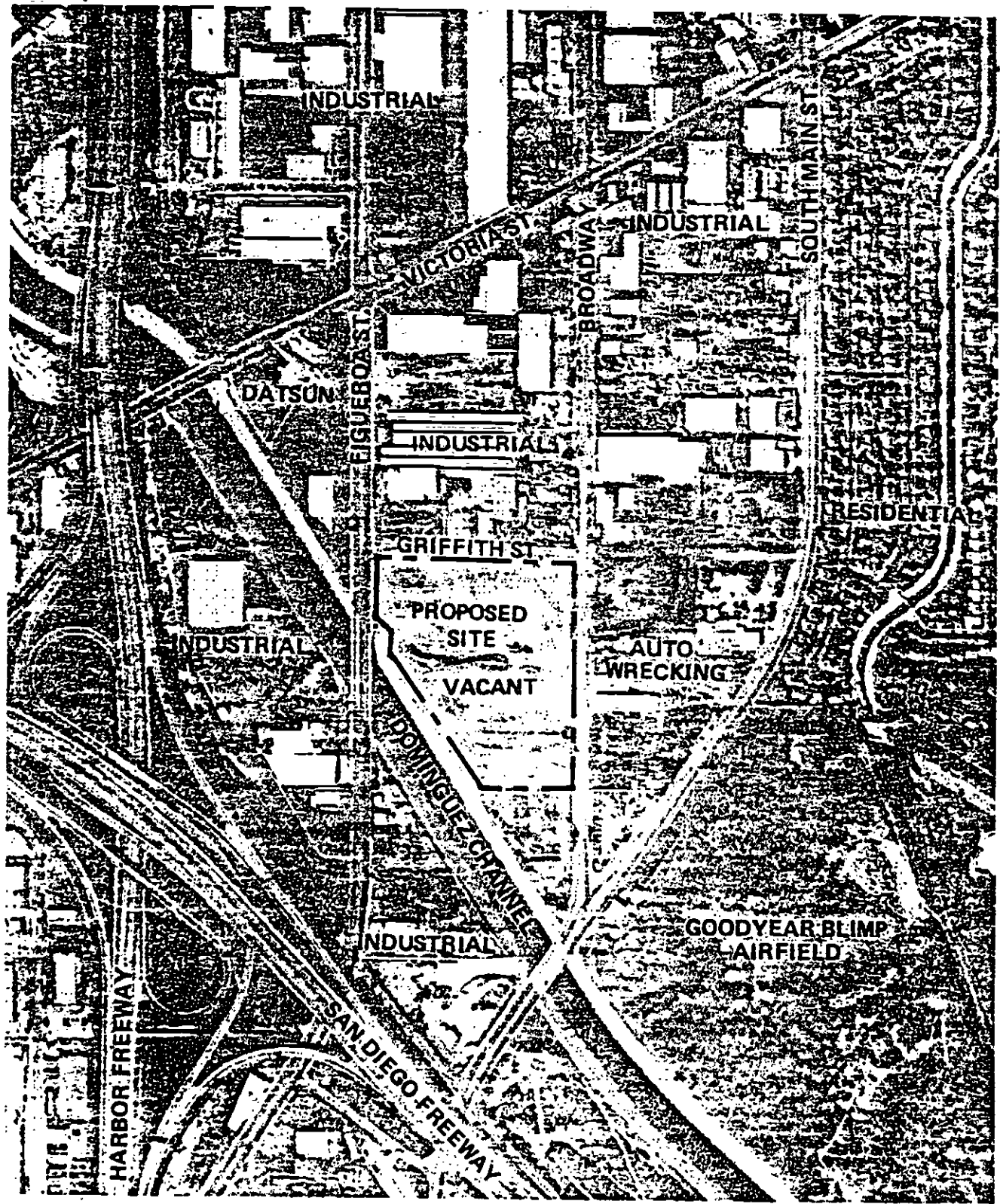


Figure 2
Surrounding Land Uses-Proposed Site

O. Aesthetics

The proposed project would significantly enhance the visual character of the existing site and adjacent parcels (see Figure 9 Photo Key Map and following photographs of existing conditions). Figure 10 presents an artist's rendering of a similar facility which has recently been designed by the District. While not required, the District will cooperate with the City of Carson to assure architectural compatibility (see application form in Appendix).

P. Community Disruption

The initial screening leading to selection of the proposed site, coupled with the results of the community information meeting held on January 26, 1981, results in a finding of no significant potential for community disruption. Impact potential in this category is further reduced by the decision to prohibit site-generated bus traffic on South Main Street between Victoria Street and the Dominguez Channel.

Q. Safety and Security

Normal District design standards and operational procedures will adequately provide for safe and secure operations.

R. Secondary Development

The existing Division 18 facility has not generated secondary development and none are anticipated as a result of the proposed facility.

S. Consistency With Local Plans

As noted in Section B, the proposed project is in conformance with the local zoning and general plan. Resolution 79-506 of the Carson Planning Commission dated September 11, 1979 found the site (identified as Parcel Map No. 12318) to be suitable for heavy industrial development, in conformance with the City of Carson General Plan (see Appendix). Further coordination with the City's Community Development staff has confirmed that the proposed project would be an appropriate land use for the parcel.

G. Flooding

As a result of an industrial subdivision plan filed by the present owner of the proposed site, the Carson City Engineer reported that the proposed site was subject to inundation and flood hazard and that particular portions of the property were subject to sheet overflow and ponding.

As a result, the current owner undertook site work improvements to correct grading and drainage problems and installed a storm sewer line as shown in Figure 3. The report of the Carson City Engineer was referred to the Chief Engineer of the Los Angeles Flood Control District, who inspected the property on July 10, 1980. Deficiencies were noted and corrected by the owner, and on August 5, 1980, the District Inspector of the Flood Control District reported that all deficiencies had been corrected. The resolution of the Carson City Planning Commission (see Appendix) determined that the proposed site was suitable for industrial development, pending correction of deficiencies noted in the City Engineer's report.

H. Navigable Waterways and Coastal Zones

The proposed site is not located within a coastal zone as defined by the California Coastal Zone Conservation Commission and is not located on or near a navigable waterway.

I. Ecologically Sensitive Area

The proposed site is located on filled land and has been extensively graded and altered in configuration in recent years. A methane barrier has been designed to protect the site from methane gas seepage from adjacent uncompacted organic land fills. No significant impact to an ecologically sensitive area can be expected to result from the construction of this facility.

J. Endangered Species

The proposed site has been cleared and graded and cannot be considered as a habitat for endangered species.

REFERENCES

1. City of Carson, General Plan (including Noise Element), 1971.
2. Crandall, LeRoy and Associates, Report of Preliminary Evaluation of Proposed Maintenance and Operating Facility, Broadway and Griffith Street, City of Carson, February 24, 1981.
3. Gruen Associates, et al., Bus Operating Facility Needs Study, South-Southwest Service Area, Phase I Report, October 1980.
4. Gruen Associates, et al., Draft Environmental Impact Statement, Bus Maintenance Facility, West San Fernando Valley, October 1976.
5. Gruen Associates, et al., Draft Environmental Impact Statement, Bus Maintenance Facility, East San Fernando Valley, May 1977.
6. Psomas & Associates, Storm Drain Plans in Parcel Map 12318 P.D. 1564, October 18, 1979.
7. South Coast Air Quality Management District, Air Quality Handbook For Environmental Impact Reports, Revised October 1980.
8. U.S. Department of Transportation, Urban Mass Transportation Administration, Guidelines for Preparing Environmental Assessments, UMTA C 5620.1, October 16, 1979.
9. U.S. Department of Transportation, Urban Mass Transportation Administration; Southern California Rapid Transit District, Final Alternatives Analysis/Environmental Impact Statement/Environmental Impact Report on Transit System Improvements in the Los Angeles Regional Core, April 8, 1980.

SECTION 4: LIST OF AGENCIES AND ORGANIZATIONS CONSULTED

<u>Organization</u>	<u>Individual</u>
1. City of Carson ● Department of Public Works ● Community Development	Earl Woods, Paul Lozada Richard Gunnarson, Daniel Cartagena, William Mellein
2. Berryman & Stevenson Traffic Engineers (for City of Carson)	Dave Plechas
3. Caltrans, Los Angeles Transportation Study (LARTS); Travel Forecast Section	Gerald Bare
4. Caltrans, Traffic Operations & Counts	Larry Spencer
5. Los Angeles County Road Department, Traffic Investigation Sections	
6. City of Los Angeles Transportation Survey	
7. Thomas Properties (owner's representative)	Kevin Ketchum
8. South Coast Air Quality Management District	Brian Farris
9. City of Los Angeles Bureau of Engineering Historical and Environmental Section	Harrison Kimball
10. University of California at at Los Angeles Institute of Archaeology	Barbara Beroza

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ARCHITECTURE · PLANNING · ENGINEERING

March 27, 1981

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Mr. Brian W. Farris
Senior Air Quality Specialist
South Coast Air Quality Management District
Evaluation and Planning Division
9150 E. Flair Drive
El Monte, California 91731

Dear Mr. Farris:

This letter is a follow-up to our conversation concerning the relocation of SCRTD's existing Division 18 Bus Maintenance Facility from a location just west of the interchange of the San Diego and Harbor Freeways in the City of Los Angeles to a location less than one-half-mile east in the City of Carson. As consultant to Southern California Rapid Transit District (SCRTD), Gruen Associates is responsible for the preparation of an environmental assessment document for the maintenance facility to be funded by the Urban Mass Transportation Administration (UMTA). As part of this UMTA assessment process, we are requesting the concurrence of the South Coast Air Quality Management District (SCAQMD) in our finding that the proposed bus maintenance facility would not exceed SCAQMD Threshold Criteria and would, therefore, not have adverse air quality effects.

In support of this evaluation, the following points, regarding the bus maintenance facility are pertinent:

- The existing Division 18 facility is located on 190th Street just west of the San Diego Freeway in the City of Los Angeles (Figure 1). Currently, this facility houses approximately 125 buses which provide service to the southwestern portion of the SCRTD service area.
- In order to improve service in accordance with SCRTD planning objectives (particularly the Sector 80 Plan) and minimize deadheading (non-revenue mileage), the Division 18 facility requires expansion and upgrading to a 250-bus facility. Additional land needed to accommodate increased buses is not available at the current site, and, as a result, Gruen Associates has provided technical support to SCRTD in the identification of alternative sites. After considerable study, a suitable and available site was located in the City of Carson in an area bounded by Griffith Street on the north, Broadway on the east, 192nd Street and the Dominguez Channel on the south and Figueroa Street on the west (Figure 1). Figure 2 illustrates that the land uses adjoining the proposed site are predominantly industrial in character. The nearest residential uses to the site are located on the east side of South Main Street (approximately 1,200 feet east of the site.)

APPENDIX

- Letter to South Coast Air Quality Management District
- Noise Assessment
- Los Angeles County Flood Control District Memorandum
- Traffic and Parking Impacts
- City of Carson: Application For Architectural Approval
- City of Carson: Planning Commission Resolution
- Letter to UCLA Institute of Archaeology and Response

- Hydrocarbon emissions from fuel storage and transfer would be mitigated by the installation of vapor recovery systems (acceptable to SCAQMD) and nozzles to minimize both breathing and working losses. The SCRTD facility would comply with SCAQMD permit requirements and rules.

Mobile Sources

In evaluating mobile sources, it must be recognized that the proposed bus maintenance facility is a replacement for an existing facility and, as a consequence, the facility would produce an incremental change in trip generation. Specifically, the existing Division 18 facility generates 750 trips per day and the proposed facility would generate an additional 950 daily trips. There would be a total of 1,700 daily trips generated.

On a regional basis, additional trips from the proposed facility would not result in an increase, due to the fact that buses would generally be assigned from other existing maintenance facilities. It should be noted, however, that the proposed maintenance facility is an element of a larger SCRTD bus service improvement plan which, when implemented, would represent a 60,300-daily vehicle mile reduction to the region.

Evaluation of traffic conditions on arterials serving the site such as Victoria Street, Figueroa Street, South Main Street, and Broadway indicate that the trips generated by the site would not adversely impact traffic flow, create congestion, nor produce degraded air quality, due to the following factors:

- There is considerable temporal differentiation between the peak trips generated by the bus facility and the traffic peak for adjacent streets. Specifically, the peak for the facility would fall between the hours of 4:00 and 6:00 a.m., while the traffic peak occurs between 7:00 and 8:00 a.m.
- During the morning peak travel period, facility-generated vehicles would represent only a small proportion of the traffic on adjacent streets (2 to 8 percent). The maximum loading of facility-related vehicles to any street segment would be 55 vehicles.
- The application of SCAQMD's nomographic method for predicting carbon monoxide concentrations for peak hour volumes (which range from 2,400 to 2,600 vehicles on Victoria Street to under 700 vehicles on the other adjacent streets) produces roadway-related concentrations of less than 2 ppms along Victoria Street and less than 0.5 ppm on other adjacent streets. The addition of facility-related traffic produces negligible changes in these levels.

Additional consideration was given to warm-up and idling of buses in the morning hours. Assuming worst case conditions (where the peak number of buses deployed in a given hour (120 buses) would be idling simultaneously for a 15-minute duration per vehicle, less than 4 pounds of carbon monoxide

- The specific elements of the proposed SCRTD facility would include the development of this 13.3-acre site to provide for a 250-bus parking area, a 250-space employee parking area, and the construction of a number of structures including a bus maintenance facility (47,500 square feet), a transportation building including lounge, locker room, offices, etc., (15,300 square feet), a bus washer (2,600 square feet), tire/storage building (7,100 square feet), and a fuel and vacuum facility (13,200 square feet). The vacuum facility would include four fuel islands as well as a dry vacuum cleaning system with dust separation and bailer. Fuel storage would include four 20,000-gallon diesel fuel tanks, two 10,000-gallon gasoline tanks, one 10,000-gallon oil tank, and one 100,000-gallon reserve diesel fuel tank. See site plan concepts, as shown in Figures 4 and 5.

With respect to potential air quality impacts, prior environmental studies of bus maintenance facilities have indicated that both stationary and mobile sources would be involved. Stationary sources would involve space heating and cooling, water heating, electrical usage, bus vacuuming activities and fuel storage. Mobile sources would include buses and employee vehicles as well as construction equipment used during site preparation and construction. The potential air quality effects of these sources are discussed below.

Stationary Sources

In environmental impact statements for the proposed SCRTD bus maintenance facilities in the east and west San Fernando Valley, prepared by Gruen Associates, careful consideration was given to a number of stationary sources including emissions from natural gas combustion and emissions associated with the generation of electricity for fuel oil combustion. Input data was developed from SCRTD's operating El Monte facility which is the prototypical facility upon which both the San Fernando Valley and Division 18 facility have been modeled. The results of the analysis indicated that the increase from these stationary sources would be negligible. For natural gas combustion, emissions for all pollutants were less than .01 pounds per day. In the case of electric power generation effects, pollutant emissions were less than one pound per day. Stationary source emissions from the Division 18 facility would fall within these same parameters and would have no significant effect on air quality.

Emissions from other stationary sources (vacuuming and fuel storage and transfer) would also be minimal. Specifically:

- Emissions of particulates resulting from the cyclone bus vacuum system are anticipated to be minimal. In prior environmental assessments, consideration was given to the emissions from vacuum operations at SCRTD's El Monte facility. While no tests have been conducted, visual inspection by both SCRTD and Los Angeles County Air Pollution Control District personnel during 1975 indicated no significant particulate emissions.

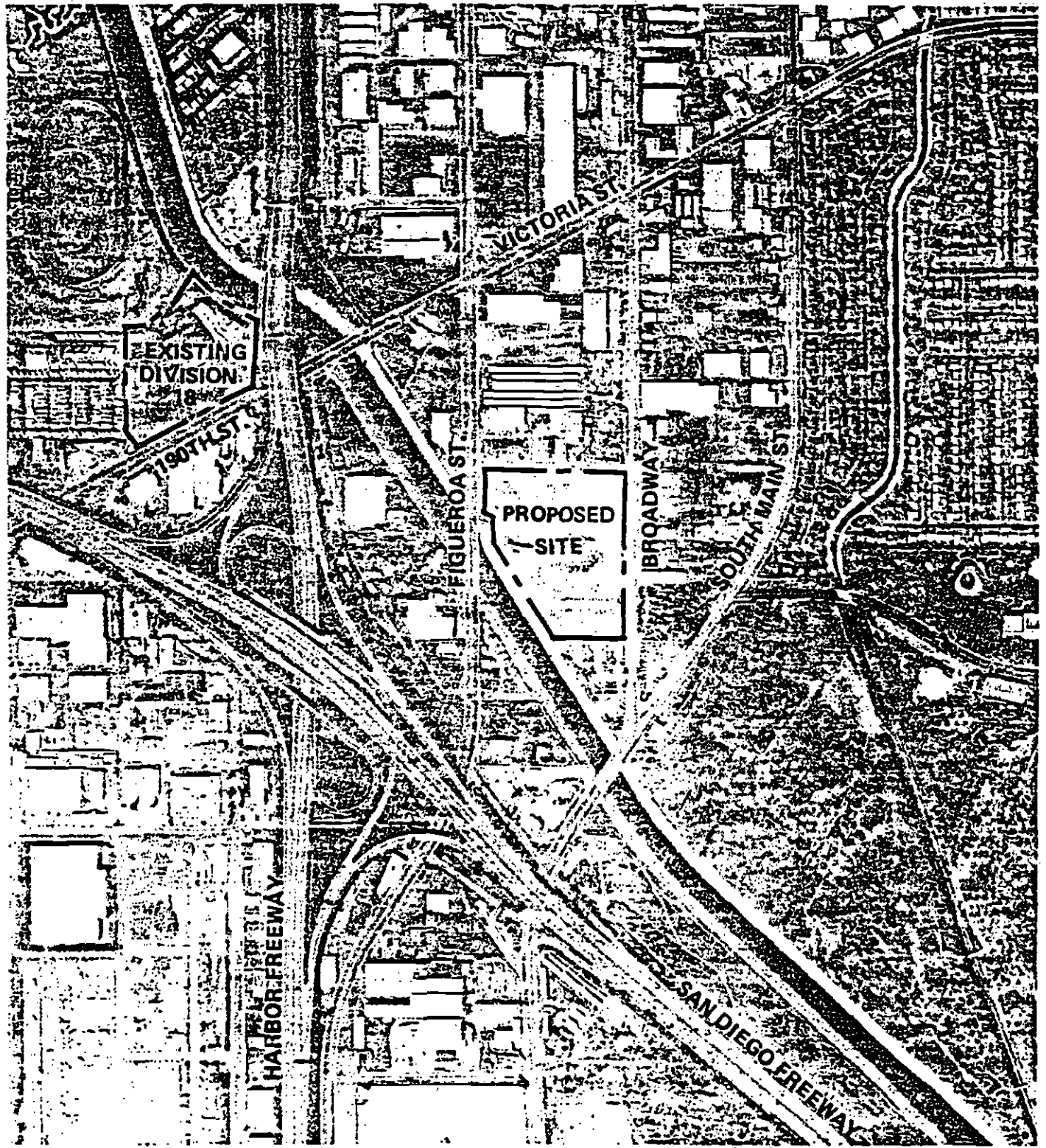


Figure 1
Site Locations: Existing and Proposed Facilities

would be produced. Daily emissions for bus idles would probably not exceed 7 pounds of carbon monoxide. Carbon monoxide concentrations on-site as well as for nearest residential receptors (located approximately 1,200 feet from the facility) would be negligible. Nor is it likely that odor from idling diesel vehicles (as indicated by concentration levels of formaldehyde) would approach threshold levels established by SCAQMD for nearby residences.

A final aspect of mobile-source emissions would be those emissions that would result from construction equipment used during site preparation, as well as dust generated as a result of soil movement. The emissions produced during fill and grading would be of short-term duration. It is fully anticipated that contract specifications will require that wetting procedures be implemented to mitigate what could be troublesome conditions for both workmen and nearby residents.

In sum, the information compiled above has led to the conclusion that the impact of the proposed Division 18 Bus Maintenance Facility would have minimal effects on air quality. Hopefully, the above information will provide SCAQMD with a basis to concur in this determination.

Sincerely,

GRUEN ASSOCIATES



Terry A. Hayes,
Senior Planner

TAH/1

Attachments

to 2,600 vehicles on Victoria Street to under 700 vehicles on the other adjacent streets) produces roadway-related concentrations. Also that on Victoria Street are less than 0.5 ppm on other adjacent streets. The addition of facilities and traffic would not be expected to

TRAFFIC AND PARKING IMPACTS OF THE SCR TD DIVISION 18
PROPOSED GRIFFITH STREET SITE FOR A BUS STORAGE AND MAINTENANCE FACILITY

Overview

This impact analysis for the relocation of the SCR TD Division 18 bus storage and maintenance facility from its existing site to the Griffith Street location has been developed to evaluate both the project's "net" and "gross" traffic effects.*

- Net Impacts. These reflect the fact that the project is a replacement for the existing 120-bus Victoria Street site with a larger 250-bus storage and maintenance facility at the Griffith Street location. Net impacts include those of adding 130 buses to the general area, and the effect on specific streets of shifting traffic patterns to and from the facility.
- Gross Impacts. These are overall effects of the proposed facility's operation. They are the difference between future conditions (1982) with the project and conditions with no Division 18 facility in the area.

Four conditions generally mitigate the potential traffic impacts of the proposed project and result overall in nearly negligible effects. These are:

- The high level of access and traffic capacity provided by three freeways (San Diego, Harbor, and Artesia) and major arterial streets concentrated in the area (Victoria, Figueroa and Broadway in particular).
- The temporal characteristics of the daily operations and site generated traffic of the proposed storage and maintenance facility. Nearly all bus deadhead trips to and from the site and employee arrivals and departures will occur outside both the morning and evening peak congestion periods of background vehicle traffic on streets in the vicinity of the site.
- Provision of on-site parking for employees. Initial site plan evaluation indicates that about 250 spaces can be located on the property; supplemental on-street parking on a widened section of Broadway paved-out to allow parking is contemplated.
- Projected early completion of the Artesia (Highway 91) freeway located north and generally parallel with Victoria. This will reduce traffic on Victoria substantially (perhaps 20 percent or more) resulting in a net improvement in traffic conditions far outweighing the project's contribution to traffic in the area.

*De Leuw, Cather & Company. March 1981.

Street and Highway Characteristics

Figure T-1 shows the location of the proposed Division 18 replacement bus storage and maintenance facility site and its relationship to the street and highway system in the immediate area. The functional classification system adopted by the City of Carson designates virtually all of the principal access routes to the site as "major arterials" with 100 feet R.O.W. and 80 feet curb-to-curb pavement width where fully developed. Traffic control devices include full-phase traffic signals providing for protected left turns on and off Victoria Street at the three key intersections with Figueroa, Broadway, and South Main. Posted speeds in the area are typically 40 mph or 45 mph, reflecting the arterial character of most of the streets.

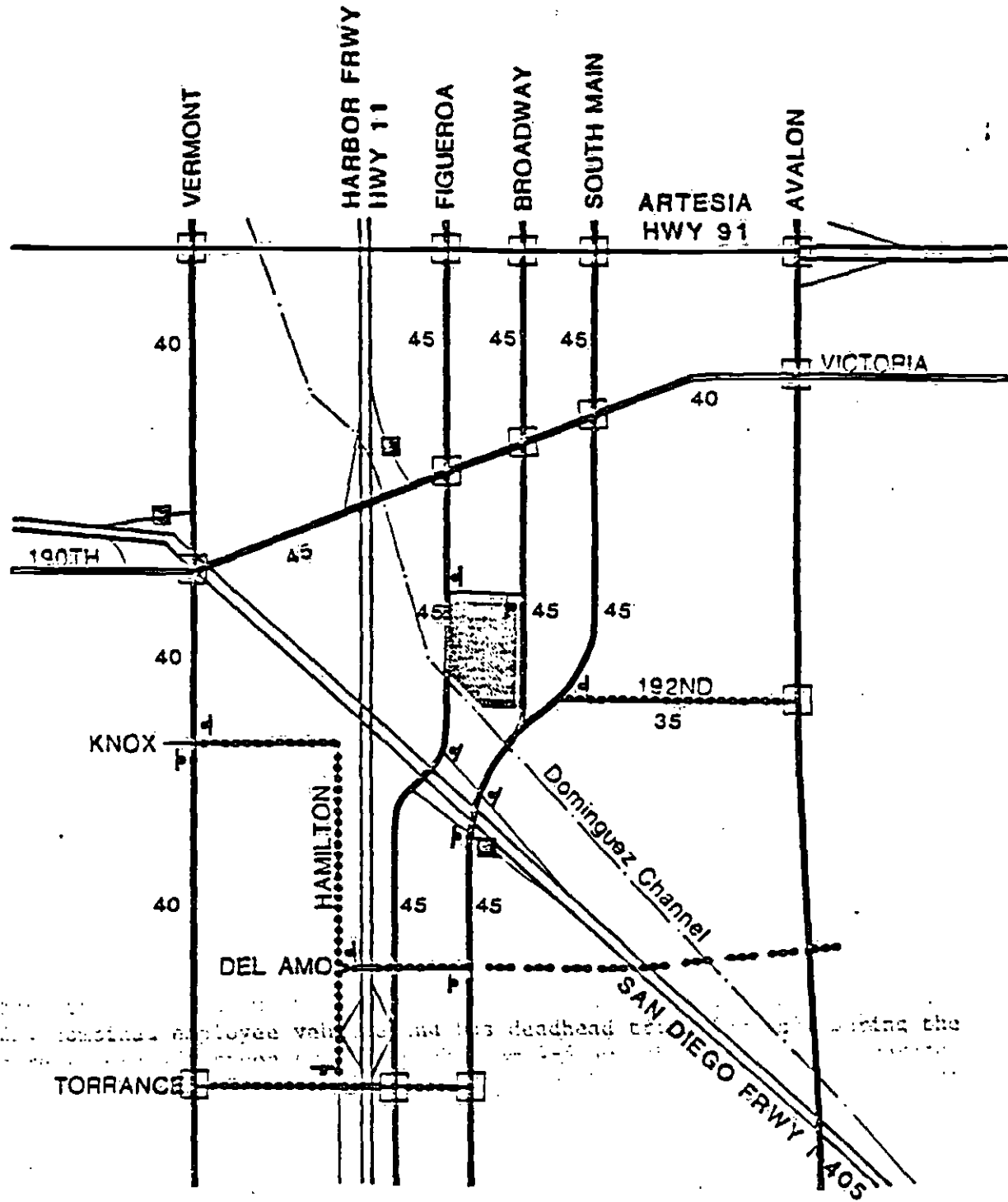
Projected Site Generated Traffic

The new Division 18 facility would operate in a manner similar to the existing smaller facility located nearby. Like the existing site, the Griffith Street site is situated very near the optimal location for minimizing daily deadhead costs (wages, fuel, and wear-and-tear) between the garage and the 16 transit line terminal it will serve. These costs must be a major consideration in facility location choice; projected 40-year deadhead costs for the site are between \$18.6 million and \$21.4 million. These are the lowest of any of the candidate sites screened in Phase I.

Based on the existing garage operation and those of similar new facilities in the Los Angeles area, the total daily volume of site generated traffic and its temporal distribution has been projected for trips to and from the site. About 246 pull-outs and 246 pull-ins per day are estimated for a fully utilized 250-bus facility (492 bus trips per 24 hour period). A total of 1200 employee vehicle trips to and from the facility are forecast for an on-site workforce of 587 employees. (See "Phase I Report," May 1980) The combined total of about 1,700 trips represents "gross" impact; the "net" general area effect, considering the current level of traffic generated by the existing Division 18 facility, would be about 950 new-trips daily.

Peak periods for site generated traffic would occur at 4-6 am which is before the morning background traffic peak hour (7-8 am) and at 7-9 pm the afternoon background traffic peak period (4-6 pm). Table T-1 shows that the estimated maximum hour for site generated trips is from 5-6 am with 255 combined employee vehicle and bus deadhead trips (gross). During the more severe afternoon traffic peak from 4-5 pm, the site would generate about 56 trips. Figure T-2 illustrates graphically the projected impact of transit operations and scheduling on bus pull-in and pull-out trips and employee passenger auto trips.

FIGURE T-1: SITE VICINITY MAP - FUNCTIONAL CLASSIFICATION, POSTED SPEEDS AND TRAFFIC CONTROL DEVICES AT INTERSECTIONS



LEGEND:

Functional Classification	Traffic Control Devices
==== Major Arterial	⊕ Stop Sign
..... Secondary/Collector	▣ Metered On-Ramp
	□ Traffic Signal

Table T-1
 COMPARISON OF TRIP VOLUME DISTRIBUTIONS BY TIME OF DAY:
 PROPOSED SITE GENERATED TRAFFIC AND LARTS STUDY AREA

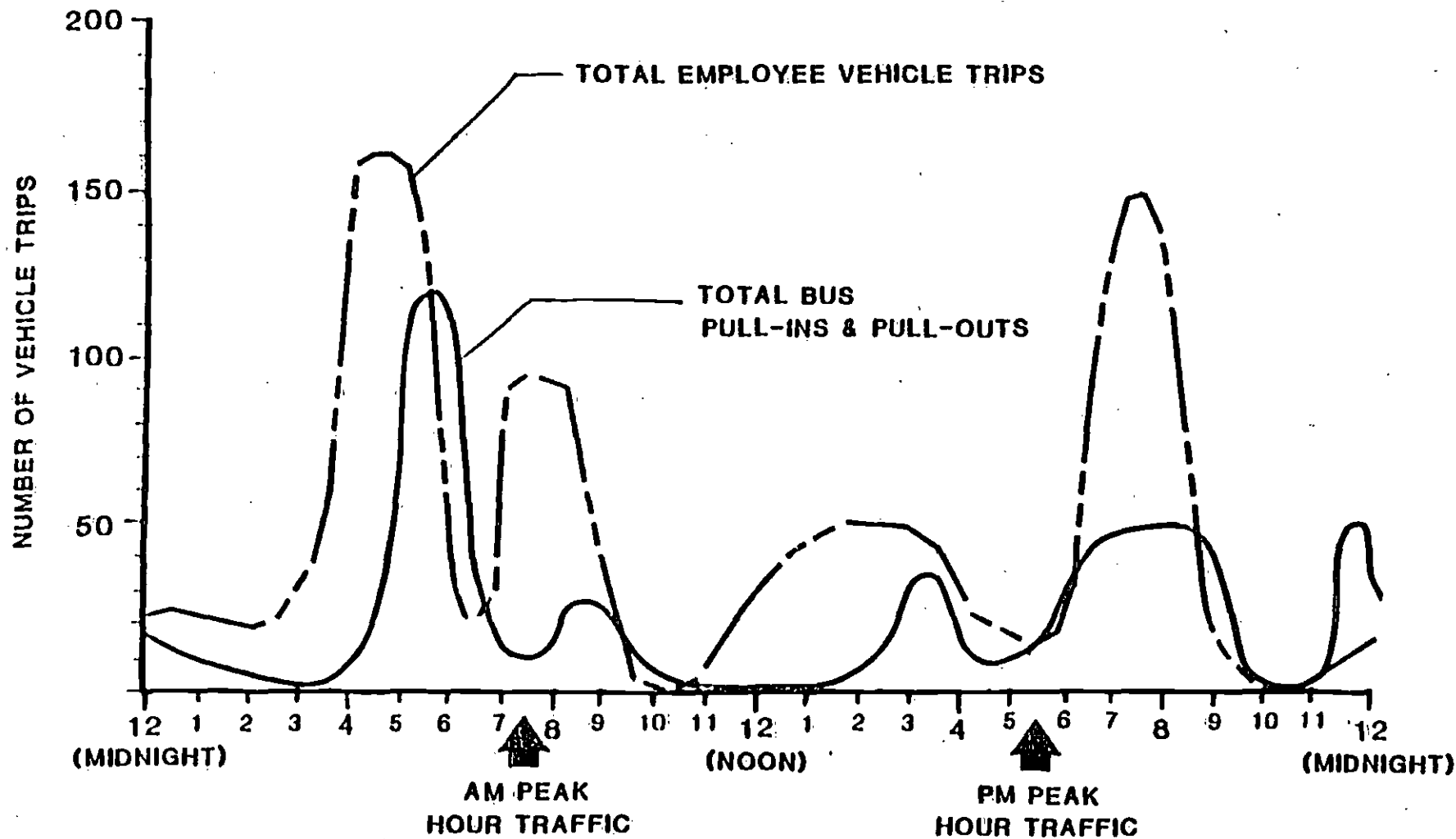
TIME PERIOD	SITE GENERATED TRAFFIC (GROSS) ^a		TOTAL AREA TRAFFIC ^b	
	No. Vehicle Trips	% Total 24 hr.	No. Vehicle Trips	% Total 24 hr.
<u>Morning</u>				
4-5 am	163	9.6%		.24%
5-6*	255	15.1		.78
6-7	66	3.9		3.56
7-8	100	5.9		7.61
8-9	116	6.9		5.51
<u>Afternoon</u>				
4-5 pm	56	3.3		9.85
5-6	22	1.3		9.73
6-7	90	5.3		5.99
7-8	200	11.8		4.80
8-9	75	4.4		3.32

Sources: a) De Leuw, Cather & Company projections based on operations of existing Division 18 facility.

b) Caltrans, LARTS. "Trips in Motion - Methodology and Factors for estimating Hourly Traffic Volumes from Average Daily Traffic." September 1975.

*Maximum site generated trips

**FIGURE T-2:
ESTIMATED DISTRIBUTION OF SITE GENERATED VEHICLE TRIPS (GROSS)**



**SOURCE: SCRTD
(Based on the existing Division 18 site operations.)**

Existing and Future Traffic Conditions

Traffic count data have been assembled from the various agencies conducting traffic monitoring in the area. While some of the data are current, others are quite dated (from as far back as 1971). Based on the historical growth in Vehicle Miles of Travel (VMT) in the Los Angeles area, these data have been adjusted to common existing base year values (1980). ADT and peak hour volumes on surrounding streets for 1982 (post-facility completion year) have been forecast assuming an average 1.19 percent annual growth rate in travel. (See Appendix; Tables A-1 through A-4) Note that these projections do not account for the effects of completing the Artesia (Highway 91) freeway.

Figure T-3 shows the 1982 ADT projected for the street and highway network in the vicinity of the site. Also shown are projected 24-hour bus and employee vehicle trips on all access routes to be used to and from the garage. Bus deadhead routing can maximize use of the freeway network in the immediate area. These routes are predominantly major arterials. No bus traffic needs to be routed on South Main, also a major arterial, but one which borders on a residential area about one-half-mile to the east.

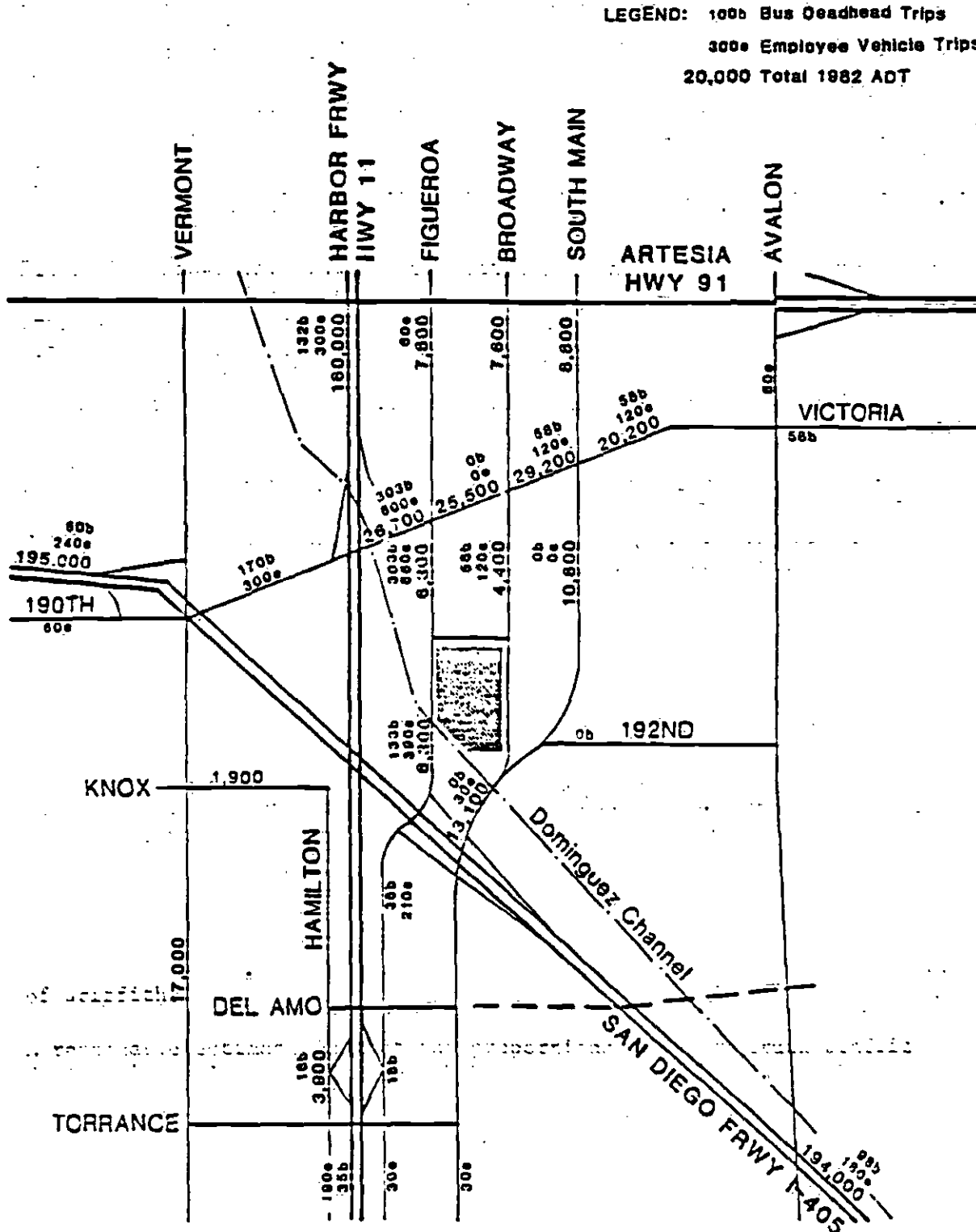
The greatest proportionate impact of the site traffic would be on Figueroa and Broadway south of Victoria - 13.2 percent ADT and 3.9 percent ADT respectively (gross impact). However, there is ample traffic carrying capacity on both these streets. While only about 3.2 percent of ADT (gross impact) on Victoria between Harbor and Figueroa would be generated by the new larger facility, volumes are relatively heavy on this principal freeway access arterial - about 27,000 ADT. About 60 percent of site generated daily traffic would use the critical Figueroa and Victoria intersection; accounting for about 150 bus and 300 employee left-turn movements daily from Figueroa onto Victoria.

Table T-2 shows the estimated site generated traffic levels in comparison to the total project traffic volumes on the key street and highway segments in the vicinity of the site. The three critical hours of the day are examined -- maximum site generated traffic hour (5-6 am), total traffic morning peak (7-8 am), and total traffic afternoon peak (4-5 pm).

Truck traffic as a percentage of total varies from about 5 percent of peak hour on Harbor Freeway to about 11 percent of ADT on Broadway south of Griffith.

A reasonable estimate is that the proportions of heavy truck traffic during the early morning pre-peak hour may be 2 to 3 times higher than peak hour on freeways (about 15%) about twice ADT on arterial (about 25%).

FIGURE 1-3: ESTIMATED 1982 AVERAGE DAILY TRAFFIC (ADT) AND SITE GENERATED 24 HOUR VOLUMES - BUS AND EMPLOYEE VEHICLE TRIPS



SOURCE: De Leuw, Cather & Company; Appendix Tables A-2 & A-4 for 1980 ADT (factored). Two year forecast ADT based on 1.2% annual VMT growth rate projected in LARTS study:1979 - 1987.

Table T-2

PROJECT IMPACT (GROSS) ON STREET SEGMENTS IN VICINITY OF SITE:
PROJECTED HOURLY VOLUMES (1982)

STREET OR HIGHWAY SEGMENT	MAXIMUM SITE GENERATED (5-6 AM)			AM PEAK TRAFFIC (7-8 AM)			PM PEAK TRAFFIC (4-5 PM)		
	Site	Total	%	Site	Total	%	Site	Total	%
Harbor Freeway (N)	65	2,600	2%	25	13,100	.2%	14	14,400	.1%
Victoria Street									
o Harbor-Figueroa	145	400	35%	55	2,440	2.3%	32	2,760	1.2%
o Figueroa-Broadway	0	240	0	0	2,390	0	0	3,060	0
o Broadway-South Main	25	285	9%	10	2,600	.4%	6	3,220	.2%
Figueroa									
o Victoria-Griffith	145	220	66%	55	680	8.0%	32	730	4.4%
o Griffith-San Diego	80	150	53%	30	700	4.3%	18	710	2.5%
Broadway									
o Victoria-Griffith	25	75	33%	10	500	2.0%	6	580	1.1%
o Griffith-South Main	8	55	15%	3	490	.6%	2	565	3.6%

Source: Attachment: Table A-1 through A-4; De Leuw, Cather & Company

Level of Service Considerations

Because of the differential in the peaking patterns of site generated and background general traffic, the peak hour impact of the proposed facility on the two critical streets identified above would be considerably less than suggested by the 24 hour ADT figures. As shown in Table T-2, the maximum number of site generated trips on Victoria would occur from 5-6 am - about 145 trips to and from the garage. During this hour, about 375 vehicles per hour, including site traffic, would be operating on the street. The "worst case" background traffic condition exists between 4-5 pm, when the site would generate only about 32 of the 2690 projected total traffic volume.

Accounting for peak-hour directional distribution of both the background and site-oriented traffic, a summary level of service (LOS) analysis has been made for the critical west and south approaches to the Victoria and Figueroa intersection. The results of this capacity analysis and comparison with worst-case 4-5 pm peak hour approach volumes are shown in Tables T-3 and T-4. This analysis shows that both the net and the gross impact of the project on traffic conditions is very small.

Table T-3
CAPACITY ANALYSIS: ONE-WAY APPROACH VOLUMES

- Victoria Street (East of Figueroa)
3 thru 1 left-turn lane: No parking.
Possible capacity (LOS "E")^a = 4,575 VPH
Adjustment Factors: Green Time @ .45
Truck Adjustment @ .95
Adjusted LOS "E" Capacity = 1,956 VPH
- Figueroa Street (South of Victoria)
2 thru plus 1 left-turn lane: With Parking.
Possible capacity (LOS "E") = 3,130 VPH
Adjustment Factors: Green Time @ .27
Truck Adjustment @ .95
Adjusted LOS "E" Capacity = 830 VPH

Sources: a) HRB Special Report 87, "Highway Capacity Manual - 1965." Figure 10.1, page 294.

Table T-4
LEVEL OF SERVICE DETERMINATION (LOS) FOR CRITICAL STREETS

ALTERNATIVES	SITE VOLUME ^a FULL-OPERATIONS	TOTAL VOLUME ^b 1982	V/C RATIO	LOS ^c
• <u>Victoria Street: Peak Hour (4-5 pm)/Eastbound Approach to Intersection</u>				
1. With no Div. 18	0	1670	.853	Mid-Low "D"
2. Existing Div. 18	10	1680	.859	Mid-Low "D"
3. Proposed Div. 18	24	1694	.866	Mid-Low "D"
• <u>Figueroa Street: Peak Hour (4-5)/Northbound Approach to Intersection</u>				
1. No Div. 18	0	450	.560	High-Mid "C"
2. Existing Div. 18	0	450	.560	High-Mid "C"
3. Proposed Div. 18	24	474	.590	High-Mid "C"

Sources: a) Existing Division 18 site experience and projected bus deadhead and employee vehicle trips (Adjusted upward; one bus trip equated to two passenger cars.)
b) Attachment Tables A-1 through A-4 De Leuw, Cather & Company 1980 counts expanded @ 1.19% annual growth as projected by LARTS Study: 1979-1987.
c) HRB Special Report 87, "Highway Capacity Manual -1965." Figure 10.1, page 294.

Traffic Mitigation Measures and Conditions of Development

Street improvement requirements for the developer of the Griffith Street tract have been set by the Planning Commission, City of Carson.* In addition to street widening, lighting and signing conditions spelled out for Griffith and Broadway, a study to determine suitable control devices for the intersections of Griffith with Figueroa and Broadway will be necessary. Under projected traffic conditions, warrants for signalization of either of these locations are not met.† Consideration should be given to installing reflective advance warning signs ahead of the intersections of Griffith with Figueroa and Broadway. This would advise approaching motorists that buses are entering the highway. Also, speed studies could be conducted in the area to determine the conformance with posted speed limits and to establish the feasibility of lowering the posted speed limit to 35 mph. Roadway design should provide sufficiently large curb radii to permit buses to accelerate quickly from a stopped, right-turning position. Painted pavement tapers in the curbside lane north of Griffith on Figueroa would be desirable to permit buses to reach 20-25 mph as they merge into the through traffic lane.

*Planning Commission, City of Carson, Resolution 79-506, Approving Tentative Parcel Map No. 12318.

†U.S. Department of Transportation, Federal Highway Administration. "Manual of Uniform Traffic Control Devices for Streets and Highways." September 1978.

ATTACHMENT

Table A-1
 TRAFFIC COUNTS UPDATE FACTORS
 USED TO ADJUST AVAILABLE COUNTS TO 1980 VALUES

<u>Year</u>	<u>Annual VMT</u> (in 000,000)	<u>Index</u>
1971	63,996	.732
1972	66,906	.765
1973	70,118	.802
1974	69,026	.790
1975	72,128	.825
1976	76,679	.877
1977	80,604	.922
1978	85,806	.981
1979	86,640	.991
1980	87,428*	1.000

Source: Caltrans Traffic Engineering Section "Accident Data on California State Highways." 1979.

*Unofficial estimate

Table A-2
 TRAFFIC EXPANSION DATA
 USED TO PROJECT 1980 COUNTS TO 1982 (POST FACILITY) VALUES

<u>Year</u>	<u>Daily VMT^a</u>	<u>Annual Growth Rate</u>
1979	193.1 million	-
1987	222.3 million	1.19%
1995	256.7 million	1.19%

Source: LART Study, Travel Forecasts Section, "Trip Assignment Analysis." February 1981.

AVAIL TR-2 CHECKS Street or Highway	Location	Date of Counts	Average Daily Traffic			Morning Peak Hour (AM)				Afternoon Peak Hour (PM)			
			Total	EB (NR)	WB (SB)	Hour	Total	EB (NR)	WB (SB)	Hours	Total	EB (NR)	WB (SB)
San Diego Fwy (I-405)	@ Vermont	1980	190,000	-	-	7:00	16,200	-	-	-	-	-	-
	@ Avalon	1980	187,000	-	-	TR-5% 7:00	16,200	-	-	-	-	-	-
Harbor Fwy (Hwy 11)	@ Artesia	1980	154,000	-	-	TR-5% 7:00	12,600	-	-	-	-	-	-
						TR-6%							
Victoria Street	btwn: Harbor Fw and Figueroa	1/73	20,600	9,800	10,800	7:00	1,847	700	1,147	4:00	2,131	1,300	831
	btwn: Figueroa and Broadway	1/73	19,700	11,700	8,000	7:00	1,821	900	921	4:00	10.3% 2,365	61% 1,580	785
	btwn: Broadway and South Main	9/75	24,261	17,929	11,332	-	-	-	-	4:15	12.0% 2,672	67% 1,822	850
	btwn: South Main and Avalon	9/79	19,300	9,200	10,100	-	-	-	-	-	11.4% 2,045	68% 1,099	946
Broadway	btwn: Victoria and Griffith	1/75	3,430	-	-	7:00	380	163	225	4:00	10.6% 458	54% 358	100
	btwn: Griffith and South Main	8/76	3,560	2,298	1,262	-	-	-	-	-	13.5% -	77% -	-
South Main Street	btwn: 192nd and Broadway	8/76	9,758	4,757	4,401	-	-	-	-	-	-	-	-
	btwn: Broadway and I-405	8/76	11,079	6,867	4,212	-	-	-	-	-	-	-	-
Figueroa Street	btwn: Artesia and Victoria	12/80	7,472	4,171	3,301	7:00	687	408	279	4:00	11.6% 873	53% 458	415

1-10

DE LEUW, CATHER & COMPANY
Engineers
San Francisco, California

Subject: Traffic Counts: Vicinity of Proposed Division 18 Site Date: 3/81 Job No. R3186-00

Source: LA County Road Dept. & Others Made By: Donnelly Checked By: _____ Sheet No. 1 Of 1

Table A-4 1980 BASE VOLUMES Street or Highway	Location	Date of Counts	Average Daily Traffic			Morning Peak Hour (AM)				Afternoon Peak Hour (PM)			
			Total	EB (NB)	WB (SB)	Hour	Total	EB (NB)	WB (SB)	Hours	Total	EB (NB)	WB (SB)
San Diego Freeway (I-405)	@ Vermont	1980	190,000	-	-	7:00	16,200	-	-	-	-	-	-
						TR=5%	8.5%						
	@ Avalon	1980	187,000	-	-	7:00	16,200						
						TR=5%	8.7%						
Harbor Freeway (Hwy 11)	@ Artesia	1980	154,000	-	-	7:00	12,600	-	-	-	-	-	-
						TR=6%							
Victoria Street	btwn: Harbor Fw and Figueroa	1/73	25,700	12,200	13,500	7:00	2,300	870	1,430	4:00	2,660	1,620	1,040
											10.3%	61%	
	btwn: Figueroa and Broadway	1/73	24,600	14,600	10,000	7:00	2,270	1,120	1,150	4:00	2,950	1,970	975
											12.0%	67%	
	btwn: Broadway and South Main	9/75	28,100	14,950	13,100	-	-	-	-	4:15	3,100	2,100	1,000
											11.4%	68%	
	btwn: South Main and Avalon	9/79	19,500	9,300	10,200	7:15	1,990	830	1,160	4:30	2,060	1,110	950
											10.6%	54%	
Broadway	btwn: Victoria and Griffith	1/75	4,160	-	-	7:00	470	200	270	4:00	560	430	130
											13.5%	77%	
	btwn: Griffith and South Main	8/76	4,060	2,620	1,440	-	-	-	-	-	-	-	-
South Main Street	btwn: 192nd and Broadway	8/76	10,440	5,420	5,020	-	-	-	-	-	-	-	-
	btwn: Broadway and I-405	8/76	12,630	7,830	4,800	-	-	-	-	-	-	-	-
Figueroa Street	btwn: Artesia and Victoria	12/80	7,470	4,170	3,300	7:00	690	410	280	4:00	870	460	410
											11.6%	53%	

T-13

City of Carson
701 East Carson Street
Telephone: 830-7600, Extension 330
Relocation
Design Overlay
Redevelopment Project Area #1
Redevelopment Project Area #2

Date _____ CASE NO. _____
Application accepted by _____
FOR CITY TREASURER'S USE
Fee: _____ Receipt No. _____
Received on _____ (date)
By _____

APPLICATION FOR ARCHITECTURAL APPROVAL

(Applicant's Name -- PLEASE PRINT) _____ (Please complete in black ink or type)

(Applicant's Address) _____ Number _____ Street _____

Telephone No. () _____

City _____ Zip _____ Area Code _____

I am hereby requesting architectural approval for the proposed building(s) to be located at:

The following items must be submitted with this application:

1. Twelve (12) copies* of a detailed plot plan, one (1) of which must be in color.
2. Twelve (12) copies* of elevations of the building, one (1) of which must be in color.
3. A statement describing the structural materials and the colors to be used on the buildings(s).
4. 35mm slides showing all angles of the property as well as the specific location of development on the site, and/or the affected buildings. Slides shall also be provided showing the edges of the subject property and abutting public rights-of-way. All slides shall be captioned.
5. A filing fee in the amount of \$100.00.
6. *All plot plans and elevations shall be folded to 8 1/2" x 14" or smaller.

Applicant's Signature

Section 5. The secretary shall certify to the adoption of this resolution and shall transmit copies of the same to the applicant, and the City Clerk.

Section 6. This action shall become final and effective fifteen (15) days after the adoption of this resolution unless within such time an appeal is filed with the City Clerk in accordance with the provisions of the Carson Municipal Code.

Passed, Approved and Adopted this 11th day of September, 1979.

Ellie A. Murphy
CHAIRMAN

ATTEST:

David Calger
SECRETARY

EXHIBIT A

LEGAL DESCRIPTION

Portions of Lots 111, 112, 118, 119 of Tract No. 4671 in the City of Carson, County of Los Angeles, State of California, per Map Book 56, Pages 30 and 31, described as follows:

Commencing at the intersection of the westerly right-of-way line of Broadway 100 feet wide and the southerly right-of-way line of Griffith Street 50 feet wide, thence westerly along the southerly right-of-way line of Griffith Street 842.97 feet; thence southerly along the easterly right-of-way line of Figueroa Street 90 feet wide; thence southeasterly 55 feet along the northwesterly right-of-way line of the Los Angeles County Flood Control District; thence easterly along said Los Angeles County Flood Control District a distance of 37 feet; thence southerly along said Los Angeles County Flood Control District 70 feet more or less; thence southeasterly along said Los Angeles County Flood Control District 233 feet more or less; thence easterly 714.5 feet along the southerly boundary of Lots 112 and 118; thence northerly along the westerly right-of-way line of Broadway 100 feet wide to the point of beginning.

Except therefrom the westerly 12 feet of said described property, and a corner cutoff at the intersection of the easterly right-of-way line of Figueroa Street 90 feet wide and the southerly right-of-way line of Griffith Street 50 feet wide, with a radius of 15 feet and a distance of 23.56 feet.

CONDITIONS

It is recommended that this subdivision, Tentative Parcel Map No. 12318 receive favorable consideration subject to the following conditions:

A. CITY ENGINEERBuilding and Safety Division:

1. The grading plan must be approved prior to filing of a final map.
2. A preliminary soil report is required before grading plan approval.
3. The grading plan shall conform to the approved tentative map.

Design Division

4. The property is subject to inundation and flood hazard.
5. Portions of the property are subject to sheet overflow and ponding.
6. Drainage plans and necessary support documents to comply with the following requirements must be approved prior to filing of a final map:
 - a. Provide drainage facilities to remove the flood hazard to the satisfaction of the City Engineer and dedicate the necessary easements, or
 - b. No building permits will be issued for lots subject to flood hazard until adequate drainage facilities protecting those lots are operable as determined by the City Engineer.
 - c. Eliminate the sheet overflow and ponding or elevate the floors of the buildings with no openings in the foundation walls to at least 12 inches above the finished pad grade.
 - d. Provide for contributory drainage from adjoining properties.
7. Refer to the flood hazard report of the Chief Engineer of the Los Angeles Flood Control District.
8. The storm drain system as shown on preliminary plans is not approved.

Geology Section

9. A geology and/or soil engineering report may be required prior to approval of building or grading plans.

Mapping Division

10. Easements shall not be granted or recorded within areas proposed to be granted, dedicated, or offered for dedication for public streets or highways, or other easements until after the final parcel map is filed with the County Recorder unless such easements are subordinated to the proposed grant or dedication. If easements are granted after the date of tentative approval, a subordination must be executed by the easement holder prior to the filing of the final parcel map.
11. A final parcel map prepared by, or under the direction of, a Registered Civil Engineer or Licensed Land Surveyor must be processed through this Department prior to being filed with the County Recorder.

12. Prior to submitting the parcel map to the City Engineer for his examination pursuant to Section 66450 of the Government Code, obtain clearances from all affected Departments and Divisions including a clearance from the Sub-division Section of Mapping Division of County Engineer for the following mapping items: mathematical accuracy, survey analysis, and correctness of certificates, signatures, etc.
13. Submit a preliminary parcel map guarantee if grants, dedications, or offers of dedication are to be made by certificate on the parcel map. A final parcel map guarantee will be required at the time of filing of the map with the County Recorder.

Waterworks and Utilities Division

14. All lots shall be served by adequately sized water system facilities which shall include fire hydrants of the size and type and location as determined by the Fire Chief.
15. The water mains shall be of sufficient size to accommodate the total domestic and fire flows required for the land division. Domestic flows required are to be determined by the Fire Chief.
16. At the time the final land division map is submitted for checking, plans and specifications for the water system facilities shall be submitted to the City Engineer for checking and approval, and shall comply with the City Engineer's standards.
17. Approval for filing of this land division is contingent upon approval of plans and specifications mentioned above. If the water system facilities are not installed prior to the filing of this land division, the subdivider must also submit a Labor and Materials Bond in addition to either:
 - a. An Agreement and a Faithful Performance Bond in the amount estimated by the City Engineer guaranteeing the installation of the water system, or
 - b. An Agreement and other evidence satisfactory to the City Engineer, indicating that the subdivider has entered into a contract with the serving water utility to construct the water system as required, and has deposited with such water utility security guaranteeing payment for the installation of the water system.
18. There shall also be filed with this Division a statement from the water purveyor indicating that the proposed water mains and any other required facilities will be operated by the purveyor and that under normal operating conditions the system will meet the requirements for the land division.
19. The developer shall file with this Division a statement from the water purveyor indicating that water service will be provided by the water purveyor to each of the lots shown on this land division map.

Environmental Development Division - Sewers

20. Approval of this land division is contingent upon the installation and dedication of local main line sewers and separate house laterals to serve each lot of the land division. The subdivider shall consult the Sewer Design Section of the Department of City Engineer to determine the sewer design requirements.
21. Easements are tentatively required, subject to review by the City Engineer to determine the final locations and requirements.
22. Ordinance frontage charges as determined by the City Engineer shall be paid to the City before filing this land division map.

Environmental Development Division - Sewers (Cont'd.)

23. The discharge of sewage from this land division into the public sewer system will not violate the requirements of the California Regional Water Quality Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

B. FIRE DEPARTMENT

24. Fire Flow. 5000 gallons per minute for 5 hours. This requirement may be modified to the satisfaction of the Fire Department. The water mains in the street fronting this property must be capable of delivering this flow at 20 pounds per square inch residual pressure. A minimum 6" pipe is required for new main installations or extensions.

25. Fire Hydrants: Install seven (7) 6" x 4" x 2 1/2" brass or bronze, conforming to AWWA Standard C503-75 or approved equal. All installations must meet Fire Department specifications, which can be obtained from the Fire Prevention Bureau.

1. West side of Broadway at south property line.
2. North west corner of Broadway and new east/west street.
3. West side of Broadway at property line between Lots 8 and 9.
4. Southwest corner of Broadway and Griffith.
5. Southwest corner of Lot 11.
6. East side of New North/South street 300' south of Griffith.
7. East side of Figueroa at south property line.

b. Upgrade existing hydrant on the south side of Griffith 200' west of Broadway.

Should any questions arise, please call Inspector Al Shriver at 267-2467.

C. HEALTH DEPARTMENT

26. Sanitary sewers shall be used as the method of sewage disposal.

D. PARKS AND RECREATION DEPARTMENT

27. Parkway tree requirements will be determined when the application for a building permit is submitted.

E. SANITATION DISTRICT

28. Although there are no Sanitation District facilities within the subject tract, the sewage flow generated within the development is tributary to the District's Main Street Relief Trunk Sewer, Section 2-C, which has capacity for the anticipated flow. Therefore, this office has no objection to the finalization of the development as shown:

F. OFFICE OF THE COUNTY SHERIFF

29. The project will have no impact on the level of service currently being provided in the area by the Sheriff's Department.

G. PUBLIC WORKS DEPARTMENT

30. Griffith Street shall be improved as follows:

- a. Dedicate 5 feet for street purposes.
- b. A 27 foot radius corner cutoff dedication shall be made at corner of Griffith and Broadway.
- c. Curb and gutter.
- d. Full-width sidewalks (10 feet wide).
- e. Pavement to match existing pavement.
- f. Tree wells (exact number to be determined upon submittal of precise plot plan).
- g. Street lights (exact number to be determined upon submittal of precise plot plan).
- h. Street name signs, traffic warning signs, safety signs, and street striping shall be installed.

PUBLIC WORKS DEPARTMENT (Cont'd.)

31. Driveway location and type shall be approved by the Department of Public Works prior to issuance of a building permit.
32. Street name signs, traffic warning and safety signs, and street striping, will be paid for in cash by the owner. The City will order and install signs. A \$2000.00 cash contribution required for traffic signs and paint.
33. Drainage plans to be checked by Los Angeles County Engineer. Owner shall be required to provide facilities for all run-off. No water may cross over the public right-of-way.
34. Prior to issuance of a building permit, the following is required:
 - a. Certificate of Workers Compensation
 - b. Two (2) sets of plot plans and one (1) set of grading plans. All to be approved by the Los Angeles County Engineer.
 - c. A construction permit before any work in the public right-of-way. Inspection shall be by LA County Road Department.
 - d. An excavation permit is required for all excavation within the public right-of way. Inspection shall be by City of Carson.
35. Paper Bonds shall be acquired through the Los Angeles County Engineer.
36. Broadway shall be improved as follows:
 - a. A 27 foot radius corner cut-off dedication shall be made at intersection of proposed new street and Broadway.
 - b. Curb and gutter and 10 foot wide sidewalk shall be installed.
 - c. Pave-out to match existing pavement.
 - d. Tree wells and street lights shall be provided (exact numbers shall be determined upon submittal of precise plot plans).
 - e. Street name signs, traffic warning signs, safety signs, and street striping shall be installed.
37. Driveway location and type shall be approved by the Department of Public Works prior to issuance of a building permit.
38. Street name signs, traffic warning and safety signs, and street striping will be paid for in cash by the owner. The City will order and install signs.
39. Drainage plans to be checked by Los Angeles County Engineer. Owner shall be required to provide facilities for all run-off. No water may cross over the public right-of-way.
40. Prior to issuance of a building permit, the following is required:
 - a. Certificate of Workers Compensation
 - b. Two (2) sets of plot plans and one (1) set of grading plans. All to be approved by the Los Angeles County Engineer.
 - c. A construction permit before any work in the public right-of-way.
 - d. An excavation permit is required for all excavation within public right-of-way. Inspection shall be by City of Carson.
41. Paper Bonds shall be acquired through the Los Angeles County Engineer.
42. The proposed two (2) new streets shall be improved as follows:
 - a. Corner cut-off dedication is required at intersection of new street with Griffith Street.
 - b. Curb and gutter and full-width (8 feet wide) sidewalk on one side of new streets.
 - c. Width of new streets shall be determined by the Public Works Director. The width shall be either 64 feet or 50 feet.
 - d. Tree wells and street lights (Exact number to be determined upon submittal of precise plot plans).
 - e. Street name signs, traffic warning signs, safety signs, and street striping shall be installed.

PUBLIC WORKS DEPARTMENT (Cont'd.)

43. Driveway location and type shall be approved by the Department of Public Works prior to issuance of a building permit.
44. Street name signs, traffic warning and safety signs, and street striping, will be paid for in cash by the owner. The City will order and install signs.
45. Drainage plans to be checked by Los Angeles County Engineer. Owner shall be required to provide facilities for all run-off. NO water may cross over the public right-of-way.
46. Prior to issuance of a building permit, the following is required:
 - a. Certificate of Workers Compensation
 - b. Two (2) sets of plot plans and one (1) set of grading plans. All to be approved by the Los Angeles County Engineer.
 - c. A construction permit before any work in the public right-of-way.
47. Paper Bonds shall be acquired through the Los Angeles County Engineer.
 - a. Street construction plans shall be checked and approved by LA County Road Department.
 - b. All excavation plans shall be checked and approved by LA County Road Department - Sewer and Drain plans shall also be checked and approved by LA County Engineer.

H. COMMUNITY DEVELOPMENT DEPARTMENT

48. Provide for the undergrounding of new utilities in accordance with the requirements of the Subdivision Ordinance.
49. That the requirement for a 64 foot wide street, as required by Section 9205.6(c) of the Subdivision Ordinance, is modified to 60 feet, under the provisions of Section 9203.12, due to existing dedication requirements.
50. Minor lot line adjustments may be made to the satisfaction of the Community Development Director and Public Works Director prior to final approval of the map by the City Council.
51. Show all existing and/or proposed easements on the final map.
52. All existing structures on the premises shall be demolished or removed prior to obtaining building permits.
53. That this tentative parcel map shall be recorded with the County Recorder within one year of the date of approval of the tentative map by the Planning Commission of the City of Carson.
54. That the applicant shall comply with all City, County, State and Federal laws and regulations applicable to this land division and not specified elsewhere in these pages.

813.4

Los Angeles County Flood Control District

MEMORANDUM

TO: Mr. K. Oshiro
Construction

DATE: 8-7-80

FROM: CHET CAMPBELL
District Inspector

File No. 2-15.40
No. 80098-A - P.O.# 1564
Name SHAZEL MAP # 12318
Inspection of Transfer Drain - Deficiencies

On 8-5-80, an inspection was performed on the subject project. Upon correction of all deficiencies noted below, a final inspection will be made. ALL DEFICIENCIES OF REPORT DATED 7-10-80 HAVE BEEN CORRECTED.
The underground crew (was) (was not) used.

Remarks: THE ENTIRE MAIN LINE & CONNECTORS + C.B.'S ARE EXCEPTABLE EXCEPT AS FOLLOWS
#1 - NO LOCAL DEPRESSIONS HAVE BEEN CONSTRUCTED AT E-TAX C.B. #2 YET ON WEST SIDE BROADWAY AVE

#2 M.H. #2 @ STA. 3+02 - Ring & COVER IS 0.65' HIGHER THAN PLAN ELEV. - STREET IS NOT PAVED

#3 M.H. #4 @ STA. 6+56 - Ring & COVER IS 0.40' HIGHER THAN PLAN ELEV. - STREET IS NOT PAVED YET

A STEP WILL BE REQUIRED DIRECTLY UNDER RING'S COVER'S

A copy of this memorandum was given to: KEVIN KETCHUM
THOMAS PROPERTIES

A copy of this memorandum should be sent to: Present at Inspection

- Mr. John LOURENSKY, of the BELL FLOWER OFFICE County Engineer's office Yes No
- Mr. William SATO, of the County Road Department Yes No
- Mr. _____, of _____ Yes No
- Mr. _____, of _____ Yes No

Signed: Chet Campbell
District Inspector

Tire Change

- o Two events with duration of 600 seconds
- o Maximum noise level at 1,200 feet is 56 dBA
- o Ambient noise level is 51 dBA

$$L_{eq} = 51 + 10 \log \left[\left(1 - \frac{600}{3600}\right) + \frac{600}{3600} 10^{\frac{56-51}{10}} \right]$$

$$L_{eq} = 51 + 1.3$$

$$L_{eq} = 52.3$$

- o Maximum noise level produced at 1,200 feet is 56 dBA
- o Ambient noise level is 51 dBA

GRUEN ASSOCIATES

ARCHITECTURE · PLANNING · ENGINEERING

DANIEL M. BRANIGAN, AIA
WILLIAM H. DAHL, AIA
KURT FRANZEN, AIA
HERMAN GUTTMAN, AIA
ABBOTT HARLE, AIA, ASID
KI SUH PARK, AIA, AICP
ALLEN M. RUBENSTEIN, ASCE
BEN H. SOUTHLAND, AIA, AICP
BEDA ZWICKER, AIA

April 7, 1981

Ms. Barbara Beroza
Survey Archaeologist
Institute of Archaeology
University of California at Los Angeles
405 Hilgard
Los Angeles, California 90024

Dear Ms. Beroza:

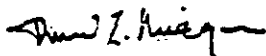
As a follow-up to our conversation today, I would like to request a records check on the archaeological significance of the parcel of land described in the attached plans and located in Carson, California.

The site is approximately 13.3 acres in size and is located between Figueroa and Broadway, adjacent to the Dominguez Channel of the East Basin of Los Angeles Harbor. A soils report prepared by LeRoy Crandall and Associates indicated that the site was at one time part of a marsh, but that it has subsequently been filled to a depth of approximately 25 feet (summary attached). The site has been proposed by the Southern California Rapid Transit District as a bus operations and maintenance facility to replace the existing facility located at 777 West 190th Street in Los Angeles (approximately $\frac{1}{2}$ mile west of the proposed site).

We are in the process of preparing an Environmental Assessment for this proposed site and would appreciate very much your comments on potential archaeological impacts that would be created by the construction of this facility. Please call me if you should require any further information that can assist you in making this determination.

Sincerely,

GRUEN ASSOCIATES



David L. Mieger
Planner

DLM:a
Enclosures

S. C. R. T. D. LIBRARY



Gruen Associates
6330 San Vicente Blvd.
Los Angeles, CA 90048

April 20, 1981

Attention: David L. Mieger, Planner
RE: R.T.D. Bus Operations and Maintenance Facility, Carson
(U.S.G.S. Ref: Torrance 7.5')

Dear Mr. Mieger:

Pursuant to your request of April 7, 1981, I have checked records on file at the Survey relevant to the above-referenced parcel, also indicated on the enclosed map.

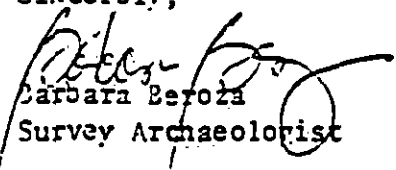
Our records indicate that the subject property has not been previously systematically surveyed for archaeological remains. Although no well-documented archaeological sites have been recorded within the boundaries of the subject parcel, it is within an area known to have contained traces of prehistoric occupation. A researcher actively involved in recording sites in the greater harbor district in the late 1950's noted "a number of small camp remains around the borders of the Lagunas de los Dominguez" (Racer 1959:7). The remains of this slough are now represented by the Dominguez Channel, which borders the subject parcel on the southwest. Racer also reported a nearby concentration of prehistoric habitation remains alongside the slough, now referred to as archaeological site LAn-88. Two other archaeological sites have been reported within two kilometers of the property, and three additional sites are located within four kilometers of it.

A check of the historic topographic maps for this area did not show record of historic structures within the boundaries of the parcel on the 1896 and 1944 editions of the Redondo 15' map. A check of the National Register and the California Inventory of Historic Resources was also negative for the subject parcel.

Because there is no record of the subject property being previously surveyed by archaeologists, and the map prepared by soils engineers for the parcel submitted with your request letter indicated that approximately 1/3 of the parcel consists of natural soil (as opposed to fill), we are unable to clear the property for development without a field reconnaissance report prepared by a qualified archaeologist which addresses the issue of possible extant prehistoric or historic remains on the property.

Should you have any questions regarding this records check, do not hesitate to contact me at the Survey.

Sincerely,


Barbara Beroza
Survey Archaeologist

Reference: F.H. Racer Camp Sites in the Harbor
District, manuscript report, 1939